
DYNAMIC REPORT SYSTEM

V1 R3.4

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Summary of Enhancements

DRS

The following table contains the fix number assigned to major DRS enhancements and/or fixes. Select the link for the fix to read the description.

| DRS V1 R3.4 Fixes: | |
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| DRS V1 R3.4.045 (06/30/2003) | page xiv |
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| DRS V1 R3.4.090 (06/22/2005) | page xvii |

DRS V1 R3.4.034 (03/28/2003)

- Updates to allow TPUT message feedback for DRS commands entered through DMCF.

Many modules and macros in DRS will be source changed to add this capability.

This fix is not available as a zap. Customers who need this fix should contact LRS to request updated product distribution materials.

VMCF V1R8.1 fix 8.1.065 and DMCF V1R1.0 fix 1.0.007 should also be applied.

DRS V1 R3.4.045 (06/30/2003)

- Various S0C4 abends and storage corruption can occur after a CPU restart.

Storage in the DRS/VPI address space is corrupted when processing an LRSQueue request after a CPU restart. The corruption will cause extensive damage to storage cell pools and will result in various S0C4 abends, requiring reload of DRS/VPI address space.

The corruption occurs after a CPU restart which alters the contents of low storage at offset +08. Two DRS modules were inadvertently accessing this storage due to incorrectly coded instructions.

Modules DV34TCPA and DV34TPRT will be zapped to correct the offending instructions.

DRS V1 R3.4.051 (08/07/2003)

- Enhancement to allow multiple DRS/API product keys per product within the DRSSKEY module.

This fix is not available as a zap. Customers who need this fix should contact LRS to request updated product distribution materials.

DRS V1 R3.4.053 (08/27/2003)

- Customers have a requirement to identify and monitor DRS virtual printers using a long printer name. Currently, DRS/VPI only allows the user to identify virtual printers by the member name, which is a maximum of 8 characters long.

A new printer keyword, PRTNAME=, has been added to allow the customer to specify a long printer name for each DRS/VPI printer. This new keyword can contain a maximum of 32 characters of any value.

In addition, A new DRS printer status message, DRSV985R, has been created to display the new PRTNAME= keyword value.

This fix is not available as a zap. Customers who need this fix should contact LRS to request updated product distribution materials.

DRS V1 R3.4.058 (10/29/2003)

- Job name substitution fails if using an LPD control file record value for jobname substitution and the value contains periods or other values that are not alphanumeric or national.

This fix will introduce a new option for the second subfield of the ERRACTN keyword that will allow truncating the remainder of the value to be moved to the jobname field if there is any byte which would be invalid after symbolic substitution is complete. The jobname value will be truncated starting with the first invalid byte.

The second subfield of the ERRACTN keyword can now be specified as:

EDRAIN - EDRAIN printer if jobname not valid
IGNORE - Ignore jobname if jobname not valid
TRUNCATE - Truncate jobname at first invalid byte

- This fix will also correct the following problems:
 1. The virtual printer is not EDRAINED, even if the jobname is invalid and the ERRACTN keyword specified to EDRAIN the printer.
 2. The DRSV101N message shows values from the primary DRIB, even if the alternate DRIB was used to create the print file.

DRS V1R3.4 fix 3.4.053 is a prerequisite to this fix.

DRS V1 R3.4.071 (05/25/2004)

- A customer wants to keep TCP/IP print queues active after they have been dynamically activated and/or dynamically defined. This fix will provide an enhancement to allow the option of bypassing inactivation of TCP/IP print queues which were dynamically activated and/or dynamically defined based on the AUTOACT=(Y,Y) keyword.

Module DV34DISP will be zapped to check USEROPTS=xx8xxxxx to decide if a dynamically activated TCP/IP print queue should or should not be automatically inactivated when the print file being received is complete. If USEROPTS=xx8xxxxx is set, the printer member will remain active until DRS/TCPIP is shut down or until the INACTIVATE command is issued for that TCP/IP print queue.

DRS V1R3.4 fix 3.4.034 is a prerequisite.

DRS V1 R3.4.076 (09/23/2004)

- Enhancement to allow the LRSQ client to specify the USERID that should be used as the originating OWNER of the SYSOUT dataset. LRSQ clients require the capability to specify the USERID that should be used as the originating OWNER of the SYSOUT dataset. Currently, DRS only allows the USERID to be modified for COMMTYPE=(,VPSQ) type connections.

Module DV34LRQ1 will be updated to allow LRSQ clients to specify the USERID (SYSOUT OWNER) for the following types of connections:

COMMTYPE=(,ANYQUEUE)
COMMTYPE=(,LRSQ)
COMMTYPE=(,SAP)

DRS V1R3.4 fix 3.4.056 is a prerequisite to this fix.

DRS V1 R3.4.078 (10/20/2004)

- Update DRS/TCPIP for VPSX. VPSX will send files in ASCII with CR/LF instead of sending files in EBCDIC as ANYQUEUE would do.

A number of modules will be zapped and some macros have been changed in source for this fix.

DRS V1R3.4 fix 3.4.0056 is a prerequisite.

LRS Common V1R1.2 fix 1.2.0019 is a co-requisite.

DRS V1 R3.4.080 (01/18/2005)

- Write a new trace record that contains the length and the first twelve bytes of the DRS/NATURAL print record which will be sent in a 'PUT' request to DRS/API.

A new user trace entry with an identifier of 'PD' will be written with the length and the first 12 bytes of the print (including CC) of print data. TRACE=YES must be specified in DRSNSDEF to get this trace entry.

- Allow DRS/NATURAL to ignore print requests from NATURAL with a zero length record.

IF USEROPTS=X1XXXXXX is specified in DRSNSDEF we will bypass the DRS/API 'PUT' call if the record length passed from NATURAL is zero.

DRS V1R3.4 fix 3.4.0070 is a prerequisite.

DRS V1 R3.4.083 (03/29/2005)

- Add new keywords to support IBM mail output JCL keywords for DRS/API, DRS/VPI AND DRS/TCPIP:

MAILBCC
MAILCC
MAILFILE
MAILFROM
MAILTO
REPLYTO

- Add new keyword to support setting a maximum record limit for reports received by DRS/VPI and DRS/TCPIP.
- Possible overlay causing invalid message data or other errors due to expansion of \$VMSG macro with MF=L. For example, the DRSV960R message displays incorrect output reference member name.
- Exits are not passed the COMMTYPE of VPSX.
- Possible abend S0C4 when processing a null buffer.
- Accept VPB may have incorrect defaults or be displayed incorrectly.
- After DRS fix V1R3.4.0048, message DRSV291E is issued when attempting to process a SYSOUT dataset with a form name that exceeds 4 characters.
- Second file sent on LRSQUEUE connection is processed incorrectly if first file was AFPDS and second file is not AFPDS.

A number of modules have been source changed to include these fixes.

This fix is not available as a zap. Customers who need this fix should contact LRS to request updated product distribution materials.

DMCF V1R1.0 fix 1.0.0037 is a co-requisite.
LRS Common V1R1.2 fix 1.2.0022 is a co-requisite.
LRS MVS/Server V1R8.0 fix 8.0.0258 is a co-requisite.
LRS Net V1R1.0 fix 1.0.0094 is a co-requisite.
VPS V1R8.0 fix 8.0.0665 is a co-requisite.
VMCF V1R8.1 fix 8.1.0161 is a co-requisite.

DRS V1 R3.4.087 (04/14/2005)

- Add support for MGCRE macro interface in place of SVC 34.

Module DVSSUE10 will be source updated to use the MGCRE macro instead of issuing SVC 34 directly.

This fix is not available as a zap. Customers who need this fix should contact LRS to request updated product distribution materials.

DRS V1 R3.4.089 (06/22/2005)

- Support DRS and VPS control files which have record lengths which exceed 80 bytes. There are 2 cases that currently only support files with LRECL=80.
 1. DRS/TCPIP has a conversion program which reads the LPSERVE definition file and builds the DRS/TCPIP members. This program expects the DRS control file to have LRECL=80.
 2. DRS/STI (Smart Tag Interface) has a batch job which reads the VPS and/or DRS control file and populates the Smart Tag database. The programs which read the control files expect them to have LRECL=80. However, both VPS and DRS support control files with record lengths from 80 to 128 bytes.

In addition, the Smart Tag Interface modules which load and propagate the RULES database do not support some OUTPUT JCL keywords.

A number of modules have been source updated for this fix.

This fix is not available as a zap. Customers who need this fix should contact LRS to request updated product distribution materials.

DRS V1 R3.4.090 (06/22/2005)

- Support decrypting when receiving encrypted print files created by the LRSQUEUE command.

A number of source modules and macros have been changed for this fix.

This fix is not available as a zap. Customers who need this fix should contact LRS to request updated product distribution materials.

DRS V1R3.4 fix 3.4.0083 is a prerequisite.

LRS OS/API V1R1.2 fix 1.2.0023 is a co-requisite.

VPS V1R8.0 fix 8.0.0694 is a co-requisite.

LRS/Queue

The following table contains the fix number assigned to major LRS/Queue enhancements and/or fixes. Select the link for the fix to read the description.

| LRS/Queue V1 R1.0 Fixes: | |
|---------------------------------------|------------|
| LRS/Queue V1 R1.0.000 | page xix |
| LRS/Queue V1 R1.0.001 | page xix |
| LRS/Queue V1 R1.0.002 | page xix |
| LRS/Queue V1 R1.0.003 | page xix |
| LRS/Queue V1 R1.0.004 | page xix |
| LRS/Queue V1 R1.0.005 | page xix |
| LRS/Queue V1 R1.0.006 | page xix |
| LRS/Queue V1 R1.0.007 | page xix |
| LRS/Queue V1 R1.0.008 | page xix |
| LRS/Queue V1 R1.0.009 | page xx |
| LRS/Queue V1 R1.0.010 | page xx |
| LRS/Queue V1 R1.0.011 | page xx |
| LRS/Queue V1 R1.0.012 | page xx |
| LRS/Queue V1 R1.0.013 | page xxi |
| LRS/Queue V1 R1.0.014 | page xxi |
| LRS/Queue V1 R1.0.015 | page xxi |
| LRS/Queue V1 R1.0.016 | page xxi |
| LRS/Queue V1 R1.0.017 | page xxi |
| LRS/Queue V1 R1.0.018 | page xxi |
| LRS/Queue V1 R1.0.019 | page xxii |
| LRS/Queue V1 R1.0.020 | page xxii |
| LRS/Queue V1 R1.0.021 | page xxii |
| LRS/Queue V1 R1.0.022 | page xxii |
| LRS/Queue V1 R1.0.023 | page xxii |
| LRS/Queue V1 R1.0.024 | page xxiii |
| LRS/Queue V1 R1.0.025 | page xxiii |
| LRS/Queue V1 R1.0.026 | page xxiii |

LRS/Queue V1 R1.0.000

- LRS/Queue is a new product. It runs under Windows, AIX, HP-UX, Sun Solaris, and IBM Unix System Services. It's primary function is to transfer files into AnyQueue or DRS. See the AnyQueue or DRS manuals for specific information.

LRS/Queue V1 R1.0.001**Enhancements:**

- DRSMerge flag default changed to 'Y'.

LRS/Queue V1 R1.0.002**Fixes:**

- HP-UX and Sun version where attempting to load the wrong communication shared library.

LRS/Queue V1 R1.0.003**Enhancements:**

- Variable "FileType" has been added to allow specifying the binary files type to the target.

LRS/Queue V1 R1.0.004**Enhancements:**

- Variable "FixedRecLen" has been added to allow specifying files that have no ASCII carriage controls.

LRS/Queue V1 R1.0.005**Enhancements:**

- Beta versions for S390 Linux and AS/400 have been created.

Fixes:

- LRS/Queue now only returns 0 if successful.
- Alphanumeric fields on ASCII platforms were not allowing numerics.

LRS/Queue V1 R1.0.006**Fixes:**

- Some fields returned during a query were incorrectly displayed.
- The source platform TCPIP address was being set in reverse order for ASCII based Unix platforms.

LRS/Queue V1 R1.0.007**Fixes:**

- When Form is longer than 4 characters it will be considered an Output keyword instead of a SYSOUT keyword.

LRS/Queue V1 R1.0.008**Enhancements:**

- Version to support LRS Port Monitor on Windows.

LRS/Queue V1 R1.0.009

Enhancements:

- LRS Port Monitor will now set the user name that is sent to DRS for tracking to the owner of the print job.
- LRS Port Monitor - The data type field on this configuration screen will set the /PRMODE advanced option to the same value that is entered in the data type field.

Fixes:

- Port Monitor was not processing the carriage control flag of C correctly (/CC=C). If the /CC flag is set to a "C" then the Port Monitor was not creating ASA carriage control from the ASCII carriage control.
- LRS/Queue will now truncate keyword values if being ran through the Port Monitor.

LRS/Queue V1 R1.0.010

Fixes:

- Installation problem on UNIX versions. An incomplete **LRSQ** script file was being created.

LRS/Queue V1 R1.0.011

Fixes:

- Port Monitor installation problem on Windows 2003 server. A VB Script error happened when installing LRS Port Monitor on a Windows 2003 Server.
- Removed warning when installing LRS/Queue on AIX version 5.X.

LRS/Queue V1 R1.0.012

Enhancements:

- If LRS/Queue returns an error (non-zero return code), the command line will be displayed or logged in the log file if a valid /LogFile keyword was supplied. **Note:** If the command line is longer than 475 bytes, only the first 475 bytes will be displayed or logged.

Fixes:

- LRS/Queue was converting all JES keywords to uppercase characters. The following keywords should allow lowercase characters to be entered:

Address1-4
Building
Dept
LongDest
Name
PrtOptns
PrtQueue
Room
Title
Udata1-16

LRS/Queue V1 R1.0.013

Enhancements:

- Added support for default parmfile. The default parmfile name is **lrsqdfit** and should be located in the same directory that the **lrsq** executable is running from. However, you can override the name and location by specifying an environmental variable of **lrsqdfit=<full path to parmfile>**.
- Added new keyword **/Owner** to set Owner field when sending to DRS. **Note:** DRS R3.4 fix 076 is needed to process this keyword and set the originating owner of the SYSOUT dataset.

LRS/Queue V1 R1.0.014

Enhancements:

- Changed default of **/Translate** keyword to 'N' if destination is VPS/X and LRS/Queue is running on an ASCII platform.
- When sending a text file to VPS/X the file is sent as binary text so all original carriage control bytes will be sent.

LRS/Queue V1 R1.0.015

Fixes:

- LRS/Queue program files and shared libraries (UNIX and Linux versions only) will forcefully be installed in "lrs/lrsq" and "lrs/slib" directories respectfully.

LRS/Queue V1 R1.0.016

Enhancements:

- Added keyword **/PageCount** to allow user to set page count from the command line. If the file is text and the user specified PageCount then the value specified by the user overrides what LRS/Queue calculates for PageCount.

Fixes:

- Removed informational log message that a parmfile is being processed. When used with SAP the echo of this message to STDOUT would cause a processing error for SAP.

LRS/Queue V1 R1.0.017

Enhancements:

- Support for the new UNIX install script **lrsinst**. To use the new install, run **lrsinst** from the product CD root directory and select **lrsq** from the menu and follow the instructions on the screen.

Fixes:

- SAP response flags were incorrect for query return codes 16 & 20.

LRS/Queue V1 R1.0.018

Enhancements:

- Support for HP-UX IA64 (Itanium). **Note:** To install LRS/Queue on an HP-UX Itanium machine you must use the new **lrsinst** script and select **lrsq** from the menu.

Fixes:

- Added number of jobs in queue to SAP responses.
- SAP response was missing if print file was not found.

LRS/Queue V1 R1.0.019

Enhancements:

- Added new keywords **/AltServer** and **/AltPort**. If these are specified and there is an error connecting to the original server and port then we will try this alternate Server and/or port.

Fixes:

- Fixed handling of status code 3 for non-SAP queries.
- Removed extra escape space in SAP response message for status code 3.

LRS/Queue V1 R1.0.020

Enhancements: (Port Monitor)

- Increased size for +DOCUMENTNAME from 60 bytes to 512 bytes. Also increased size of +NOTIFYNAME and +OWNERNAME from 60 bytes to 256 bytes.

Note: Still limited based on largest output variable being 60 bytes; however, you can refer to portions of these variables in the form of:
<Variable Name>(<start offset:Length>)

Example:

```
/UDATA1:+DOCUMENTNAME(1:60)
/UDATA2:+DOCUMENTNAME(61:60)
/UDATA3:+DOCUMENTNAME(121:60)
```

LRS/Queue V1 R1.0.021

Enhancements:

- Added support for Sun Solaris 10 on Intel platform.
- If sending data to VPSX then LRS/Queue no longer counts lines and pages because VPSX will take care of the counts.

LRS/Queue V1 R1.0.022

- Added mail keywords: MailTo, MailCc, MailBcc, MailFrom, MailFile, MailCharSet, MailReply, NotMail, and NotLevel. MailTo, MailCc, and MailBcc can handle up to 32 email addresses by separating the addresses with a semicolon (;). Each address must be 60 bytes or smaller.

Example: /MailTo=john.smith@test.com;jane.doe@test.com

- Added option to encrypt data being transferred. One of the following is needed to receive encrypted data:

```
DRS      V1 R3.4 fix level 90 and DRS Secure
VPSX     V1 R1.0 fix level 10
AnyQueue 1.2.50 and AnyQueue Secure
```

LRS/Queue V1 R1.0.023

- Added support for HP Tru64 UNIX.

LRS/Queue V1 R1.0.024

Enhancements:

- Added keyword /Removelff. If the keyword is set to a 'Y' and the input data has ASA carriage control or LRSQueue is creating ASA carriage control from ANSI carriage control (/cc=C) and the last byte is a form feed, the form feed will NOT be sent.

Fixes:

- The operating system name sent in the BDS would have contained a "?" when running on a Windows 2003 server.

LRS/Queue V1 R1.0.025

Enhancements:

- Added keyword /TabStop. If the keyword is set to 'Y' and /TabSize is set to something other than 0 then the number of spaces between tab stops is indicated by the /TabSize keyword. When a TAB character is encountered, the correct number of spaces will be added to get to the next TabStop. Default for /TabStop is N.

Fixes:

- Fix /TabSize keyword to add correct number of spaces if TAB character is encountered and the file is being processed as text. If new keyword /TabStop=Y then the TabSize keyword indicates the number of spaces between each tab stop. If TabSize is set to 0 the TAB characters will be passed on to the destination. Default for /TabSize is 0.

LRS/Queue V1 R1.0.026

Enhancements:

- Added support for new VPSX query responses and SAP query responses.
- If destination is VPSX, new translate tables will be used to help support more national characters. New tables are ISO8859toIBM1047 and IBM1047toISO8859.



Section 1 Overview

The Dynamic Report System, hereafter referred to as DRS, provides an effective means of routing reports from batch jobs, online applications (i.e., CICS, IMS, IDMS, etc.), Local Area Networks, and remote TCP/IP hosts to the JES2 or JES3 spool, to a DASD file on the MVS host system, or to a UNIX HFS file.

The reports are standard SYSOUT, DASD, or HFS datasets. They can be fixed, variable, or undefined format, blocked or unblocked. They can have ASA, machine, or no carriage control. SYSOUT datasets can have standard JES dataset attributes, such as class, destination, form name, writer name, FCB, UCS, hold/nohold, copies, etc. In addition, AFP attributes (e.g., PAGEDEF, FORMDEF, etc.) can be assigned to the SYSOUT reports by referencing OUTPUT JCL statements. The OUTPUT JCL statements can either be placed in the JCL or created dynamically by DRS.

DRS requires MVS/XA or MVS/ESA. MVS/370 is no longer supported.

The following sections briefly describe the various components of DRS. Note that DRS/API and DRS/VPI are standard components of the DRS product. DRS/Natural, DRS/OutputManager, DRS/PC, DRS/SAPR2, DRS/Secure, DRS/STI, and DRS/TCPIP are additional products that can be purchased.

DRS/API

The DRS Application Programming Interface (DRS/API) allows programs to invoke DRS directly to create reports dynamically. The programs that call the DRS/API may be running in a CICS or non-CICS environment. The reports are available for printing immediately; it is not necessary to shut down the CICS or non-CICS system to obtain the report.

Storage Estimates

Below 16M line: 2048 +
(360 * #actrpts) +
((8 + BLKSIZE) * #actrpts)

Above 16M line: 12064 +
(4096 * #spttasks) +
(3288 * #actoref)

CSA: DRS/API does not directly allocate any storage from CSA or ECSA.

- **#actoref** is the number of OUTPUT JCL statements that DRS/API has dynamically created.
- **#actrpts** is the number of active DRS reports. “Active” means “allocated and open”.
- **#spttasks** is the number of support subtasks that are currently processing DRS requests. Refer to [“Customizing the DRS System Options” on page 20.9](#) for more information on specifying the number of DRS support subtasks.

DRS/VPI

The DRS Virtual Printer Interface (DRS/VPI) intercepts output from VTAM applications such as CICS, IMS, IDMS, etc. DRS/VPI supports printer session types of LU-0, LU-1, and LU-3. For LU-0 and LU-3, the Data Stream Compatibility (DSC) buffer format is supported. For LU-1, the SNA Character Set (SCS) buffer format and Intelligent Printer Data Stream (IPDS) format are supported.

Print buffers received by DRS/VPI are transformed into print lines containing ASA carriage control. The print files received by DRS/VPI can be placed on the JES spool, in a DASD dataset, or both. Note that up to four separate SYSOUT datasets can be created, each with unique SYSOUT characteristics, for each print file received.

Storage Estimates

Below 16M line: 23K +
(624 * #actvprt)

Above 16M line: 227K +
((#maxvtam + #maxtcp + 64) * 3072) +
(396 * #maxvtam) +
(37K * #actvprt) +
(3840 * #actvtam) +
(3256 * #actoref) +
(4K * #trpages)

CSA: (numbufs * 160)

- Since DRS/VPI invokes DRS/API when creating reports, you must also include the DRS/API storage estimates when calculating the amount of storage required for DRS/VPI.
- **#actoref** is the number of OUTPUT JCL statements that DRS/VPI has dynamically created.
- **#actvprt** is the number of active VTAM and TCP/IP virtual printers.
- **#actvtam** is the number of active VTAM virtual printers.
- **#maxtcp** is the maximum number of TCP/IP virtual printers. This value is specified in the MAXPRTS keyword in the System Initialization member.
- **#maxvtam** is the maximum number of VTAM virtual printers. This value is specified in the MAXPRTS keyword in the System Initialization member.
- **numbufs** is the number of subsystem command buffers specified as the third subparameter of the SSI system keyword.
- **#trpages** is the number of trace table pages. This value is specified in the TRACE keyword in the System Initialization member.

DRS/TCPIP

DRS/TCPIP allows print files to be received from remote TCP/IP hosts using LRS-defined (LRSQUEUE) protocols or LPR/LPD protocols. DRS/TCPIP executes in the DRS/VPI address space and listens for connections from remote hosts. As print files are received, they are placed on the JES spool, in a DASD dataset, or in an HFS file, based on the options specified in the virtual printer definition. By default, DRS/TCPIP listens for connections on port 515, which is the standard 'well-known' port for Line Printer Daemon.

Storage Estimates

Below 16M line: $(1024 * \#acttcp) +$
 $(QBUFSIZE * \#acttcp)$

Above 16M line: $768 +$
 $(4K + RBUFSIZE + SBUFSIZE * \#contcp)$
 $(19K + QBUFSIZE * \#conlpd)$
 $(1K * \#conlrsp)$
 $(21K * \#acttcp)$

CSA: DRS/TCPIP does not directly allocate any storage from CSA or ECSA.

- Since DRS/TCPIP executes within the DRS/VPI address space, you must also include the DRS/VPI storage estimates when calculating the amount of storage required for DRS/TCPIP.
- **#acttcp** is the number of active TCP/IP virtual printers.
- **#contcp** is the number of TCP/IP connections active (LPD and LRSQUEUE).
- **#conlpd** is the number of TCP/IP LPR/LPD connections active.
- **#conlrsp** is the number of TCP/IP LRSQUEUE connections active.
- **RBUFSIZE** is the receive buffer size from the BUFSIZE printer keyword.
- **SBUFSIZE** is the send buffer size from the BUFSIZE printer keyword.
- **QBUFSIZE** is not necessary for TCP/IP LPR/LPD connections if the control file is received before the data file or if the printer options specify to ignore the control file.

DRS/STI

The DRS Smart Tag Interface (DRS/STI) allows reports destined for the same virtual printer to be routed to the JES spool with different SYSOUT characteristics, including different AFP characteristics. DRS/STI improves the usability of DRS/VPI by dramatically reducing the number of virtual printer definitions. DRS/STI maintains a VSAM database containing information on both where and how the report is to be printed, faxed, e-mailed, etc. Vendor and legacy applications interface to DRS/STI to retrieve the appropriate SYSOUT characteristics prior to the actual sending of the report to the virtual printer.

Storage Estimates

Below 16M line: 512 (system file control block)

Above 16M line: 11K

CSA: DRS/STI does not directly allocate any storage from CSA or ECSA.

- Since DRS/STI executes within the DRS/VPI address space, you must also include the DRS/VPI storage estimates when calculating the amount of storage required for DRS/STI.

DRS/SAPR2

The DRS/SAPR2 interface is a direct interface from SAP R2 applications to the JES spool. It enables any existing SAP R2 application running in CICS to create a report on the JES spool without any application changes.

Storage Estimates

Below 16M line: None

Above 16M line: (9K +
maxlrecl) *
#trans

CSA: DRS/SAPR2 does not directly allocate any storage from CSA or ECSA.

- **maxlrecl** is the value specified as MAXLRECL in the DRS/SAPR2 default module (DPSSSDEF).
- **trans** is the number of transactions that have been defined to run DRS/SAPR2 concurrently.

All storage is obtained with CICS GETMAIN requests. Additional storage will be required when reports are opened. See [“Storage Estimates” on page 1.2.](#)

DRS/Natural

DRS/Natural provides a direct interface from Natural applications to the JES spool. It enables any existing Natural application running in CICS or BATCH to create a report on the JES spool without any application changes.

The DRS/Natural interface provides complete control over the JES spool attributes assigned to a report and enables existing reports to use the printing facilities of Advanced Function Presentation (AFP) to enhance the quality of printed output from Natural applications.

DRS/OutputManager

DRS/OutputManager is a new product for DRS V1R3.4 that will incorporate several interfaces to external hosts and applications. This feature will enable the LRS Enterprise Output Management suite of products to act as a single integrated print server for applications on multiple platforms. DRS/OutputManager will use the new SYSOUT tracking feature of DRS to monitor the status of all print requests received from external applications and will provide feedback to the originating host or application. The first external interface implemented by DRS/OutputManager is an interface to the SAP R/3 application suite. Additional interfaces will be added to the DRS/OutputManager family in later releases.

Storage Estimates

Below 16M line: (22K * #sptask)

Above 16M line: (1M * #sptask)

CSA: DRS/OutputManager does not directly allocate any storage from CSA or ECSA.

- **#sptask** is the number of active SAP R/3 event notification callback tasks.
- Since DRS/OutputManager executes within the DRS/VPI address space, you must also include the DRS/VPI and DRS/TCPIP storage estimates when calculating the amount of storage required for DRS/OutputManager.

DRS/PC

DRS/PC obtains print files from Local Area Network print queues and sends those print files to DRS/VPI. DRS/PC connects to DRS/VPI using a VTAM APPC (LU6.2) connection. Print files received from DRS/PC can be placed on the JES spool or in a DASD dataset. The SYSOUT/DASD characteristics are sent to DRS/VPI from information defined to DRS/PC on the LAN.

DRS/Secure

DRS/Secure receives and decrypts encrypted output sent via TCP/IP from VPS/Secure™ or AnyQueue/Secure™ and writes the output to the JES spool, providing the security necessary to use shared TCP/IP networks for LAN to Host transfer or mainframe to mainframe transfer.

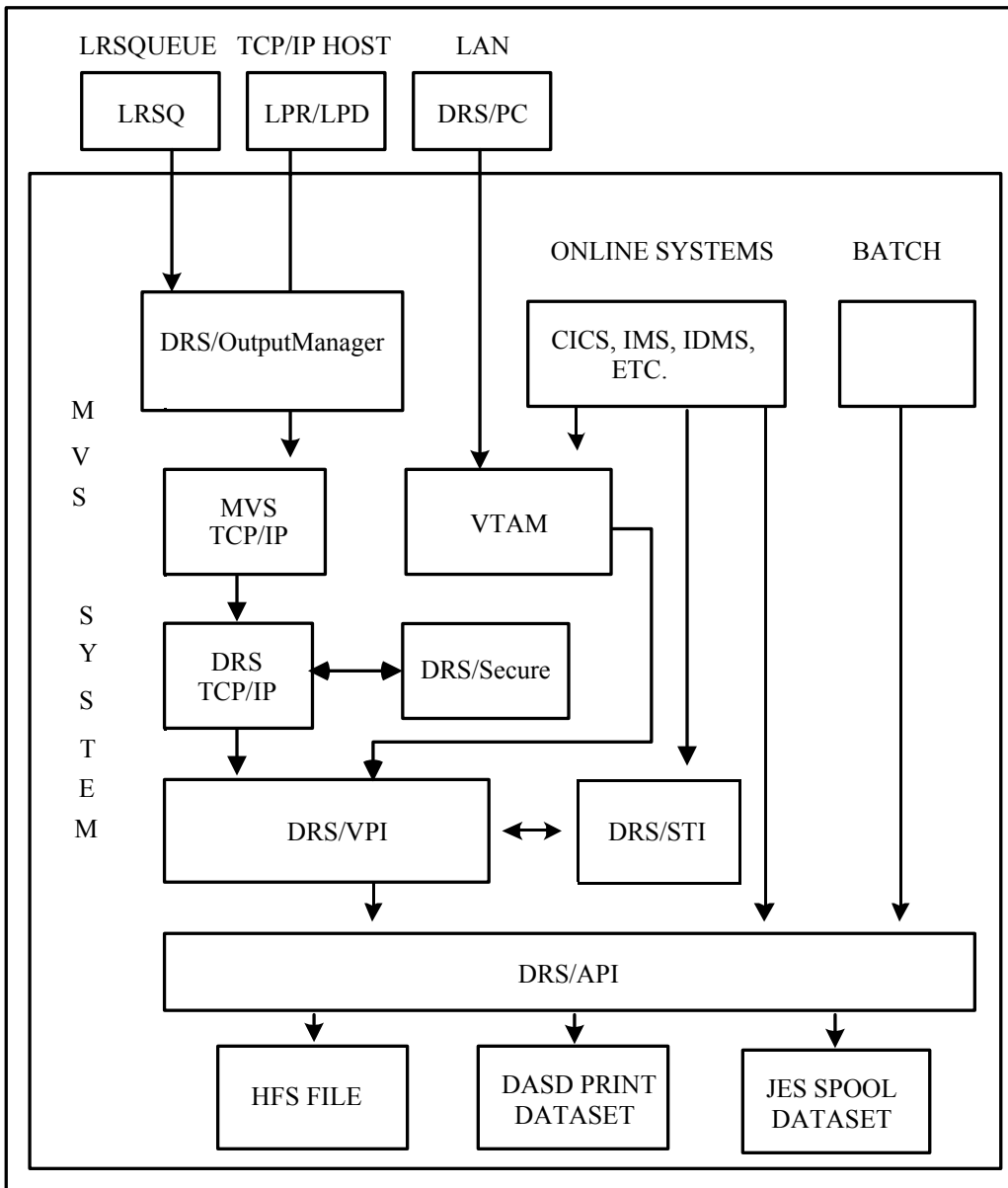
DRS/Secure requires both DRS and DRS/TCPIP. To implement DRS/Secure, define a DRS virtual printer using the DECRYPT and DKEY keywords.

The key specified in the DKEY keyword must match the key defined in the product sending the output, either VPS/Secure or AnyQueue/Secure. The DECRYPT keyword must specify the same key length--16, 24, or 32 bytes--used by the sending product.

Advantages of using DRS

- Reports can now be routed to any printer in the network (VTAM, TCP/IP, or Local Area Networks) without requiring changes to the application.
- Reports can be received from VTAM applications, TCP/IP remote hosts, and Local Area Networks. Once on the spool, standard printer management software, such as VPS and JES, can produce the hardcopy, within the rules applicable to all other SYSOUT in the installation.
- AFP attributes can be associated with legacy reports without requiring changes to the application.
- Multiple copies of a report can be created to allow both printing and archiving, if required.
- DRS eliminates printing problems (e.g., forms jam, out of paper, power off, etc.) from online applications (e.g., CICS, IMS, IDMS, etc.)
- DRS eliminates the problems associated with sharing printers across multiple applications.
- SYSOUT attributes of a report can be modified at report termination. For example, if an error in processing has occurred while creating the report, it can be deleted, held, or routed to a different destination or class.
- Optional user exits allow customizing DRS processing.
- Reports can be monitored from creation until completion using the DRS report tracking feature. This enables DRS to maintain the current status of all print requests and provides the ability to remotely query or cancel previously submitted requests.

How DRS Fits in Your System



Section 2

Introduction to DRS/VPI

The DRS Virtual Printer Interface allows receiving output from VTAM online applications or from remote TCP/IP hosts. For more information on using DRS/VPI to receive TCP/IP print files, see [“Introduction to DRS/TCPIP” on page 12.1](#).

When using DRS/VPI to intercept output from VTAM online applications, such as CICS, IMS, IDMS, etc., DRS/VPI supports printer session types of LU-0, LU-1, or LU-3. For LU-0 and LU-3, the Data Stream Compatibility (DSC) buffer format is supported. For LU-1, the SNA Character Set (SCS) buffer format and Intelligent Printer Data Stream (IPDS) format are supported.

The member name of the virtual printer must match the name of an APPL definition that is active to VTAM. For more information on defining the VTAM APPL statement, see [“VTAM Definition Requirements” on page 3.6](#). When DRS/VPI is started, the virtual printer members are read from the DRSVLIB PDS. DRS/VPI will open the ACB that matches the member name, and notify VTAM that it is ready to receive connection requests for that name.

When the online application needs to print, it will start a session with the virtual printer to send the print data. The network name used by the online application must match the member name of the virtual printer. For example, the CICS or IMS printer definition would contain the member name of the virtual printer as the VTAM network name.

As the print data is received by DRS/VPI, the print buffers are transformed into print lines. By default, DRS/VPI creates the print lines with ASA carriage control. Reports may also be created without carriage control, if desired.

The reports created by DRS/VPI can be placed on the JES spool, in a DASD file or in an HFS file. If the reports go to the JES spool, DRS/VPI uses attributes from SYSOUT keywords, such as: CLASS, DEST, FORM, WRITER, OUTREF, etc. If the report is placed in a DASD file, the attributes of the file use DASD keywords, such as: DSN, MEMBER, DISP, SPACE, UNIT, VOLUME, etc. If the report is placed in an HFS file, the attributes of the file use HFS keywords, such as: PATH, PATHDISP, PATHOPTS, etc. Up to four SYSOUT files, one DASD file and one HFS file can be created for each print request.

If the report is placed on the JES spool, any system that obtains output from the JES spool can access the report. For example, the report could be printed by JES, VPS or PSF or it could be acquired by a report distribution and archival product. Because OUTPUT statement information can be associated with the print data, PAGEDEF, FORMDEF, CHARS, etc., could be used for special AFP formatting.



Section 3

DRS/VPI Installation

This section provides instructions for installing the DRS Virtual Printer Interface (DRS/VPI). The details of this installation procedure are listed in [“Installation Procedure” on page 3.5](#). Before you do the actual installation, you may want to read [“New Features in this Release” on page 3.2](#) and [“Migrating to DRS/VPI V1 R3.4 from R3.2 or R3.3” on page 3.4](#). These topics will be of interest to both the first-time user of DRS/VPI and to the user of prior DRS/VPI releases.

New Features in this Release

If you have been using DRS/VPI Release 3.2 or 3.3 at your installation, you will find Version 1 Release 3.4 will support all of the functions you are accustomed to. This release also gives you these new features.

- **Support for SYSOUT tracking**

The DRS/VPI SYSOUT tracking feature utilizes the new JES Client/Server print interface features to track the status of all SYSOUT datasets it creates. This new feature integrates the report capture facilities of DRS with the print delivery functions of VPS and JES. This enables users to monitor the progress of their reports from creation to successful delivery to the output device. With the new tracking feature enabled all output is assigned a unique DRS tracking number and its status is continually monitored until the report is purged from JES. For details of the DRS/VPI SYSOUT tracking facility refer to [“Introduction to DRS/VPI SYSOUT Tracking Feature” on page 3.220.](#)

- **Support for DRS Monitor and Control Facility (DMCF) (Optional product)**

DRS/VPI system and printer information can be displayed in a full-screen environment using DMCF. Commands can be issued to display or modify the system information and the active printer definitions. SYSOUT tracking information can be viewed for files created by DRS/VPI.

- **HFS Support**

DRS/VPI can now create HFS files in addition to DASD and SYSOUT files. The DRS/VPI printer member contains the PATH name to be updated. Up to 4 SYSOUT files, one DASD file and one HFS file can be created from the same print report.

- **Support for OUTPUT keyword modification in DRS/VPI User Exit 7**

DRS V1 R3.4 passes a copy of the current OUTPUT statement associated with the report to DRS/VPI User Exit 07. If the exit modifies the OUTPUT statement keywords, DRS/VPI will dynamically create a new OUTPUT statement to associate with the report.

- **Option for JES destination validation**

DRS/VPI has a new DESTVAL keyword to indicate that destinations should be validated.

- **JOBNAME modification**

DRS/VPI V1 R3.3 introduced the capability of specifying a JOBNAME to be associated with SYSOUT files that was different than the name of the DRS/VPI job or started task. The JOBNAME can be a constant value, or it can be set using symbolic parameters. Using the JOBNAME keyword requires that DRS modules be loaded from an authorized library.

- **DRS/OutputManager**

DRS/OutputManager is a new product for DRS V1R3.4 that will incorporate several interfaces to external hosts and applications. This feature will enable the LRS Enterprise Output Management suite of products to act as a single integrated print server for applications on multiple platforms. DRS/OutputManager will use the new SYSOUT tracking feature of DRS to monitor the status of all print requests received from external applications and will provide feedback to the originating host or application. The first external interface implemented by DRS/OutputManager is an interface to the SAP R/3 application suite. Additional interfaces will be added to the DRS/OutputManager family in later releases.

- **SAP R/3 Interface**

DRS/OutputManager for SAP R/3 is a SAP certified external output management solution for the SAP R/3 application suite. This product implements the SAP BC-XOM (eXternal Output Management) interface that enables DRS to seamlessly plug-in to the SAP R/3 environment and handle all output delivery while providing full feedback and control to SAP R/3 users.

DRS/OutputManager works as an extension to the SAP R/3 spooling facilities and simply off loads the physical print delivery function to the LRS Enterprise Output Management server. SAP R/3 users are unaware the printing functions are handled externally and are still able to monitor and control their print output via the standard SAP R/3 output management interface.

DRS/OutputManager supports SAP R/3 servers running on most execution platforms and provides a single print server for the entire organization handling Host, LAN and SAP R/3 output with a single printer definition. For details refer to [“Introduction to DRS/OutputManager” on page 34.1.](#)

- **LRS/Queue Client**

The LRS/Queue client is a new general-purpose client for the LRS host and LAN based Enterprise Output Management products. The client provides a simple command line interface that enables users on multiple platforms to exploit the features of the LRS product suite. LRS/Queue interfaces directly to DRS/TCPIP and provides functions to submit, query and cancel previously submitted reports. The report submission facility enables users to directly specify the required SYSOUT, DASD or HFS attributes that will be assigned to the report and can control the translation and processing of the print data. Users can also exploit the functions of the DRS/SmartTag feature that provides a simple interface to pre-define groups of SYSOUT attributes that can then be selected by name. This enables users to select the processing options for a report using a simple name and isolates them from the underlying JES SYSOUT attributes. The LRS/Queue client is available for most operating environments (WIN2K, NT, AIX, HP-UX, SUN, OS/390 USS etc.). For complete details of the LRS/Queue client refer to [“LRS/Queue Client” on page 13.15.](#)

Migrating to DRS/VPI V1 R3.4 from R3.2 or R3.3

If you have been using DRS/VPI Release 3.2 or 3.3 at your installation, you will find that Version 1 Release 3.4 will support all of the keywords you are accustomed to.

The text of many DRS/VPI messages has been changed. In some cases, the DRS/VPI message numbers are different than they were for previous releases. You should review any automatic message processing you have established for DRS/VPI messages.

The TERMRPT keyword has been changed to allow a report termination table to be specified. This table allows using a different option to terminate the report based on the session LU type as well as the name of the session partner. If you currently have multiple definitions due to report termination requirements, you may be able to consolidate those printer definitions by using the report termination table.

The DRSSYAT and DRSVSYAT macros have been changed to include the version number for DRS. Previously, the release field was a 4-byte field that contained "R3.2". This release field has been changed to 2 fields -- one is a 1-byte version number (1) and the other is a 3-byte release number (3.4). If you are currently using the 4-byte field in a user exit or separator, you can still use the old program but instead of seeing "R3.2" you will see "13.4". This change should not cause any problems unless you are doing some sort of compare on that value. It is recommended that the user exits be reassembled.

If PRTROPTS=xxx8 was specified for a printer used with DRS/VPI R3.2, the value should be changed to PRTROPTS=xxxxxx1x for this release of DRS/VPI.

The key(s) for DRS products must be defined in one of two places, depending on the DRS product(s) being used. For products that are invoked via the application programming interface, including DRS/API, DRS/Natural, and DRS/SAPR2, the keys must be defined in the DRSSKEY module (see "Installing the DRSSKEY Module" on page 20.13). For products that are invoked via the DRS started task, including DRS/VPI, DRS/PC, DRS/Secure, DRS/TCPIP, DRS/OutputManager, and DRS/STI, the keys must be defined in the DRS system initialization member (see "[Building the System Initialization Member](#)" on page 3.18).

Installation Procedure

The steps required to install Version 1 Release 3.4 of DRS/VPI are:

1. **Read the entire installation procedure.**
2. **Restore the DRS distribution libraries** (see [“Restoring the DRS Distribution Libraries”](#) on page 20.6), **including the DRSSKEY module** (see [“Installing the DRSSKEY Module”](#) on page 20.13).
3. **Code VTAM parameters** (see [“VTAM Definition Requirements”](#) on page 3.6). This step is optional if DRS/VPI will only receive print data from TCP/IP hosts.
4. **Define DRS Checkpoint Dataset** (see [“Defining the DRS Checkpoint Dataset”](#) on page 3.8).
5. **Define DRS/VPI Tracking Dataset** (optional) (see [“Defining the Tracking Dataset”](#) on page 3.9).
6. **Code the DRS/VPI Job Control Language (JCL)** (see [“Defining DRS/VPI Job Control Language”](#) on page 3.10).
7. **Assemble and linkedit the DRS System Options module (DRSSOPTS) for DRS/VPI** (see [“DRS System Options Module for DRS/VPI”](#) on page 3.11).
8. **Assemble and linkedit any of the DRS/VPI user exits that you choose to use at your installation** (optional) (see [“DRS/VPI User Exits”](#) on page 9.1).
9. **Build the DRS/VPI System Initialization member** (see [“Building the System Initialization Member”](#) on page 3.18).
10. **Build the DRS/VPI Message Modification Member** (optional) (see [“Message Modification Member”](#) on page 3.13).
11. **Build the DRS/VPI Members for Printer Definition** (see [“Building the Printer Definition Members”](#) on page 3.63).
12. **Build the DRS/VPI Member Inclusion List or Member Exclusion List** (optional) (see [“Printer Activation Inclusion List Member”](#) on page 3.13 and [“Printer Activation Exclusion List Member”](#) on page 3.14).
13. **Build the Output Reference Members** (optional) (see [“Building the Output Reference Members”](#) on page 3.147).
14. The use of DMCF requires that DRS libraries have APF authorization.

DRS Virtual Printer Interface installation is now complete.

The following sections provide the information required to perform the above steps.

VTAM Definition Requirements

VTAM definitions are not required if all DRS/VPI printer definitions will receive print files from TCP/IP hosts using DRS/TCPIP.

If any DRS/VPI printer will receive output from VTAM online systems, the DRS/VPI address space will run as a VTAM application. A major node must be defined and active to VTAM that contains an APPL statement for each printer that will receive data from a VTAM online system. For example:

| | | | |
|---------|--------|---|---------------------------------|
| DRSAPPL | VBUILD | TYPE=APPL | |
| DRSV001 | APPL | ACBNAME=DRSV001,EAS=1,VPACING=63,SESSLIM=YES, DLOGMOD=SCS,MODETAB=ISTINCLM | X |
| DRSV002 | APPL | ACBNAME=DRSV002,EAS=1,VPACING=63,SESSLIM=YES, DLOGMOD=SCS,MODETAB=ISTINCLM | X |
| DRSV003 | APPL | ACBNAME=DRSV003,EAS=1,VPACING=63,SESSLIM=YES, DLOGMOD=SCS,MODETAB=ISTINCLM | X |
| DRSV004 | APPL | ACBNAME=DRSV004,EAS=1,VPACING=63,SESSLIM=YES, DLOGMOD=SCS,MODETAB=ISTINCLM | X |
| DRSV005 | APPL | ACBNAME=DRSV005,EAS=1,VPACING=63,SESSLIM=YES, DLOGMOD=SCS,MODETAB=ISTINCLM | X |
| DRSV006 | APPL | ACBNAME=DRSV006,EAS=1,VPACING=63,SESSLIM=YES, DLOGMOD=SCS,MODETAB=ISTINCLM | X |
| DRSV007 | APPL | ACBNAME=DRSV007,EAS=1,VPACING=63,SESSLIM=YES, DLOGMOD=SCS,MODETAB=ISTINCLM | X |
| DRSV008 | APPL | ACBNAME=DRSV008,EAS=1,VPACING=63,SESSLIM=YES, DLOGMOD=SCS,MODETAB=ISTINCLM | X |
| DRSV009 | APPL | ACBNAME=DRSV009,EAS=1,VPACING=63,SESSLIM=YES, DLOGMOD=SCS,MODETAB=ISTINCLM | X |
| DRSV010 | APPL | ACBNAME=DRSV010,EAS=1,VPACING=6, MODETAB=LRSMODE, DLOGMOD=LRSAPPC, APPC=YES, FOR DRS/PC DMINWNL=1, DMINWNR=0, DSESLIM=1, PARSESS=YES | X X X X X X X |

Alternatively, a model APPL statement can be used to define VTAM applications. This process is described in manual SC31-8777 "CS: SNA Network Implementation Guide" in topic "Model Application Program Definitions". For example, to define a group of VTAM applications that have names that begin with DRSV, this APPL statement could be used:

```
DRSV*    APPL  ACBNAME=DRSV*,EAS=1,SESSLIM=YES,VPACING=63,DLOGMOD=SCS, X
          MODETAB=ISTINCLM,MODSRCH=FIRST
```

When DRS/VPI opens an ACB with a name that starts with DRSV, VTAM will activate the ACB and allow the OPEN to continue.

-
- Note 1:** Specify ACBNAME to be the same as the member name of the virtual printer definition in the DRS/VPI control library (DRSVLIB).
- Note 2:** Specify the EAS to be the estimated number of active sessions for this printer; this value should always be 1 for DRS/VPI printer definitions.
- Note 3:** Specify VPACING to be a non-zero value, or specify non-zero PSNDPAC and SRCVPAC parameters in the session parameters (logon mode table entry) to be used for the virtual printer session.
- Note 4:** SESSLIM=YES will allow VTAM to queue pending sessions for the virtual printer if the virtual printer application is already in active session with another application. Without SESSLIM=YES, manual intervention may be necessary to release and acquire virtual printers from various VTAM applications.
- Note 5:** Specify a default logon mode table entry name (DLOGMOD) and the name of the logon mode table (MODETAB) to use to obtain the printer session parameters, or allow the primary application to specify the session (BIND) parameters in its printer definition.
- Note 6:** The Major Node name (the name of the member where these application definitions are stored) cannot be the same as the names used on the APPL statements.
- Note 7:** For those virtual printer definitions that allow connection to the DRS/PC product, MODETAB must be specified, and the DLOGMOD should be the name of a logon mode table entry that contains a valid set of session parameters for LU6.2 sessions. VPACING should be a non-zero value. In addition, the following must be specified:

| | |
|-------------|-------------------------------------|
| APPC=YES, | Indicates APPC device |
| DMINWNL=1, | Allow DRS to win session contention |
| DMINWNR=0, | Allow DRS to win session contention |
| DSESLIM=1, | Only one session allowed |
| PARSESS=YES | Must be YES for APPC |

- Note 8:** For more information, see [“DRS/VPI With DRS/PC” on page 5.1](#).

Defining the DRS Checkpoint Dataset

This release of DRS requires a VSAM dataset that is used by DRS as a checkpoint file. Sample JCL to define this dataset is supplied as member CKPTDEF in file LRS.DRS.V1R34.CNTL. The DRS/VPI JCL should include a DD statement with a DD name of DRSCKPT to refer to this dataset.

Defining the Tracking Dataset

The DRS/VPI tracking dataset is a variable length record VSAM KSDS which is used to store tracking data associated with a client print request. Sample JCL to define the tracking dataset is contained in member TRACKDEF in dataset LRS.DRS.V1R34.CNTL. The JCL is reproduced here:

```
//JOBNAME JOB (YOUR JOB CARD INFORMATION)
//*
//DEFINE EXEC PGM=IDCAMS,REGION=1M
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
DELETE LRS.DRS.V1R34.TRACK CLUSTER PURGE
IF LASTCC EQ 8 THEN SET MAXCC = 0
DEFINE CLUSTER(
    NAME(LRS.DRS.V1R34.TRACK)
    VOLUMES(XXXXXX)
    INDEXED
    KEYS(12 0)
    RECORDSIZE(512 4096)
    CYLINDERS(50 10)
    SHAREOPTIONS(4 3)
)
DATA(
    NAME(LRS.DRS.V1R34.TRACK.DATA)
)
INDEX(
    NAME(LRS.DRS.V1R34.TRACK.INDEX)
    CONTROLINTERVALSIZE(4096)
)
```

After defining the tracking dataset a DRSTRACK DD statement must be added to the DRS started task JCL. See [“Defining DRS/VPI Job Control Language” on page 3.10](#).

Note 1: The tracking dataset is a VSAM KSDS and will require periodic maintenance to ensure optimum performance and space utilization. Sample JCL to reorganize the tracking dataset can be found in member TRACKREO of dataset LRS.DRS.V1R34.CNTL.

Defining DRS/VPI Job Control Language

The DRS/VPI is generally run as a started task but can be run as a batch job. The JCL requirements are similar for both methods.

```
//*****  
//*          DRS VIRTUAL PRINTER INTERFACE  
//*****  
//DRSV      EXEC PGM=DV34DRIV,PARM=DRSSTART,TIME=1440      Note 1  
//STEPLIB   DD DSN=LRS.DRS.V1R34.LOAD,DISP=SHR             Note 2  
            DD DSN=LRS.V1R12.LOAD,DISP=SHR  
//DRSVLIB   DD DSN=LRS.DRS.V1R34.CNTL,DISP=SHR            Note 3  
//DRSVLOG   DD DSN=LRS.DRS.V1R34.LOG,DISP=SHR             Note 4  
//DRSRULES  DD DSN=LRS.DRS.V1R34.RULES,DISP=SHR           Note 5  
//DRSCKPT   DD DSN=LRS.DRS.V1R34.DRSCKPT,DISP=SHR        Note 6  
//DRSTRACK  DD DSN=LRS.DRS.V1R34.TRACK,DISP=SHR          Note 7  
//SYSUDUMP  DD SYSOUT=D
```

- Note 1:** The optional PARM on the execute statement specifies the member name which contains the system initialization parameters for the DRS/VPI. If no PARM is specified, a member name of DRSSTART is assumed.
- Note 2:** A STEPLIB is not required if the DRS/VPI modules are in a linklist library or SYS1.LPALIB. The DRS/VPI and DRS/API modules must be loaded from an authorized library if the JOBNAME= keyword will be used to set the JOB name for SYSOUT datasets or if SYSOUT tracking is requested.
- Note 3:** The DRSVLIB DD statement must be a partitioned dataset that contains the initialization member, the optional member for message modification, and the virtual printer definition members. This dataset must have a logical record length between 80 and 128 and a block size that is a multiple of LRECL.
- Note 4:** The DRSVLOG DD statement is optional and should only be used if you want the DRS/VPI log to be written to a preallocated dataset. If the DRSVLOG statement is not present, the log will be dynamically allocated using the initialization options.
- Note 5:** If you do specify the DRSVLOG statement, you need not specify DCB attributes. DRS will choose an optimum block size based on the record length and the device type. If you specify invalid DCB attributes, DRS will override them.
- Note 6:** The DRSRULES DD statement is optional, and should only be used if you have enabled the DRS Smart Tag Interface (DRS/STI). If specified, the dataset name should be the name of your DRS/STI rules dataset. (See [“Defining the DRS/STI Rules Dataset”](#) on page 16.2 for more information.)
- Note 7:** The DRSCKPT DD is required. It must refer to the VSAM checkpoint dataset created by step 4 of the [“Installation Procedure”](#) on page 3.5.
- Note 8:** The DRSTRACK DD statement is optional, and should only be included if you intend to enable the DRS/VPI SYSOUT tracking feature. For full details of the tracking feature please refer to [“Introduction to DRS/VPI SYSOUT Tracking Feature”](#) on page 3.220.

DRS System Options Module for DRS/VPI

The DRS System Options should specify the number of support subtasks as a non-zero value; for example:

```
TCBBTCH=1
```

Using the default (TCBBTCH=0) will cause an initialization error with the message:

```
DRSV002E DRS OPTIONS MODULE SPECIFIES UNSUPPORTED VALUE TCBBTCH=0
```

For more information on setting, assembling, and linking the DRS System Options, see [“Customizing the DRS System Options” on page 20.9](#).

DRS/VPI Control Library Members

The DRS/VPI reads members from the control library as the source for information about the DRS operating environment and the definition of the virtual printers supported. The dataset name of this library is specified on the DRSVLIB DD statement in the DRS/VPI started task JCL (see [“Defining DRS/VPI Job Control Language” on page 3.10](#)). This dataset must have a logical record length between 80 to 128 and a blocksize that is a multiple of the LRECL.

This control library can contain seven types of members. They are:

- System Initialization Member
- Message Modification Member (optional)
- Printer Activation Inclusion List Member (optional)
- Printer Activation Exclusion List Member (optional)
- Printer Default Members (optional)
- Printer Definition Members - one for each virtual printer
- Output Reference Members (optional)

Syntax of DRS/VPI Library Members

All control library members must use the following syntax:

- Control statements must begin between position 2 and 16 inclusive.
- Ending the last parameter on a control statement with a comma signifies continuation.
- As many parameters as desired can be specified on a given statement as long as they do not extend past position 127.
- Any statement containing an asterisk in position 1 is considered a comment statement and is ignored.
- Comments can also be placed on an actual statement by leaving at least one space after the control statement information.

System Initialization Member

The System Initialization Member contains several keyword parameters that apply to the overall DRS/VPI system. The member name is determined by the PARM on the execute statement in the JCL. If no PARM is specified, a member name of DRSSSTART is used.

The System Initialization Member is explained further in [“Building the System Initialization Member”](#) on page 3.18.

Message Modification Member

The Message Modification Member contains one or more entries that describe modifications to the “type” of the DRS/VPI message. The valid message modification types are:

- A - Action
- N - Normal
- I - Informational
- L - Enter in DRS/VPI log and SYSLOG, but do not issue WTO
- X - Do not log or issue the WTO (“no-ops” the message)

In this member, a particular message type can be modified by coding:

MSGnnn=x

where “nnn” is the DRS/VPI message number and “x” is the type to which the message should be changed from its normal value.

The member name for message modification is determined by the MSMODMEM keyword in the system initialization member.

Printer Activation Inclusion List Member

The Printer Activation Inclusion List Member is a list of member names in the DRSVLIB library which contain the parameters describing the printers that are to be activated when DRS/VPI system is initialized. The member name of this member is determined by the MLISTMEM keyword in the System Initialization Member.

This member is optional and mutually exclusive with the Printer Activation Exclusion List Member. If neither an Inclusion List Member nor an Exclusion List Member is specified, no printers will be automatically activated in the DRS/VPI system at initialization. Printers can, however, be brought into the DRS/VPI System after initialization by issuing the DRS/VPI ACTIVATE command.

Printer Activation Exclusion List Member

The Printer Activation Exclusion List Member is a list of member names in the DRSVLIB library which do not contain parameters describing DRS virtual printers to be activated at DRS/VPI initialization. The member name is determined by the XLISTMEM keyword in the System Initialization Member.

This member is optional and mutually exclusive with the Printer Activation Inclusion List Member. If neither an Exclusion List Member nor an Inclusion List Member is specified, no printers will be automatically active in the DRS/VPI system at initialization. Printers can, however, be brought into the DRS/VPI system after initialization by issuing the DRS/VPI ACTIVATE command.

If a Printer Activation Exclusion List Member is specified, it should include not only the member names of printers which are not to be automatically activated at DRS/VPI system initialization, but also the member names of any members in the DRSVLIB library which are not DRS virtual printer definitions. The DRS/VPI will automatically exclude the Message Modification Member (indicated by the MSMODMEM keyword in the System Initialization Member), the Printer Activation Exclusion List Member (indicated by the XLISTMEM keyword in the System Initialization Member), and the System Initialization Member itself (indicated by the PARM on the EXEC statement in the DRS/VPI job control language).

Users with a very large number of DRS virtual printers may find it less time consuming to specify a Printer Activation Exclusion List Member than to specify a Printer Activation Inclusion List Member which must be updated each time a new printer is added to DRS/VPI.

Note 1: The Exclusion List Member will not work correctly if you concatenate more than one library on the DRSVLIB JCL statement. To use an Exclusion List Member, all DRS/VPI members must exist in a single library.

Printer Default Member

A Printer Default Member allows the DRS/VPI user to establish default values for individual printer keyword parameters. This can help limit the number of printer keyword parameters which must be specified in the Printer Definition Members, because DRS/VPI can pick up the parameter values from the appropriate Default Member if a keyword is not specified in the Printer Definition Member.

The member name of this member is determined by the DEFLTMEM keyword in either the Printer Definition Member or in the System Initialization Member. The member name specified in the DEFLTMEM keyword in the System Initialization Member can be considered the “master” default member.

DRS/VPI assigns a value to each printer keyword parameter for a printer from one of four sources. The first of these sources to specify a value for a keyword is the one that is used. The four sources and the order in which they are search are:

1. The Printer Definition Member for the printer
2. The member specified in the DEFLTMEM keyword in the Printer Definition Member (if any)
3. The member specified in the DEFLTMEM keyword in the System Initialization member (if any)
4. DRS/VPI default value for the keyword parameter.

A DRS/VPI user may wish to set up a default member for LU-0 printers, a default member for LU-1 printers, and a default member for LU-3 printers. Each of these members could specify printer keyword parameter values unique to those LU types, and specifying the DEFLTMEM keyword in the individual Printer Definition Members to point to the appropriate default would eliminate the need to specify the parameters in each Printer Definition Member.

It might also be desirable to set up a default member for a particular type of printer, such as a TCP/IP printer, and define those keywords that must have special values for this type of device.

Printer Definition Members

The Printer Definition Member is used to define the attributes and options associated with the virtual printer being defined.

For VTAM virtual printers, the member names of these members must be the same as the ACBNAME on the associated VTAM application definition statement (see [“VTAM Definition Requirements” on page 3.6](#)).

For TCP/IP virtual printers, the member name will be the print queue name specified when the print command is issued at the remote host.

Output Reference Members

An Output Reference Member contains information that would normally be found on an OUTPUT JCL statement. The member name of the Output Reference Member can be specified on the OUTREF keyword in the Printer Definition Member.

Output Reference Members are optional. The keywords provide values that can be used to dynamically create an OUTPUT statement reference.

Building the System Initialization Member

Overview

The function of the DRS/VPI system initialization member is to provide all parameters that relate to the overall system.

The system initialization member must reside in the DRSVLIB PDS that is defined in the DRS/VPI job control language. The member name must be “DRSSTART” unless specified otherwise by the PARM on the DRS Virtual Printer Interface execute statement.

The various DRS/VPI keyword parameter values are specified by coding the keyword followed by an EQUAL(=) followed by the keyword value. For example:

LOG=Y

The format of DRS/VPI control statements is defined in [“Syntax of DRS/VPI Library Members” on page 3.12.](#)

Those initialization parameters that have special relationships are listed below, followed by a description of all initialization parameters listed alphabetically.

System Initialization Parameters

Product Key Parameters

The DRS product and each of its optional extension products require that a unique key value be specified in the System Initialization member. This encrypted key value supplies information to the product concerning your license status. Without the correct value in the appropriate keyword, the product will not function.

The values for these keys are unique to each installation, and are supplied in file # 1 on the product distribution cartridge.

The product key parameters are:

KEYDRS

KEYDRSPC

KEYDSECR

KEYLPD

KEYOMGR

KEYSTI

Logging Parameters

The DRS/VPI can log all messages and operator commands. The following system initialization keywords are related to the logging function.

LOG

LOGHOLD

LOGOUTP

The log dataset can be a dynamically allocated SYSOUT dataset that can be “spun off” (made immediately available for printing) by issuing a “CLOSELOG” command. A new log SYSOUT dataset will then automatically be allocated for continued logging of DRS/VPI commands and messages.

Alternatively, the log dataset can be a preallocated DASD dataset. In this case, a “CLOSELOG” command is not considered valid. However, when the dataset is full, the DRS/VPI will close it, reopen it, and begin recording at the beginning of the dataset. A preallocated DASD dataset is specified by including a DD statement with a DDNAME of DRSVLOG in the DRS/VPI JCL. The keywords LOGOUTP and LOGHOLD do not apply to a preallocated DASD dataset.

Snap Dump Parameters

DRS/VPI provides a snap dump facility that is used for DRS/VPI debugging. Snap dumps can be invoked by issuing the “SNAP” command, or automatically after an error occurs. The snap dataset is a dynamically allocated SYSOUT dataset that will be automatically “spun off” (made immediately available for printing) after completion of the “SNAP” command. The following parameters are applicable to the DRS/VPI snap dump facility. Snap dumps can also be automatically generated by the DRS/VPI (see the SNAP printer definition parameter).

SNAPHOLD

SNAPOUTP

Message Processing Parameters

The following parameter is used to determine how the DRS Virtual Printer Interface will issue console messages:

WTO

User Exit Parameters

At initialization, the DRS/VPI will look for user exit members of the name DVSSUEnn. If a member is found and is not overridden by the EXITnn keyword, the DRS/VPI will use the member of the name DVSSUEnn, set the status of the member to disabled and set recovery on.

If a different name, enabled/disabled status or recovery capability is required, the following keyword will be required:

EXITnn

SAP R/3 Parameters

The SAP R/3 parameters are:

SAPCLNT
SAPDMN
SAPOPTS
SAPPSWD
SAPRETRY
SAPTRACE
SAPUSER

TCP/IP Parameters

For an explanation of the DRS/TCPIP product, see [“Introduction to DRS/TCPIP”](#) on page 12.1.

The TCP/IP parameters are:

TCPIPID
TCPLHOST
TCPPORT
TCPTYPE

Miscellaneous Parameters

The following parameters specify information pertaining to various aspects of DRS/VPI operation:

AUTOACT
CROPTS
DEFLTMEM
DESTVAL
DRSDESC
MAXPRTS
MLISTMEM
MSMODMEM
SSI
SWAPABLE
TRACE
TRACK
USEROPTS
XLISTMEM

Each of the DRS/VPI System Initialization Parameters is described on the following pages, where the parameters are listed in alphabetical order.

AUTOACT in SYSTEM INITIALIZATION MEMBER

AUTOACT= Specifies, via two positional parameters, the action to be taken concerning automatic activation and definition for a virtual printer.

Positional parameter 1 specifies whether DRS/VPI should automatically activate a printer when a connection is requested and the printer was not already active.

This can only occur for a TCP/IP printer, because a VTAM connection can only be made if the printer was activated and the ACB that represents that printer was open and ready to receive connections. If the first parameter is set to “Y”, DRS/VPI will attempt to activate the printer which was requested on the “RECEIVE PRINT JOB” command received from the remote TCP/IP host.

Valid Values: Y or N

Default: N

Positional parameter 2 specifies whether DRS/VPI should automatically define a printer when activation is attempted, but there is no member name in the DRS/VPI control library.

DRS/VPI will use the values specified in the default member from DRS/VPI System Initialization to create a new virtual printer definition. Any keyword values specified in that default member as “*” would be replaced by the printer name. Automatic definition can be performed for VTAM virtual printers which are named in the Printer Activation Inclusion List (MLISTMEM) or for TCP/IP virtual printers when a “RECEIVE PRINT JOB” command is received for a print queue name which is not found in the DRS/VPI control library.

Valid Values: Y or N

Default: N

Example: AUTOACT=(Y,Y)

This specification indicates that DRS/VPI should automatically activate and define any printer which is listed in the Printer Inclusion list or any TCP/IP printer which is not already activated when a printer request is received.

Note: USEROPTS=xx8xxxxx can be used to indicate that a dynamically activated TCP/IP printer should remain activated when the print file being received is complete.

CROPTS

in SYSTEM INITIALIZATION MEMBER

CROPTS= A 4-byte hex representation that specifies the “C” language run time options to be used for DRS/VPI system tasks. The option bit specifications are as follows:

| | |
|-----------------|--|
| 80000000 | Disable LE/390 recovery. |
| 40000000 | Enable LE/390 storage reporting. |
| 20000000 | Enable LE/390 runtime options reporting. |
| 10000000 | Reserved. |
| 08000000 | Reserved. |
| 04000000 | Reserved. |
| 02000000 | Reserved. |
| 01000000 | Reserved. |
| 00800000 | Reserved. |
| 00400000 | Reserved. |
| 00200000 | Reserved. |
| 00100000 | Reserved. |
| 00080000 | Reserved. |
| 00040000 | Reserved. |
| 00020000 | Reserved. |
| 00010000 | Reserved. |
| 00008000 | Reserved. |
| 00004000 | Reserved. |
| 00002000 | Reserved. |
| 00001000 | Reserved. |
| 00000800 | Reserved. |
| 00000400 | Reserved. |
| 00000200 | Reserved. |
| 00000100 | Reserved. |
| 00000080 | Reserved. |
| 00000040 | Reserved. |
| 00000020 | Reserved. |
| 00000010 | Reserved. |
| 00000008 | Reserved. |
| 00000004 | Reserved. |
| 00000002 | Reserved. |
| 00000001 | Reserved. |

Valid Values: 00000000 to FFFFFFFF

Default: 00000000

Example: CROPTS=C0000000

This specifies that DRS/VPI should disable LE/390 recovery and enable LE/390 storage reporting for all DRS/VPI system tasks.

DEFLTMEM in SYSTEM INITIALIZATION MEMBER

DEFLTMEM= Specifies a member within the DRS/VPI control library that describes user defined defaults. If this parameter is not specified, DRS/VPI will use the default keyword values for the printer.

Valid Values: Member name of a member that exists in the DRSVLIB PDS.

Default: None

Example: DEFLTMEM=DRSDEFLT

This specification signifies to DRS/VPI that member DRSDEFLT in the DRSVLIB PDS contains default values for the virtual printer keywords.

DESTVAL

in SYSTEM INITIALIZATION MEMBER

DESTVAL= Specifies whether DRS/VPI should validate the destinations specified in DRS/VPI keywords, such as DEST, LOGOUTP, SNAPOUTP, etc.

Valid Values: Y or N

Default: Y

Example: DESTVAL=N

This specification indicates that destination validation should not be performed at DRS/VPI initialization or when a printer is activated.

DRSDESC

in SYSTEM INITIALIZATION MEMBER

DRSDESC= Contains a short text description of the DRS/VPI started task for identification purposes. This value is displayed by DMCF.

Valid Values: Up to 48 characters of text.

Default: None

Example: DRSDESC='TEST DRS/VPI SYSTEM'

This specifies that this DRS/VPI will be identified as "TEST DRS/VPI SYSTEM" in response to the DISPLAY, SYSTEM command or in DMCF.

EXITnn

in SYSTEM INITIALIZATION MEMBER

EXITnn= Specifies the status, recovery capability, and member name of the load module to be used for user exit “nn”, where “nn” is a value from 01 - 10.

Format: (status,recovery,membernm)

Valid Values: Status

ENA for enabled status

DIS for disabled status

recovery:

RECOV for recovery on

NORECOV for recovery off

membernm:

Name of a member which exists in the DRS/VPI load module library

Default: (DIS,RECOV,DVSSUEnn)

Example: EXIT01=(ENA,RECOV,MYEXIT01)

This specification would indicate that the module to be used for user exit 01 should be enabled at startup, that recovery should be on for this module, and that the member name of the module to be used is MYEXIT01.

KEYDRS in SYSTEM INITIALIZATION MEMBER

KEYDRS= Specifies the trial/license code for the DRS product. This keyword must be present in order to use the DRS product.

Valid Values: 60 characters. This key is supplied by LRS and identifies the CPU serial number on which the product is licensed. This key is supplied in file 28 of the VPS distribution cartridge (LRS.DRS.V1R34.CNTL). The key is in the following format:

| <u>Byte</u> | <u>Description</u> |
|-------------|--------------------|
|-------------|--------------------|

| | |
|---|---|
| 1 | T - trap key or L - license key |
|---|---|

| | |
|-----|---------------------------------|
| 2-4 | Machine manufacturer (e.g. IBM) |
|-----|---------------------------------|

| | |
|-----|--------------------------|
| 5-8 | Machine type (e.g. 2003) |
|-----|--------------------------|

| | |
|------|-------------------|
| 9-13 | CPU serial number |
|------|-------------------|

| | |
|-------|---|
| 14-60 | Encrypted customer id, CPU serial number, expiration date, number of printers, etc. |
|-------|---|

Note that the product keys must be entered exactly as supplied by LRS. Modified product keys are considered invalid and will prevent the product from being used.

Default: None.

KEYDRSPC

in SYSTEM INITIALIZATION MEMBER

KEYDRSPC= Specifies the trial/license code for the DRS/PC product. This keyword must be present in order to use the DRS/PC product.

Valid Values: 60 characters. This key is supplied by LRS and identifies the CPU serial number on which the product is licensed. This key is supplied in file 28 of the VPS distribution cartridge (LRS.DRS.V1R34.CNTL). The key is in the following format:

| <u>Byte</u> | <u>Description</u> |
|-------------|--------------------|
|-------------|--------------------|

| | |
|---|---|
| 1 | T - trap key or L - license key |
|---|---|

| | |
|-----|---------------------------------|
| 2-4 | Machine manufacturer (e.g. IBM) |
|-----|---------------------------------|

| | |
|-----|--------------------------|
| 5-8 | Machine type (e.g. 2003) |
|-----|--------------------------|

| | |
|------|-------------------|
| 9-13 | CPU serial number |
|------|-------------------|

| | |
|-------|---|
| 14-60 | Encrypted customer id, CPU serial number, expiration date, number of printers, etc. |
|-------|---|

Note that the product keys must be entered exactly as supplied by LRS. Modified product keys are considered invalid and will prevent the product from being used. Also, please note that if activation of a printer would exceed the maximum number allowed per the product key, the activation will fail and message DRSV821E will be issued.

Default: None.

KEYDSECR in SYSTEM INITIALIZATION MEMBER

KEYDSECR= Specifies the trial/license code for the DRS/Secure product. This keyword must be present in order to use the DRS/Secure product.

Valid Values: 60 characters. This key is supplied by LRS and identifies the CPU serial number on which the product is licensed. This key is supplied in file 28 of the VPS distribution cartridge (LRS.DRS.V1R34.CNTL). The key is in the following format:

| <u>Byte</u> | <u>Description</u> |
|-------------|--------------------|
|-------------|--------------------|

| | |
|---|---|
| 1 | T - trap key or L - license key |
|---|---|

| | |
|-----|---------------------------------|
| 2-4 | Machine manufacturer (e.g. IBM) |
|-----|---------------------------------|

| | |
|-----|--------------------------|
| 5-8 | Machine type (e.g. 2003) |
|-----|--------------------------|

| | |
|------|-------------------|
| 9-13 | CPU serial number |
|------|-------------------|

| | |
|-------|---|
| 14-60 | Encrypted customer id, CPU serial number, expiration date, number of printers, etc. |
|-------|---|

Note that the product keys must be entered exactly as supplied by LRS. Modified product keys are considered invalid and will prevent the product from being used.

Default: None.

KEYLPD

in SYSTEM INITIALIZATION MEMBER

KEYLPD= Specifies the trial/license code for the DRS/TCPIP product. This keyword must be present in order to use the DRS/TCPIP product.

Valid Values: 60 characters. This key is supplied by LRS and identifies the CPU serial number on which the product is licensed. This key is supplied in file 28 of the VPS distribution cartridge (LRS.DRS.V1R34.CNTL). The key is in the following format:

| <u>Byte</u> | <u>Description</u> |
|-------------|--------------------|
|-------------|--------------------|

| | |
|---|---|
| 1 | T - trap key or L - license key |
|---|---|

| | |
|-----|---------------------------------|
| 2-4 | Machine manufacturer (e.g. IBM) |
|-----|---------------------------------|

| | |
|-----|--------------------------|
| 5-8 | Machine type (e.g. 2003) |
|-----|--------------------------|

| | |
|------|-------------------|
| 9-13 | CPU serial number |
|------|-------------------|

| | |
|-------|---|
| 14-60 | Encrypted customer id, CPU serial number, expiration date, number of printers, etc. |
|-------|---|

Note that the product keys must be entered exactly as supplied by LRS. Modified product keys are considered invalid and will prevent the product from being used.

Default: None.

KEYOMGR in SYSTEM INITIALIZATION MEMBER

KEYOMGR= Specifies the trial/license code for the DRS/OutputManager product. This keyword must be present in order to use the DRS/OutputManager product.

Valid Values: 60 characters. This key is supplied by LRS and identifies the CPU serial number on which the product is licensed. This key is supplied in file 28 of the VPS distribution cartridge (LRS.DRS.V1R34.CNTL). The key is in the following format:

| <u>Byte</u> | <u>Description</u> |
|-------------|--------------------|
|-------------|--------------------|

| | |
|---|---|
| 1 | T - trap key or L - license key |
|---|---|

| | |
|-----|---------------------------------|
| 2-4 | Machine manufacturer (e.g. IBM) |
|-----|---------------------------------|

| | |
|-----|--------------------------|
| 5-8 | Machine type (e.g. 2003) |
|-----|--------------------------|

| | |
|------|-------------------|
| 9-13 | CPU serial number |
|------|-------------------|

| | |
|-------|---|
| 14-60 | Encrypted customer id, CPU serial number, expiration date, number of printers, etc. |
|-------|---|

Note that the product keys must be entered exactly as supplied by LRS. Modified product keys are considered invalid and will prevent the product from being used.

Default: None.

KEYSTI

in SYSTEM INITIALIZATION MEMBER

KEYSTI= Specifies the trial/license code for the DRS/STI (Smart Tag Interface) product. This keyword must be present in order to use the DRS/STI product.

Valid Values: 60 characters. This key is supplied by LRS and identifies the CPU serial number on which the product is licensed. This key is supplied in file 28 of the VPS distribution cartridge (LRS.DRS.V1R34.CNTL). The key is in the following format:

| <u>Byte</u> | <u>Description</u> |
|-------------|--------------------|
|-------------|--------------------|

| | |
|---|---|
| 1 | T - trap key or L - license key |
|---|---|

| | |
|-----|---------------------------------|
| 2-4 | Machine manufacturer (e.g. IBM) |
|-----|---------------------------------|

| | |
|-----|--------------------------|
| 5-8 | Machine type (e.g. 2003) |
|-----|--------------------------|

| | |
|------|-------------------|
| 9-13 | CPU serial number |
|------|-------------------|

| | |
|-------|---|
| 14-60 | Encrypted customer id, CPU serial number, expiration date, number of printers, etc. |
|-------|---|

Note that the product keys must be entered exactly as supplied by LRS. Modified product keys are considered invalid and will prevent the product from being used.

Default: None.

LOG in SYSTEM INITIALIZATION MEMBER

LOG= Specifies whether the DRS/VPI logging facility is to be active.

Valid Values: Y or N

Default: Y

Example: LOG=Y

This specification would signify to the DRS/VPI that command and message logging should be active.

LOGHOLD

in SYSTEM INITIALIZATION MEMBER

LOGHOLD= Specifies whether the log SYSOUT dataset should be allocated as a held SYSOUT dataset.

Valid Values: Y or N

Default: N

Example: LOGHOLD=Y

This specification would signify to the DRS/VPI that the LOG SYSOUT dataset should be allocated as held.

LOGOUTP in SYSTEM INITIALIZATION MEMBER

LOGOUTP= Specifies, via five positional parameters, characteristics to be used when allocating the DRS/VPI log SYSOUT dataset.

Positional parameter 1 specifies the SYSOUT class to be used for the DRS/VPI log SYSOUT dataset.

Valid Values: Any valid SYSOUT class (0 - 9 or A - Z)

Default: A

Positional parameter 2 specifies the destination to be used for the DRS/VPI log SYSOUT dataset.

Valid Values: Any valid JES destination

Default: LOCAL

Positional parameter 3 specifies the form name to be used for the DRS/VPI log SYSOUT dataset.

Valid Values: Any 1 - 4 character alphanumeric form name

Default: None

Positional parameter 4 specifies the writer to be used for the DRS/VPI log SYSOUT dataset.

Valid Values: Any 1 - 8 character alphanumeric writer name

Default: None

Positional parameter 5 specifies the name of an OUTPUT JCL statement in the DRS/VPI started task JCL to be used to determine the characteristics of the DRS/VPI log dataset.

Valid Values: The name of an OUTPUT JCL statement that exists in the DRS/VPI started task JCL

Default: None

Note: If you specify the name of an OUTPUT JCL statement that does not exist in the DRS started task JCL, allocation of the log dataset will fail, and DRS/VPI will operate without logging.

Example 1: LOGOUTP=(B,U100,STD)

This specification would signify to the DRS/VPI that the log SYSOUT dataset should have a SYSOUT class of B, a destination of U100, and a form name of STD.

Example 2: LOGOUTP=(,,,LOGOUT)

This specification would signify that the log SYSOUT dataset should have the characteristics specified in the OUTPUT JCL statement named LOGOUT in the DRS/VPI JCL. Destination will default to LOCAL and class will default to A.

MAXPRTS

in SYSTEM INITIALIZATION MEMBER

MAXPRTS= Specifies, via two positional parameters, the maximum number of virtual printers that DRS/VPI can have active at one time.

Positional parameter 1 specifies the maximum number of VTAM virtual printer definitions that can be activated.

Valid Values: 0 - 32767

Default: 100

Positional parameter 2 specifies the maximum number of TCP/IP virtual printer definitions that can be activated.

Valid Values: 0 - 32767

Default: 100

Example: MAXPRTS=(0,999)

This specification would signify to DRS/VPI that the maximum number of TCP/IP virtual printers that could be concurrently active is 999, but that no VTAM virtual printers could be activated.

MLISTMEM in SYSTEM INITIALIZATION MEMBER

MLISTMEM= Specifies a member within the DRSVLIB PDS that defines the member names of those DRS virtual printers that are to be automatically activated in the DRS/VPI system at start-up.

Valid Values: Member name of a member that exists in the DRSVLIB PDS

Default: None

Example: MLISTMEM=DRSMLIST

This specification would signify to DRS that member DRSMLIST in the DRSVLIB PDS contains a list of members to be automatically activated at DRS/VPI start-up.

MSMODMEM

in SYSTEM INITIALIZATION MEMBER

MSMODMEM= Specifies a member within the DRSVLIB PDS which contains a list of DRS/VPI messages which are to have their type modified.

Valid Values: Member name of a member that exists in the DRSVLIB PDS

Default: None

Example: MSMODMEM=VMODMSGS

This specification would indicate to the DRS/VPI that a member named VMODMSGS exists in the DRSVLIB PDS, and that this member contains information to be used to modify the types on some DRS/VPI messages.

Note: The message modification member will **only** affect DRS/VPI messages (DRSVxxxx messages). DRS/API messages (DRSxxx messages) will **not** be controlled by this member. When DRS/VPI is processing output, it invokes DRS/API via calls. But the DRS/API messages are outside the control of the DRS/VPI processing. To control the use of the DRS/API messages, you can use DRS/API user exit 05 (DRSSUE05). For an explanation of that see [“WTO Exit \(Exit 05\)” on page 22.10](#).

DRS/VPI messages are written to the DRSVLOG DD, or to a dynamically allocated SYSOUT dataset based on the LOGOUTP keyword in the System Initialization Member. DRS/API messages are written to the DDNAME specified on the LOGDD keyword specified in the DRSSOPTS module. The default for LOGDD is DRSLOG. Refer to [page 20.9](#) for more information about coding the DRSSOPTS module.

SAPCLNT in SYSTEM INITIALIZATION MEMBER

SAPCLNT= Specifies the SAP R/3 client number which should be used by DRS when logging on to SAP R/3 callback servers. The appropriate client number will be provided by your SAP R/3 system administrator. For complete details of the DRS/OutputManager interface for SAP R/3, please refer to [“Introduction to DRS/OutputManager”](#) on page 34.1.

Valid Values: 000 - 999

Default: 000

Example: SAPCLNT=000

This specification indicates that DRS/OutputManager should use a client number of 000 when logging on to a SAP R/3 callback server.

SAPDMN

in SYSTEM INITIALIZATION MEMBER

SAPDMN= Specifies the TCP/IP DNS domain name for the SAP R/3 callback servers. This optional keyword is only required if your SAP R/3 servers are in a different DNS domain than the OS/390 system. The domain name specified will be appended to the callback server host names before attempting to resolve the TCP/IP address and connecting to these servers.

Valid Values: 1 - 100 character DNS domain origin.

Default: None.

Example: SAPDMN=SAPR3.LRSINC.ORG

This specification indicates that the SAP R/3 callback servers are registered in DNS domain 'SAPR3.LRSINC.ORG'. This domain name will be appended to the SAP R/3 callback server host names to generate a fully qualified DNS name before attempting to resolve the IP address.

SAPOPTS in SYSTEM INITIALIZATION MEMBER

SAPOPTS= A one byte hex representation that specifies special processing options for the DRS/OutputManager interface for SAP R/3. For complete details of the DRS/OutputManager interface for SAP R/3, please refer to [“Introduction to DRS/OutputManager” on page 34.1.](#)

80 - Unassigned.

40 - Unassigned.

20 - Unassigned.

10 - Unassigned.

08 - Unassigned.

04 - Unassigned.

02 - Unassigned.

01 - Unassigned.

Valid Values: 00 - FF

Default: 00

SAPPSWD

in SYSTEM INITIALIZATION MEMBER

SAPPSWD= Specifies the password that should be used by the DRS/OutputManager interface for SAP R/3 when logging on to a SAP R/3 callback server. For complete details of the DRS/OutputManager interface for SAP R/3, please refer to [“Introduction to DRS/OutputManager” on page 34.1](#).

Valid Values: 1 to 8 character password.

Default: PASSWORD

Example: SAPPSWD=sappswd

This specification indicates that DRS/OutputManager should use a password of **sappswd** when logging on to a SAP R/3 callback server.

SAPRETRY in SYSTEM INITIALIZATION MEMBER

SAPRETRY= Specifies the time interval in minutes that DRS/OutputManager should wait before retrying a connection to a failed SAP R/3 callback server. The specified interval will be doubled after ten retry attempts and will be doubled again after twenty retry attempts. For complete details of the DRS/OutputManager interface for SAP R/3, please refer to [“Introduction to DRS/OutputManager” on page 34.1.](#)

Valid Values: 1 - 999

Default: 5

Example: SAPRETRY=10

This specification indicates that DRS/OutputManager should retry the connection to a failed SAP R/3 callback server every ten minutes.

SAPTRACE

in SYSTEM INITIALIZATION MEMBER

SAPTRACE= Specifies, via two positional parameters, whether SAP R/3 Remote Function Call (RFC) communications should be traced and specifies an output directory that should receive the trace files. For complete details of the DRS/OutputManager interface for SAP R/3, please refer to [“Introduction to DRS/OutputManager” on page 34.1.](#)

Positional parameter 1 specifies whether or not SAP R/3 Remote Function Call (RFC) API tracing should be enabled.

Valid Values: Y or N

Default: N

Positional parameter 2 specifies the output directory that should receive the trace files that are generated. This keyword must specify the name of a UNIX system services HFS directory which already exists and which is accessible to the DRS address space userid. With tracing enabled, the SAP R/3 RFC interface will generate a separate trace file for each SAP R/3 callback server task. The file names created will have the form 'rfc<PID>_<TID>.trc' where <PID> is the process identifier and <TID> is the thread identifier.

In some situations, RFC trace files can be also be created when the first positional parameter is 'N'. The output directory designated in positional parameter 2 will receive any trace file create by the SAP R/3 Remote Function Call (RFC) API, regardless of whether tracing was explicitly requested via positional parameter 1.

Valid Values: 1 to 32 character directory name. (case sensitive)

Default: None

Example: SAPTRACE=(Y,/u/DRS/saptrace)

This specification indicates that DRS/OutputManager should request SAP R/3 RFC tracing and that the trace data should be directed to output directory /u/DRS/saptrace.

SAPUSER in SYSTEM INITIALIZATION MEMBER

SAPUSER= Specifies the userid that should be used by the DRS/OutputManager interface for SAP R/3 when logging on to a SAP R/3 callback server. This userid must be defined to the SAP R/3 system and must have authority to establish an RFC connection and logon to the External Management Interface XOM (External Output Management) application. The required permissions can be granted by adding the S_XMI_XOM_A security profile to the user. For complete details of the DRS/OutputManager interface for SAP R/3, please refer to [“Introduction to DRS/OutputManager” on page 34.1.](#)

Valid Values: 1 to 12 character userid.

Default: DRSOMGR

Example: SAPUSER=DRSUSR

This specification indicates that DRS/OutputManager should use a userid of DRSUSR when logging on to a SAP R/3 callback server.

SNAPHOLD

in SYSTEM INITIALIZATION MEMBER

SNAPHOLD= Specifies whether the SNAP SYSOUT dataset should be allocated as a held SYSOUT dataset.

Valid Values: Y or N

Default: N

Example: SNAPHOLD=Y

This specification would signify to the DRS/VPI that the SNAP SYSOUT dataset should be held.

SNAPOUTP in SYSTEM INITIALIZATION MEMBER

SNAPOUTP= Specifies, via five positional parameters, the characteristics to be used when allocating the DRS Virtual Printer Interface snap dump dataset.

Positional parameter 1 specifies the SYSOUT class to be used for the DRS/VPI snap dump dataset.

Valid Values: Any valid SYSOUT class (0 - 9 or A - Z)

Default: A

Positional parameter 2 specifies the destination to be used for the DRS/VPI snap dump dataset.

Valid Values: Any valid JES destination

Default: LOCAL

Positional parameter 3 specifies the form name to be used for the DRS/VPI snap dump dataset.

Valid Values: Any 1 - 4 character alphanumeric form name

Default: None.

Positional parameter 4 specifies the writer to be used for the DRS/VPI snap dump dataset.

Valid Values: Any 1 - 8 character alphanumeric writer name

Default: None.

Positional parameter 5 specifies the name of an OUTPUT JCL statement in the DRS/VPI started task JCL to be used to determine the characteristics of the snap dump dataset.

Valid Values: The name of an OUTPUT JCL statement that exists in the DRS/VPI started task JCL

Default: None

Note: If you specify the name of an OUTPUT JCL statement that does not exist in the DRS/VPI started task JCL, allocation of the snap dataset will fail.

Example 1: SNAPOUTP=(B,U100,STD)

This specification would signify to the DRS/VPI that the snap dump dataset should have a SYSOUT class of B, a destination of U100, and a form name of STD.

Example 2: SNAPOUTP=(,,,SNAPOUT)

This specification would signify that the snap dump dataset should have the characteristics specified in the OUTPUT JCL statement named SNAPOUT in the DRS/VPI JCL. Destination will default to LOCAL and class will default to A.

SSI

in SYSTEM INITIALIZATION MEMBER

SSI= Specifies, via three positional parameters, information used for controlling DRS as a subsystem.

Positional parameter 1 specifies the subsystem name to be used by DRS.

Valid Values: Any valid 1 to 4 character subsystem name.

This name can be defined to MVS by adding an entry in member IEFSSNxx in SYS1.PARMLIB. The entry should contain only the name of the DRS subsystem. This is the IBM-recommended method of defining subsystems to MVS. However, this method does require an IPL. If DRS detects that the specified name has not been defined, it will dynamically add the subsystem to MVS.

Default: DR01 or some increment of DR01, such as DR02, DR03, etc., if more than one DRS started task is executing.

Positional parameter 2 specifies the command characters for issuing commands to DRS when controlling DRS as a subsystem.

Valid Values: One to eight characters consisting of: uppercase A through Z, 0 through 9, the apostrophe, the cent sign, the vertical bar (|), the left parenthesis, the right parenthesis, the comma, the percent sign, the colon, the semi-colon, the period, the ampersand, the plus sign, the underscore, the pound sign (#), the less-than symbol, the exclamation point, the minus sign, the greater-than symbol, the at sign (@), the double quote mark, the dollar sign, the slash, the question mark, the equal sign, and the asterisk.

Note: The characters chosen must not be a subset or a superset of an existing prefix. For example, if command prefix \$XYZ already exists, command prefixes \$, \$X, and \$XY are subsets of, and conflict with, the original prefix. Similarly, prefixes \$XYZ1 and \$XYZ\$ will also conflict with existing prefix \$XYZ because they are supersets with the same first character.

Default: None.

Positional parameter 3 specifies the number of command buffers to be allocated for issuing commands when controlling DRS as a subsystem. This storage will be GETMAINED from CSA when DRS is initialized. Each command buffer is 160 bytes in size.

Valid Values: 0 - 256

Default: 0

SSI in SYSTEM INITIALIZATION MEMBER

Example:

SSI=(DRSX,*,10)

This specification indicates that a subsystem name of DRSX is to be used for DRS, that an asterisk (*) is the DRS subsystem command character to be used for issuing commands, and that ten command buffers should be allocated.

Note: If you specify a subsystem name in the first positional parameter of this keyword, it cannot be the same as the name of the proc used for the DRS started task. If you allow DRS to assign a default subsystem name, such as DR01, DR02, etc., you cannot use that name as the name of the proc used for the DRS started task.

DRS will run as an MVS subsystem only if the DRS modules are loaded from an authorized library.

SWAPABLE

in SYSTEM INITIALIZATION MEMBER

SWAPABLE= Specifies whether the DRS/VPI address space should run swappable. In order to specify that DRS/VPI should run non-swappable (SWAPABLE=N), the DRS/VPI modules must be loaded from an authorized library.

Valid Values: Y or N

Default: Y

Example: SWAPABLE=N

This specification would signify that the DRS/VPI address space should run non-swappable.

TCPIPID in SYSTEM INITIALIZATION MEMBER

TCPIPID= Identifies the address space where MVS TCP/IP is running. This name is used when DRS/VPI connects to the MVS TCP/IP address space.

Valid Values: 1 to 8 character name of the MVS TCP/IP system

Default: None

Example: TCPIPID=TCPIP

This parameter is required if DRS/TCPIP is installed. For IBM's MVS TCP/IP, this value should match the name of the started task or JOB name. For the MVS TCP/IP product from Interlink Computer Sciences, this parameter should match the four character subsystem ID. The default subsystem ID for ICS is ACSS.

TCPLHOST

in SYSTEM INITIALIZATION MEMBER

TCPLHOST= Specifies the address of the local host where DRS is running. This address is used when DRS uses the BIND to select the local address and PORT number. This keyword is OPTIONAL.

Valid Values: A 1 to 15 character IP address, in “dotted decimal” format. The IP address is specified in a series of 4 numbers, separated by periods. Each number must be in the range of 0 to 255.

Default: None.

Example: TCPLHOST=199.99.99.5

Note: This keyword is only used with DRS/TCPIP; the keyword is optional. If the TCPLHOST keyword is not specified, the TCP/IP system on MVS will assign a local address. If the TCPLHOST value is specified, it must be an address that is valid for the MVS system where DRS is running.

TCPPOINT

in SYSTEM INITIALIZATION MEMBER

TCPPOINT= Specifies the number of the port to be used by DRS/TCPIP when it listens for connections from remote TCP/IP hosts. This value should be specified as 515 if normal LPR/LPD protocols are being used.

Valid Values: 1 to 65535

Default: 515

Example: TCPPOINT=516

This specification would indicate to DRS/VPI to connect to TCP/IP and listen for connects using port 516.

This keyword is used only if DRS/TCPIP is installed, and normally should be set to the default of 515.

TCPTYPE

in SYSTEM INITIALIZATION MEMBER

TCPTYPE= Specifies the type of application programming interface to be used by DRS/TCPIP to communicate with the MVS TCP/IP product.

Valid Values: IBM310 IBM Macro API; V3R1 or later
IBM320 IBM HPNS; V3R2 or later.
IBM340 IBM V3R4 or later.
ICS Interlink API; V1.1 or later

Default: IBM340

Example: TCPTYPE=ICS

This specification indicates to DRS/VPI to connect to the MVS TCP/IP system using the Interlink Computer Sciences API.

Note: This keyword is used only if DRS/TCPIP is installed.

TRACE

in SYSTEM INITIALIZATION MEMBER

TRACE= Specifies, via three positional parameter values, the type of tracing to be in effect for DRS/VPI activities.

Positional parameter 1 specifies which DRS/VPI activities are to be traced, in addition to those that are always traced. This parameter is specified as a two digit number, representing one hex byte. The trace type bit specifications are as follows:

- 80** - Dispatcher/log task interrupts
- 40** - Unassigned
- 20** - Unassigned
- 10** - User exits (system related)
- 08** - Unassigned
- 04** - Unassigned
- 02** - Storage Management
- 01** - GTF tracing active

Valid Values: 00 - FF

Default: 00

Positional parameter 2 specifies the size of the DRS/VPI trace table, in 4K pages.

Valid Values: 1 - 99

Default: 3

Positional parameter 3 specifies the GTF format appendage ID to be used in DRS/VPI entries in the GTF trace file, when GTF tracing is on.

Valid Values: 0 - 80

Default: 78

Example: TRACE=(03,15,79)

This specification would signify to the DRS/VPI that storage management interrupts should be traced, that GTF tracing is active, that a 60K trace table should be allocated and that any DRS/VPI entries in the GTF trace file should have a format appendage ID number of 79.

TRACK

in SYSTEM INITIALIZATION MEMBER

TRACK= Specifies whether the DRS/VPI SYSOUT tracking feature should be enabled. The SYSOUT tracking feature utilizes the JES Client Server print interface functions to enable DRS to track the status of all SYSOUT datasets it creates. This tracking information is displayed in the DRS/VPI LOG and can also be queried by operator command, via a client query request or using the DMCF user interface. For details of the tracking feature and additional installation requirements, refer to [“Install SYSOUT Tracking Feature” on page 34.4.](#)

Valid Values: Y or N

Default: N

Example: TRACK=Y

This specification indicates that the DRS/VPI SYSOUT tracking feature should be enabled.

USEROPTS in SYSTEM INITIALIZATION MEMBER

USEROPTS= A four byte hex representation that specifies special user options to be used on a DRS/VPI system-wide basis. The user option bit specifications are as follows:

- 80000000** - Reject TCP/IP connection if printer is busy.
- 40000000** - Ignore all SEND QUEUE STATE LPD commands.
- 20000000** - Enable display of DRS/SECURE decryption key.
- 10000000** - Use SAPI request for SYSOUT status.
- 08000000** - Allow DASD files from LRS/Queue.
- 04000000** - Allow HFS files from LRS/Queue.
- 02000000** - Unassigned.
- 01000000** - Reserved for future use.
- 00800000** - Bypass inactivation of dynamically activated TCP/IP printers.
- 00400000** - Unassigned.
- 00200000** - Unassigned.
- 00100000** - Unassigned.
- 00080000** - Unassigned.
- 00040000** - Unassigned.
- 00020000** - Unassigned.
- 00010000** - Unassigned.
- 00008000** - Unassigned.
- 00004000** - Unassigned.
- 00002000** - Unassigned.
- 00001000** - Unassigned.
- 00000800** - Unassigned.
- 00000400** - Unassigned.
- 00000200** - Unassigned.
- 00000100** - Unassigned.
- 00000080** - Unassigned.
- 00000040** - Unassigned.
- 00000020** - Unassigned.
- 00000010** - Unassigned.
- 00000008** - Unassigned.
- 00000004** - Unassigned.
- 00000002** - Unassigned.
- 00000001** - Unassigned.

Valid Values: 00000000 - FFFFFFFF

Default: 00000000

Example: USEROPTS=80000000

This specification indicates to DRS/VPI that the connection attempt for a TCP/IP printer definition will be rejected if the printer is already connected. Normally, DRS/VPI would wait until the first connection is terminated to process the waiting connection.

WTO

in SYSTEM INITIALIZATION MEMBER

WTO= Specifies, via four positional parameter values, how the DRS/VPI is to issue console messages.

Positional parameter 1 specifies whether or not the DRS/VPI console messages should be prefixed with the DRS/VPI started task name.

Valid Values: Y or N

Default: Y

Positional parameter 2 specifies whether or not the DRS/VPI action messages should be issued with a Descriptor Code of 2 (MVS action). If messages are issued with a descriptor code of 2, they will be deleted when the required action has been completed.

Valid Values: Y or N

Default: Y

Positional parameter 3 specifies whether or not the DRS/VPI informational messages (those with a suffix of "I") should be issued.

Valid Values: Y or N

Default: Y

Positional parameter 4 specifies the route code that the DRS/VPI should use when issuing unsolicited WTOs. This parameter does not apply to WTOs that are issued in response to a DRS/VPI command, since those WTOs will be issued to the console from which the command was issued.

Valid Values: 1 - 16

Default: 1

Example: WTO=(Y,Y,N,5)

This specification would signify that DRS/VPI messages should be prefixed with the DRS/VPI started task name, that the DRS/VPI action messages should be issued with a Descriptor Code of 2, that no DRS/VPI informational messages are to be issued, and that any unsolicited WTOs are to use a route code of 5.

XLISTMEM in SYSTEM INITIALIZATION MEMBER

XLISTMEM= Specifies a member within the DRSVLIB PDS that defines the member names of those DRS virtual printers that are not to be automatically activated in the DRS/VPI system at start-up.

Valid Values: Member name of a member that exists in the DRSVLIB PDS

Default: None

Example: XLISTMEM=DRSXLIST

This specification would signify to DRS that member DRSXLIST in the DRSVLIB PDS contains a list of members which are not to be automatically started by DRS at DRS/VPI start-up.

Building the Printer Activation Inclusion List

The DRS/VPI Printer Activation Inclusion List specifies the member names of the DRSVLIB members defining printers that should automatically be activated when the DRS/VPI system is initialized. This member is optional, but if neither it nor the Printer Activation Exclusion List is specified, no virtual printers will be automatically activated when the DRS/VPI system is initialized. Printers can, however, be activated after the DRS/VPI system has been initialized by issuing the DRS/VPI ACTIVATE command.

The name of this member, if used, must be specified in the DRS/VPI initialization member by the MLISTMEM keyword.

Sample DRS/VPI Printer Activation Inclusion List:

```
* - - - - - *
*
*   DRSMLIST - DRS/VPI PRINTER ACTIVATION INCLUSION LIST *
*
* - - - - - *
*
  DRSPRT01,
  DRSPRT02,
  DRSPRT03
```

Building the Printer Activation Exclusion List

The DRS/VPI Printer Activation Exclusion list specifies the member names of the DRSVLIB members which should not automatically be activated when the DRS/VPI system is initialized. This member is optional, but if neither it nor the Printer Activation Inclusion List is specified, no printers will be automatically activated when the DRS/VPI system is initialized. Printers can, however, be activated after the DRS/VPI system has been initialized by using the DRS/VPI ACTIVATE command.

The DRS/VPI will automatically bypass the DRS/VPI System Initialization member (member name DRSSTART unless otherwise specified in the PARM on the DRS/VPI started task JCL), the XLISTMEM member itself, and the member named in the MSMODMEM parameter in the DRS/VPI System Initialization member.

The name of this member, if used, must be specified in the DRS/VPI system initialization member by the XLISTMEM keyword.

Note: The Exclusion List Member will not work correctly if you concatenate more than one library on the DRSVLIB JCL statement. To use an Exclusion List Member, all DRS/VPI-related members must exist in a single library.

Sample DRS/VPI Printer Activation Exclusion List:

```
* - - - - - *
*
* DRSXLIST - DRS/VPI PRINTER ACTIVATION EXCLUSION LIST *
*
* - - - - - *
*
*   ACTIVATE ALL DRS VIRTUAL PRINTER MEMBERS EXCEPT:
*
*   DRSTEST1,
*   DRSTEST2,
*   APGMNAME
```

Building the Printer Default Member

This member is specified in the same format and has available the same keywords as the printer definition member. The purpose of this member is to establish printer default values different from the standard DRS/VPI default values. See [“Building the Printer Definition Members” on page 3.63](#) for a description of all of the DRS/VPI printer keywords.

The name of this member, if used, can be specified in the DEFLTMEM keyword in the DRSSTART System Initialization member and/or by the DEFLTMEM keyword in a Printer Definition member. See [“Printer Default Member” on page 3.15](#) for an explanation of how DRS/VPI determines keyword values for a printer.

Sample DRS/VPI Printer Default Member

```
* -----*
*
* DRSDEFLT          DRS/VPI DEFAULT MEMBER
*
* -----*
CLASS=A,           SYSOUT CLASS=A
DEST=*,           DESTINATION = MEMBER NAME
OUTREF=OUTJCL     OUTPUT JCL REFERENCE
```

Building the Printer Definition Members

Overview

One DRSVLIB member should be defined for each printer that is to be supported by the DRS/VPI. These members define the characteristics and options applicable to each virtual printer within the DRS Virtual Printer Interface system.

If AUTOACT=(,Y) is specified in the DRS/VPI initialization member, and the MLISTMEM member in the DRS/VPI control library lists the name of every VTAM virtual printer, the DRS control library does not need to include a member for each VTAM virtual printer. When DRS/VPI is started, it will use the master default printer definition in the DRS/VPI control library as a model to dynamically create a virtual printer control block in the DRS/VPI address space for each name in the MLISTMEM member. If the master default printer definition contains a keyword value such as DEST=* or WRITER=*, so that the virtual printer name is substituted for the value of the keyword, each virtual printer will create SYSOUT datasets with a unique value for DEST or WRITER.

The various DRS/VPI keyword parameter values are specified by coding the keyword followed by an equal sign (=) followed by the keyword value. For example:

DEST=U1

The printer definition keywords are divided into these categories:

Spooling Attributes

CC
CLASS
DDNAME
DEST
FCB
FORM
HOLD
JOBNAME
NODE
OUTREF
UCS
USERID
WRITER

Record Format Attributes

BLKSIZE
LRECL
RECFM

DASD Attributes

AVGREC
DATACLAS
DISP
DSN
DSNTYPE
EXPDT
MEMBER
MGMTCLAS
RETPD
SPACE
STORCLAS
UNIT
VOLCNT
VOLUME

HFS Attributes

FILEDATA
PATH
PATHDISP
PATHMGRP
PATHMOTH
PATHMUSR
PATHOPTS

TCP/IP Parameters

QBUFSIZE
QSPACE
QUNIT
QVOLUME
TCPLIMIT
TCPMRD
TCPOPTS

Miscellaneous Parameters

BUFSIZE
COMMTYPE
CROPTS
DECRYPT
DESC
DKEY
DEFLTMEM
DRAINED
ERRACTN
GRPNAME
IPDCLASS
IPDSOPTS
MAXLPG
MPP
PRTNAME
PRTOPTS
PRTXDBCS
PRTXLATE
SEPAR
SNAP
SUBSYS
TAB
TERMRPT
TRACE
TRACK
TRN
UDATA

Using Symbolic Parameter Substitution for Printer Definition Keywords

Certain printer keywords allow specifying symbolic parameters. These parameters are substituted with dynamic values at the time the keyword value is used. All symbolic parameters begin with “&” and can be terminated by another symbolic parameter, with a period (.), or by the end of the keyword value.

The following keywords currently allow symbolic substitution:

DSN=

JOBNAME=

PATH=

USERID=

[Table 3-1 on page 3.67](#) shows what values will be substituted if the symbolic parameter is specified within the keyword value.

| SYMBOLIC NAME | REPLACED BY | DATE | LENGTH | EXAMPLE | SEE NOTE |
|---------------|-------------------------------|------|--------|----------|----------|
| CLASS | SYSOUT class | | 1 | A | 7, 8 |
| CN | Century | CURR | 2 | 20 | 2 |
| DATE | Date (MMDDYY) | CURR | 6 | 092202 | 2 |
| DAY | Day of week | CURR | 3 | SUN | 2,4 |
| DAYN | Day of week (numeric) | CURR | 1 | 0 | 2,5 |
| DEST | SYSOUT destination | | 8 | LOCAL | 7, 8 |
| DY | Day of month | CURR | 2 | 21 | 2 |
| EDATE | Date (DDMMYY) | CURR | 6 | 220902 | 2 |
| FORM | SYSOUT form name | | 8 | STD | 7, 8 |
| HH | Hour of the day | CURR | 2 | 23 | 2 |
| ICN | Century | INIT | 2 | 20 | 2 |
| IDATE | Date (MMDDYY) | INIT | 6 | 092102 | 2 |
| IDAY | Day of week | INIT | 3 | SAT | 2,4 |
| IDAYN | Day of week (numeric) | INIT | 1 | 6 | 2,5 |
| IDY | Day of month | INIT | 2 | 21 | 2 |
| IEDATE | Date (DDMMYY) | INIT | 6 | 210902 | 2 |
| IHH | Hour of the day | INIT | 2 | 02 | 2 |
| IJDATE | Julian date | INIT | 5 | 02264 | 2 |
| IJDAY | Julian day | INIT | 3 | 264 | 2 |
| IMM | Minutes | INIT | 2 | 23 | 2 |
| IMO | Month | INIT | 2 | 09 | 2 |
| ISS | Seconds | INIT | 2 | 45 | 2 |
| ITIME | Time (HHMMSS) | INIT | 6 | 022345 | 2 |
| IYR | Year | INIT | 2 | 02 | 2 |
| JDATE | Julian date | CURR | 5 | 02265 | 2 |
| JDAY | Julian day | CURR | 3 | 265 | 2 |
| JOB | Job name of DRS/VPI | | 8 | DRSVPI | |
| LPDC | LPD 'C' control file record | | Varies | CLASS | 1, 12 |
| LPDCOMM | LPD '-' control file record | | Varies | COMMENT | 1, 12 |
| LPDH | LPD 'H' control file record | | Varies | HOSTNAME | 1, 12 |
| LPDJ | LPD 'J' control file record | | Varies | JOBNAME | 1, 12 |
| LPDL | LPD 'L' control file record | | Varies | BANNER | 1, 12 |
| LPDM | LPD 'M' control file record | | Varies | MAILUSER | 1, 12 |
| LPDN | LPD 'N' control file record | | Varies | FILENAME | 1, 12 |
| LPDP | LPD 'P' control file record | | Varies | USERNAME | 1, 12 |
| LPDT | LPD 'T' control file record | | Varies | TITLE | 1, 12 |
| LRSQJOB | LRS/Queue job name | | 8 | MYJOB | |
| LRSQUID | LRS/Queue user ID. | | 8 | USERA | |
| MBR | Printer member name | | 8 | VPRT001 | 11 |
| MM | Minutes | CURR | 2 | 08 | 2 |
| MO | Month | CURR | 2 | 09 | 2 |
| PLU | Partner LU (VTAM) | | 8 | CICSP | 3 |
| SEQ | Sequential number | | Varies | 17 | 6 |
| SS | Seconds | CURR | 2 | 50 | 2 |
| STIUID | Smart Tag Userid | | 8 | USER001 | 9, 10 |
| SYSSEQ | System-wide sequential number | | Varies | 0000345 | 13 |

| SYMBOLIC NAME | REPLACED BY | DATE | LENGTH | EXAMPLE | SEE NOTE |
|---------------|--------------------|------|--------|---------|----------|
| TIME | Time (HHMMSS) | CURR | 6 | 230850 | 2 |
| WRITER | SYSOUT writer name | | 8 | INTRDR | 7, 8 |
| YR | Year | CURR | 2 | 02 | 2 |

Table 3-1: Symbolic Substitution Table

- Note 1:** The LPD control file record fields are not allowed if COMMTYPE=VTAM. For COMMTYPE=TCPIP, the control file record fields will only be available if the connection is LPR/LPD. Otherwise null values will be substituted for these fields. The length of the control file record values to be used varies based on which keyword is being processed. For the JOBNAME= keyword, up to 8 characters will be used. For the DSN=keyword, up to 44 characters will be used. For the PATH= keyword, up to 100 characters will be used.
- Note 2:** The date values are based on either the current (CURR) date and time or the virtual printer's initialization (INIT) date and time. All examples in the table use a current date and time of September 22, 2002 at 11:08:50 P.M. and a printer initialization date of September 21, 2002 at 2:23:45 A.M.
- Note 3:** PLU is only valid for COMMTYPE=VTAM or COMMTYPE=APPC. For TCP/IP printers, there is no partner LU name.
- Note 4:** Day of the week is a three-character abbreviation. The valid values are: SUN, MON, TUE, WED, THU, FRI, SAT.
- Note 5:** The numeric day of the week is set as follows: SUN=0, MON=1, TUE=2, WED=3, THU=4, FRI=5, SAT=6.
- Note 6:** The sequential number is 2 bytes when used for the JOBNAME keyword and 7 bytes when used for the DSN or PATH keyword. The sequential number is reset to 1 each time the virtual printer is activated. It will be incremented by 1 each time a print report file is allocated.
- Note 7:** SYSOUT values are only valid if a SYSOUT file is being created. Null values will be substituted if a DASD or HFS file is being created.
- Note 8:** This parameter is not allowed for JOBNAME.
- Note 9:** This parameter is not allowed for DSN.
- Note 10:** This parameter is not allowed for PATH.
- Note 11:** The only parameter currently allowed for USERID substitution is LRSQUID.
- Note 12:** If any LPD symbolic variable is specified and TCPOPTS=80 is also specified to ignore the LPD control file, the symbolic variable will have a null value. If there are no other valid values in the JOBNAME field, printer activation will fail.
- Note 13:** The length of the sequential number is 2 bytes when used for the JOBNAME keyword and 7 bytes when used for the DSN or PATH keyword. The system-wide sequential number is maintained for use by all printers and is incremented by 1 each time it is used. This number is not reset when any individual printer is re-activated.

Minimum DRS/VPI Printer Definition Requirements

As this section shows, there are many parameters available to customize the definition of a printer to the DRS/VPI. However, most printers will perform satisfactorily if you define the printer to the DRS Virtual Printer Interface with only the spooling attributes (for example, class and/or destination). The VTAM name of the virtual printer is the same as the member name of the virtual printer in the DRS/VPI control library (DRSVLIB).

Most virtual printer keyword parameters have default values which will give satisfactory results for a wide range of devices.

The virtual printer keyword parameters are listed in alphabetical order, starting on the next page.

AVGREC in PRINTER MEMBER

AVGREC= Specifies, via two positional parameters, how space should be allocated for a DASD file if the first positional parameter of the SPACE keyword specifies allocation by record. AVGREC is ignored if allocation is by cylinders, tracks, or blocks.

Positional parameter 1 specifies the average record size of records to be added to this file.

Valid Values: 1 - 32760

Default: LRECL value

Positional parameter 2 specifies which multiplier should be used for the primary and secondary allocation values when space is allocated.

Valid Values: U, K or M, where:

U specifies a multiplier of 1

K specifies a multiplier of 1024

M specifies a multiplier of 1048576

Default: U

Example: AVGREC=(2048,K)

This specification indicates that the average record size is 2048 bytes and that the primary and secondary quantities on the SPACE keyword should be multiplied by 1024 to determine the amount of space to be allocated for the file.

BLKSIZE

in PRINTER MEMBER

BLKSIZE= Specifies the block size to be used when DRS/VPI creates the print file on the JES spool or on a DASD volume.

Valid Values: 1 - 32760

Default: 4096

Example: BLKSIZE=800

This specification indicates that DRS/VPI should create the print file with a block size of 800.

Notes: BLKSIZE must be equal to or larger than LRECL, and should be a multiple of LRECL for fixed length records. BLKSIZE will be adjusted if an invalid value is specified.

The default BLKSIZE value has been increased from 1024 to 4096 with DRS V1 R3.4.

BUFSIZE in PRINTER MEMBER

BUFSIZE= Specifies, via three positional parameters, the size of the receive and send buffers to be used for the DRS/VPI printer.

Positional parameter 1 specifies how the receive buffer size should be determined.

Valid Values: BIND - Use size in BIND.
 MAX - Use second parameter of BUFSIZE keyword.

Default: BIND - For VTAM definitions.
 MAX - For TCP/IP definitions.

BIND is not allowed for DRS/TCPIP definitions.

Positional parameter 2 specifies the maximum size of the receive buffer.

For TCP/IP connections, this value is used as the receive buffer size.

For VTAM connections, this value is used as the maximum receive buffer size. If the first parameter specifies 'MAX', then this value will be used to allocate the VTAM receive buffer. If the receive buffer size in the BIND exceeds this value, the BIND will be rejected.

Valid Values: 256 - 4096

Default: 3840

Positional parameter 3 specifies the maximum size of the send buffer.

Valid Values: 256 - 4096

Default: 3840

Example: BUFSIZE=(MAX,4096,2048)

This specifies that DRS/VPI should always obtain a receive buffer of 4096 bytes and a send buffer of 2048 bytes.

CC

in PRINTER MEMBER

CC= A 1-byte hex representation that specifies the value that should be used for the carriage control byte for the first line of a report.

Valid Values: 00 to FF

Default: 4E

Example: CC=F1

This specifies that DRS/VPI should use X'F1' for the carriage control for the first line of a report. This would cause a skip to channel 1 for the report to begin a new page.

Note: CC=F1 replaces PRTROPTS=80 from previous releases of DRS/VPI.

CC=40 replaces PRTROPTS=40 from previous releases of DRS/VPI.

CC=4E represents a plus sign (+), which was the default CC value for the first line in a report in previous releases of DRS/VPI. This value eliminates an extra line or a form feed at the beginning of a report.

The value of the CC= keyword will be ignored if the received buffer contains line control or page control commands which override the CC= value. For example, if the received buffer has a formfeed before the print data, then CC=40 or CC=4E would be ignored and the first line of the print report will contain X'F1' to indicate a new page.

CLASS in PRINTER MEMBER

- CLASS=** Specifies from 1 to 4 SYSOUT classes that should be used when DRS/VPI places SYSOUT on the spool for this virtual printer.
- Valid Values:** Any valid SYSOUT class (A-Z, 0-9, *)
- Default:** None
- Example 1:** CLASS=A
This specification indicates that SYSOUT should be placed on the spool using SYSOUT class A.
- Example 2:** CLASS=*
This specification indicates that SYSOUT should be placed on the spool with the same SYSOUT class as the MSGCLASS associated with the DRS/VPI job or started task.
- CAUTION:** When a CLASS is not specified in the virtual printer or if CLASS=* is specified for the virtual printer, the value specified for MSGCLASS will be used. If the MSGCLASS is a class which is automatically deleted by JES, it will create output which will never print.
- Example 3:** CLASS=(A,C)
This specification indicates that SYSOUT should be placed on the spool twice; once with SYSOUT class A and once with SYSOUT class C.

COMMTYPE

in PRINTER MEMBER

COMMTYPE= Specifies, via two positional parameters, the method of communications to be used to receive data for this virtual printer.

Positional parameter 1 specifies the type of network communications to be used to connect for this virtual printer.

Valid Values: APPC, TCPIP, or VTAM, where:
APPC = VTAM/SNA LU 6.2
TCPIP = TCP/IP network
VTAM = VTAM/SNA LU 0, 1 or 3

Default: VTAM

Positional parameter 2 specifies the protocol to be used when receiving data for this virtual printer. This parameter is OPTIONAL with DRS V1R3.4 and will be dynamically modified based on the current connection.

Valid Values: None
ANYQUEUE= AnyQueue product.
DRSPC = DRS/PC
LPD = LPR/LPD protocols.
LRSQ = LRSQUEUE protocols.
SAP = DRS/OutputManager for SAP/R3
VPSQ = VPS
VPSX = VPSX product.

Default: None if first parameter is VTAM or TCP/IP.
DRSPC if first parameter is APPC.

Note: When a connection is made, this value will be set based on the type of device sending the print file. For VTAM connections, the second parameter will be null. For APPC connections, the second parameter will be DRSPC. For TCP/IP, the same printer definition may accept connections for AnyQueue, LPR/LPD, SAP, VPSQ and VPSX.

Example 1: COMMTYPE=TCPIP

This specification indicates that DRS/VPI should accept connections for this printer using TCP/IP.

Example 2: COMMTYPE=(APPC,DRSPC)

This specification indicates that DRS/VPI should accept connections for this printer using APPC LU6.2 and that the sender is DRS/PC.

CROPTS in PRINTER MEMBER

CROPTS= A 4-byte hex representation that specifies the “C” language run time options to be used for DRS/VPI printer tasks. The option bit specifications are as follows:

- 80000000** - Disable LE/390 recovery.
- 40000000** - Enable LE/390 storage reporting.
- 20000000** - Enable LE/390 runtime options reporting.
- 10000000** - Reserved.
- 08000000** - Reserved.
- 04000000** - Reserved.
- 02000000** - Reserved.
- 01000000** - Reserved.
- 00800000** - Reserved.
- 00400000** - Reserved.
- 00200000** - Reserved.
- 00100000** - Reserved.
- 00080000** - Reserved.
- 00040000** - Reserved.
- 00020000** - Reserved.
- 00010000** - Reserved.
- 00008000** - Reserved.
- 00004000** - Reserved.
- 00002000** - Reserved.
- 00001000** - Reserved.
- 00000800** - Reserved.
- 00000400** - Reserved.
- 00000200** - Reserved.
- 00000100** - Reserved.
- 00000080** - Reserved.
- 00000040** - Reserved.
- 00000020** - Reserved.
- 00000010** - Reserved.
- 00000008** - Reserved.
- 00000004** - Reserved.
- 00000002** - Reserved.
- 00000001** - Reserved.

Valid Values: 00000000 to FFFFFFFF

Default: 00000000

Example: CROPTS=C0000000

This specifies that DRS/VPI should disable LE/390 recovery and enable LE/390 storage reporting for all printer tasks.

DATACLAS

in PRINTER MEMBER

DATACLAS= Specifies the name of the data class to be used by SMS to allocate a DASD file.

Valid Values: 1 to 8 character SMS data class name

Default: None

Example: DATACLAS=TEMPDATA

This specification indicates that SMS should use the TEMPDATA data class when allocating this DASD file. The data class name used must be one that has been pre-defined by the storage administrator at your installation.

DDNAME in PRINTER MEMBER

- DDNAME=** Specifies the DDNAME of 1 to 4 spool files that DRS/VPI will create. DDNAME is ignored for a DASD or HFS print file.
- Valid Values:** Any valid DDNAME or *
- Default:** None
- Example 1:** DDNAME=VPRT001
This specification indicates that DRS/VPI should create the print file with a DDNAME of VPRT001.
- Example 2:** DDNAME=(DD1,DD2,DD3,DD4)
This specification indicates that DRS/VPI should create four print files with DDNAMEs of DD1, DD2, DD3 and DD4. Each DDNAME must be unique. Other SYSOUT parameters must be specified for each of the four spool print files.
- Note:** DRS/VPI will use a dynamically generated DDNAME if none is specified.
Coding DDNAME=* indicates that DRS/VPI should use the member name of the virtual printer definition as the DDNAME. Only one DDNAME can be specified as "*", since each DDNAME must be unique.

DECRYPT

in PRINTER MEMBER

DECRYPT= Specifies, via 3 positional parameters, whether decryption should be performed for this printer, the type of decryption, and the type of device that will do the encryption.

Positional parameter 1 specifies if decryption should be done for this printer.

Valid Values: Y or N

Default: N

Positional parameter 2 specifies the type of decryption.

Valid Values: AES16 - AES with 16-byte key.

AES24 - AES with 24-byte key.

AES32 - AES with 32-byte key.

Default: None.

Positional parameter 3 specifies the type of device that will encrypt the data.

Valid Values: LRSQUEUE - LRS software, such as DRS/OutputManager, AnyQueue, or VPS.

Default: None.

Example: DECRYPT=(Y,AES32,LRSQUEUE)

This specifies that DRS/VPI should use AES decryption with a 32-byte key to decrypt the print file from an LRS product, such as DRS/OutputManager.

Notes: DECRYPT=Y requires a valid value for the KEYDSECR= keyword in the DRS/VPI system initialization member.

The key to be used to do the decryption must be specified as the DKEY= printer keyword and must match the key value used for encryption at the sending device.

DEFLTMEM in PRINTER MEMBER

DEFLTMEM= Specifies a member within the DRS/VPI control library that contains user-defined defaults. If this parameter is not specified, DRS/VPI will use the values coded in the DEFLTMEM keyword from the System Initialization member. If neither is specified, DRS/VPI will use the internal default keyword values.

Valid Values: Member name of a member that exists in the DRSVLIB PDS

Default: None

Example: DEFLTMEM=TCPDEFLT

This specification indicates that member TCPDEFLT in the DRSVLIB PDS contains default values for this virtual printer.

DESC

in PRINTER MEMBER

DESC= Specifies a short text description of this printer to be displayed in DRS Monitor and Control Facility (DMCF).

Valid Values: Up to 60 characters of text.

Default: None.

Example: DESC='LPD Print Queue'

DEST in PRINTER MEMBER

DEST= Specifies from 1 to 4 destinations that should be used when DRS/VPI places SYSOUT datasets on the spool for this virtual printer.

Valid Values: Any valid JES destination

Default: None

Example 1: DEST=U99

This specification indicates that DRS/VPI should place SYSOUT datasets on the spool using destination U99.

Example 2: DEST=(U100,R15)

This specification indicates that DRS/VPI should place SYSOUT datasets on the spool twice; once with a destination of U100 and once with a destination of R15.

DISP

in PRINTER MEMBER

DISP= Specifies, via two positional parameters, the disposition to be used by DRS/VPI to create a DASD print file. This parameter is ignored if the DSN keyword is not specified.

Positional parameter 1 specifies the initial disposition or status of a DASD file.

Valid Values: NEW, OLD, SHR, or MOD, where:

- NEW = a new file is to be created.
- OLD = the file exists and exclusive control is required.
- SHR = the file exists and another job can share it.
- MOD = if the file already exists, it should be extended; if the file does not already exist, a new file should be created.

Default: NEW

Positional parameter 2 specifies the normal termination disposition or status of a DASD file.

Valid Values: CATLG, DELETE, KEEP, or UNCATLG, where:

- CATLG = a NEW file should be cataloged when it is terminated.
- DELETE = the file should be deleted when it is terminated.
- KEEP = the file should be kept when it is terminated.
- UNCATLG = the file should be uncataloged when it is terminated.

Default: CATLG

Example: DISP=(OLD,KEEP)

This specification indicates that a DASD file already exists, and that exclusive control is required. This DASD file will be kept at normal termination.

Note: If MOD is specified as the first parameter of DISP, and a new DASD file is created, VOLUME cannot be specified. A dynamic allocation error will occur.

DKEY in PRINTER MEMBER

DKEY= Specifies the decryption key to be used if DECRYPT=Y is specified for this printer. This field contains 32, 48 or 64 bytes that represent the 16, 24, or 32 bytes of hexadecimal data to be used as the decryption key. This key must match the encryption key used by the sending device.

Valid Values: Any valid hexadecimal string.

Default: None.

Example: DKEY=0102030405060708090A0B0C0D0E0F

This specifies that a key with the above value should be used when decrypting the inbound data.

Notes: The length of this field should be compatible with the decryption type specified as the second parameter on the DECRYPT= printer keyword.

AES16 - 32 bytes (16 hex bytes)

AES24 - 48 bytes (24 hex bytes)

AES32 - 64 bytes (32 hex bytes)

If the length of the DKEY= value specified is longer than what is required based on the second parameter of the DECRYPT= keyword, the remaining DKEY value will be ignored. If the length of the DKEY= value is insufficient based on the second parameter of the DECRYPT= keyword, the field will be padded with binary zeros.

DRAINED

in PRINTER MEMBER

DRAINED= Specifies whether this printer should be initialized in drained status. If this parameter is coded DRAINED=Y, a START command will need to be issued to this printer before it will begin receiving output.

Valid Values: Y or N

Default: N

Example: DRAINED=Y

This specification would signify to the DRS/VPI that this printer should be initialized in DRAINED status.

DSN in PRINTER MEMBER

DSN= Specifies the dataset name of the DASD file to be created by DRS/VPI. The file can be a sequential file or a Partitioned Dataset (PDS). If the file is a PDS, the MEMBER keyword must be specified to name the member to be added by DRS/VPI.

Valid Values: 1 - 60 characters; after symbolic substitution, up to 44 characters of the DSN keyword will be used as the name of the DASD file. The table on [page 3.67](#) is used to determine what values will be used for symbolic substitution.

Default: None

Example 1: DSN=LRS.DRS.SAMPLE.REPORT

This specification indicates that DRS/VPI should create a DASD file with a name of LRS.DRS.SAMPLE.REPORT.

Example 2: DSN=&JOB..&MBR..D&DATE..T&TIME..S&SEQ

This specification indicates that DRS/VPI should create a DASD file with a name based on symbolic substitution.

The first DASD file for this virtual printer would be created with a name of DRS.V009.D011003.T104522.S0000001, assuming the following:

- The DRS/VPI jobname was “DRS”.
- The printer member name was “V009”.
- The current date was January 10, 2003.
- The current time was 10:45:22.

Subsequent files would have updated dates and times, as well as incremented sequential numbers.

Variable names are delimited by another “&” character or a period. If a period is required following the substituted value, then two periods can be coded and only one period will be substituted in the result.

DSNTYPE

in PRINTER MEMBER

DSNTYPE= Specifies the type of file to be allocated if the MEMBER keyword is specified and the file does not exist.

Valid Values: PDS or LIBRARY, where:
PDS = Partitioned Dataset
LIBRARY = PDSE Library

Default: None

Example: DSNTYPE=LIBRARY

This specification indicates that the file to be allocated is a PDSE.

ERRACTN in PRINTER MEMBER

ERRACTN= Specifies, via 2 positional parameters, the action to be performed by the DRS Virtual Printer Interface when an error is encountered.

Positional parameter 1 specifies the action to be performed when an error occurs while placing the report on the spool.

Valid Values:

| | |
|--------------|---|
| HOLD | Place report on the HELD queue. |
| KEEP | Keep report on the spool using the original attributes. |
| PURGE | Delete the report from the spool. |

Default: KEEP

Positional parameter 2 specifies the action to be performed when an error is encountered during symbolic substitution for the JOBNAME or USERID keyword values.

Valid Values:

| | |
|-----------------|---|
| EDRAIN | Error drain the virtual printer. |
| IGNORE | Ignore the JOBNAME or USERID field. |
| TRUNCATE | Truncate the value of the JOBNAME or USERID field at the first invalid value. |

Default: IGNORE

Example: ERRACTN=(HOLD,TRUNCATE)

This indicates that the DRS Virtual Printer Interface should place the report on the HELD queue if there is an error when placing the report on the spool and that invalid substitution characters in the JOBNAME or USERID fields will cause the value to be truncated beginning with the invalid value.

Note: If an invalid JOBNAME or USERID value is created during symbolic substitution and the second positional parameter is IGNORE, the value of the JOBNAME or USERID will be left blank. This will cause the file to be placed on the spool using the USERID and JOBNAME of the DRS Virtual Printer Interface JOB or started task.

EXPDT

in PRINTER MEMBER

EXPDT= Specifies the expiration date for a DASD file to be created by DRS/VPI.

Valid Values: The Julian date in the format YYYYDDD
Exactly seven characters must be specified.
YYYY can be 0000 to 9999. DDD can be 001 to 366.

Default: None

Example: EXPDT=2010003
This specification indicates that the file would expired on January 3, 2010.

Note: EXPDT and RETPD are mutually exclusive keywords.

FCB in PRINTER MEMBER

- FCB=** Specifies from 1 to 4 FCB names that should be associated with reports placed on the spool for this virtual printer.
- Valid Values:** Any 1-4 character FCB name that could be specified in JCL
- Default:** None
- Example 1:** FCB=M6
This specification indicates that DRS/VPI should place SYSOUT datasets on the spool using FCB name of M6.
- Example 2:** FCB=(M6,STD8)
This specification would signify to the DRS/VPI to place SYSOUT datasets on the spool twice; once with an FCB name of M6 and once with an FCB name of STD8.

FILEDATA

in PRINTER MEMBER

FILEDATA= Specifies whether the HFS file should be a text or binary file.

Valid Values: BINARY
 TEXT

Default: BINARY

Example: FILEDATA=TEXT

This specifies that the HFS file should be treated as a text file. DRS will add a new line sequence at the end of each print record.

Note: This keyword is ignored unless the PATH= keyword is specified to indicate that an HFS file should be created.

FORM in PRINTER MEMBER

- FORM=** Specifies from 1 to 4 form names that should be associated with reports placed on the spool for this virtual printer.
- Valid Values:** Any 1-4 character FORM name that could be specified in JCL
- Default:** None
- Example 1:** FORM=FRM3
This specification indicates that DRS/VPI should place SYSOUT datasets on the spool using form name of FRM3.
- Example 2:** FORM=(FRM3,CHEK)
This specification indicates that DRS/VPI should place SYSOUT datasets on the spool twice; once using a form name of FRM3 and once using a form name of CHEK.

GRPNAME

in PRINTER MEMBER

GRPNAME= This parameter allows DRS printers to be assigned to a user-specified group name. DRS commands such as `START`, `STOP` and `DISPLAY` can be issued to a printer group name. The command would then apply to all printers belonging to the specified group. For example, if three different DRS printers were defined with `GRPNAME=GRP1` specified in their respective printer definitions, a DRS command issued to a group name of `GRP1` would automatically be issued to all three printers.

Valid Values: Any alphanumeric name, 8 characters maximum, starting with an alphabetic or national character.

Default: None.

Example 1: `GRPNAME=PRGROUP1`
This specification assigns a group name of `PRGROUP1` to this printer.

Note: This parameter is used only for command processing.

HOLD in PRINTER MEMBER

HOLD= Specifies the HOLD/NOHOLD value for 1 to 4 datasets placed on the spool for this virtual printer.

Valid Values: Y or N

Default: N

Example 1: HOLD=Y

This specification indicates that the DRS/VPI should place SYSOUT datasets on the HOLD queue.

Example 2: HOLD=(N,Y)

This specification indicates that the DRS/VPI should place SYSOUT datasets on the spool twice; once on the output queue and once on the HOLD queue.

IPDCLASS

in PRINTER MEMBER

IPDCLASS= Specifies the SYSOUT class that should be used when DRS places IPDS output on the spool for this virtual printer.

Valid Values: Any valid SYSOUT class (A-Z, 0-9, *)

Default: Value specified for CLASS keyword

Example 1: IPDCLASS=I

This specification would signify to the DRS/VPI that IPDS output should be placed on the spool using SYSOUT class I.

Example 2: IPDCLASS=*

This specification would signify to the DRS/VPI that IPDS output should be placed on the spool with the same SYSOUT class as the MSGCLASS associated with the DRS/VPI job or started task.

CAUTION: If the MSGCLASS which is used for the DRS/VPI started task is a class which is automatically deleted by JES, specifying IPDCLASS=* for the virtual printer or obtaining IPDCLASS=* by default will create output which will never print.

IPDSOPTS in PRINTER MEMBER

IPDSOPTS= A two byte hex representation of printer options to be in effect when processing IPDS output for this printer. The value is specified as four digits, representing two hex bytes (16 option bits). The IPDS option bit specifications are:

8000 = Remove all requests for acknowledgement

4000 = Use 18 byte acknowledgement

2000 = Undefined

1000 = Undefined

0800 = Undefined

0400 = Undefined

0200 = Undefined

0100 = Undefined

0080 = Undefined

0040 = Undefined

0020 = Undefined

0010 = Undefined

0008 = Undefined

0004 = Undefined

0002 = Undefined

0001 = Undefined

Valid Values: Values: 0000 - FFFF

Default: 0000

Example: IPDSOPTS=C000

This specification would indicate to the DRS/VPI that all requests for acknowledgement found in an IPDS report should be removed before placing the report on the spool, and that an 18 byte acknowledgement should be used when returning an acknowledgement to the sender of the IPDS data.

JOBNAME

in PRINTER MEMBER

JOBNAME= Specifies the name that should be used as the JOB name when a SYSOUT dataset is created.

Valid Values: 1 - 24 characters, including alphabetic, numeric and national characters, plus the symbolic parameters from the table on [page 3.67](#). Symbolic parameters begin with ampersand (&) and can be terminated with another symbolic parameter, with a period (.), or by the end of the keyword value.

The JES job name is limited to eight characters. Any JOBNAME keyword value that exceeds this limit will be truncated. This keyword allows up to 24 characters for symbolic substitution.

Default: None

Example 1: JOBNAME=&PLU&SEQ

This indicates that DRS should use the partner LU name (for a VTAM virtual printer only) and a 2-byte sequence number to create the JOBNAME. If the partner LU name was CICST, the JOBNAME would be set as CICST01, CICST02, etc.

Example 2: JOBNAME=Z&LPDP

This indicates that DRS should append the first 7 bytes of the "P" LPD control record data to the letter "Z" to create the JOBNAME. If the "P" LPD control file record contained "USERABCDE", the JOBNAME would be set to ZUSERABC.

Example 3: JOBNAME=JOB&MM&SS.A

This indicates that DRS should append the current time in minutes and seconds to the letters "JOB" and add the letter "A" at the end. At 11:23:14 a.m., the JOBNAME would be set to JOB2314A.

Notes: If JOBNAME keyword is not specified, the SYSOUT file will be created using the name of the DRS/VPI job or started task. If the JOBNAME keyword value is not valid when the printer is activated, the printer activation will fail. If the JOBNAME is not valid after symbolic substitution, a warning message will be issued and the SYSOUT file will be created using the name of the DRS/VPI job or started task.

Using JOBNAME requires MVS/SP 4.1.0 or later and that the DRS/VPI and DRS/API modules be loaded from an authorized library.

For TCP/IP printer members, the following symbolic parameter is not allowed:

&PLU

For VTAM printer members, the following symbolic parameters are not allowed:

| | |
|----------|-------|
| &LPDC | &LPDM |
| &LPDCOMM | &LPDN |
| &LPDH | &LPDP |
| &LPDJ | &LPDT |
| &LPDL | |

LRECL in PRINTER MEMBER

LRECL= Specifies the logical record size to be used when DRS/VPI creates the printer file on the JES spool or on a DASD volume.

Valid Values: For RECFM=(U,), 1 - 32760
For RECFM=(F,), 1 - 32760
For RECFM=(F,A), 1 - 32760
For RECFM=(V,), 4 - 32756
For RECFM=(V,A), 5 - 32756

Default: 4092

Example: LRECL=80

This specification indicates that DRS/VPI should create the print file with a record size of 80.

Note: The default LRECL value was changed to 4092 for DRS V1R3.4.

MAXLPG

in PRINTER MEMBER

MAXLPG= Specifies the maximum lines per page to be allowed when DRS/VPI is receiving print data.

Valid Values: 0 - 256

Default: 0

Example: MAXLPG=50

This specification indicates that a new page should be created after 50 lines of data have been received.

Note: MAXLPG is used only for TCP/IP print queue definitions when processing a “p” print filter, which requires that DRS/VPI add a heading to each page. If no value is specified for MAXLPG, the maximum print lines per page will be set to 55.

MEMBER in PRINTER MEMBER

MEMBER= Specifies the member name of a partitioned dataset (PDS) to be created by DRS/VPI. This parameter is ignored if the DSN keyword is not specified.

Valid Values: 1 - 8 character name of a member of a PDS

Default: None

Example: MEMBER=VPRT009

This specification indicates that a member named VPRT009 should be added to the PDS whose name is specified in the DSN keyword for this printer definition.

MGMTCLAS

in PRINTER MEMBER

MGMTCLAS= Specifies the name of the management class to be used by SMS to allocate a DASD file.

Valid Values: 1 - 8 character SMS management class name

Default: None

Example: MGMTCLAS=ACCTMGMT

This specification indicates that SMS should use the ACCTMGMT management class when allocating this DASD file. The management class name used must be one that has been pre-defined by the storage administrator at your installation.

MPP in PRINTER MEMBER

MPP= Specifies the maximum print position in report lines for the virtual printer. The DRS/VPI will use this value to end a print record and start a new print record when receiving output.

Valid Values: 1-3 digit numeric value between 0 and 255

Default: MPP=132

Example: MPP=220

This specification indicates to the DRS/VPI to create print records on the spool which do not exceed 220 characters. If no line feed or form feed characters have been encountered and 220 characters have been received in this print record, the DRS/VPI will begin a new print record on the spool.

Note: If the maximum print position is specified as 0, DRS/VPI will create print records based on the number of characters of data received for each print line. The end of a print line is normally indicated by line feed, new line, or form feed characters. No print record will be created which is longer than the LRECL specified.

If the LRECL is set to a value that is less than the value set for MPP, the MPP value will be adjusted to be equal to the LRECL.

NODE

in PRINTER MEMBER

NODE= Specifies from 1 to 4 node names that should be used when placing SYSOUT datasets on the spool for this virtual printer. If a node name is specified, the DEST field can contain a JES destination or a userid.

Valid Values: Any valid JES node name

Default: None

Example 1: NODE=N19

This specification indicates that DRS/VPI should place SYSOUT datasets on the spool using a node name of N19.

Example 2: NODE=(N19,N15)

This specification indicates that DRS/VPI should place SYSOUT datasets on the spool twice; once with a node name of N19 and once with a node name of N15.

OUTREF in PRINTER MEMBER

OUTREF= Specifies the names of 1 to 4 output references to be associated with SYSOUT datasets on the JES spool for this virtual printer. Each name can be that of an OUTPUT JCL statement in the DRS/VPI JCL, or the name of an Output Reference member in the DRS/VPI control library. (For more information see [“Output Reference Members” on page 3.17.](#))

Specifying multiple output references will cause the virtual printer to create multiple copies of the SYSOUT dataset. If you specify the name of an OUTPUT JCL statement that does not exist, DRS will encounter a dynamic allocation failure when attempting to allocate the SYSOUT dataset(s).

Valid Values: Any 1 - 8 character name of an OUTPUT JCL statement

Default: None

Example: OUTREF=(VPRTOUT1,VPRTOUT2)

This specification would signify to the DRS/VPI to place two copies of the SYSOUT datasets on the spool, using attributes from the OUTPUT JCL statement or DRS/VPI control library member named VPRTOUT1 for one copy and attributes from the OUTPUT JCL statement or DRS/VPI control library member named VPRTOUT2 for the second copy.

PATH

in PRINTER MEMBER

PATH= Specifies the path name of the HFS file to be created.

Valid Values: 1 - 100 characters.

Upper and lower case characters and most punctuation characters are allowed. In addition, certain symbolic parameters may be specified. For more information on valid symbolic parameters, see the table on [page 3.67](#).

Default: None.

Example: PATH=u/TSU000/print.file

This specifies that the HFS file should be created using the path name 'u/TSU000/print.file'.

PATHDISP in PRINTER MEMBER

PATHDISP= Specifies, via 2 positional parameters, the normal and abnormal disposition for the HFS file.

Positional parameter 1 specifies the normal HFS file disposition.

Valid Values: DELETE
 KEEP

Default: KEEP

Positional parameter 2 specifies the abnormal (conditional) HFS file disposition.

Valid Values: DELETE
 KEEP

Default: DELETE

Example: PATHDISP=(KEEP,KEEP)

This specifies that both the normal and abnormal disposition of the HFS file should be KEEP.

Note: This keyword is ignored unless the PATH= keyword is specified to indicate that an HFS file should be created.

PATHMGRP

in PRINTER MEMBER

PATHMGRP= Specifies, via 3 positional parameters, the PATHMODE access to the HFS file for the file owner's group.

Positional parameter 1 specifies whether the user's GROUP should have READ access to the HFS file.

Valid Values: Y or N

Default: Y

Note: PATHMGRP=(Y,N,N) is the equivalent of PATHMODE=SIRGRP in JCL.

Positional parameter 2 specifies whether the user's GROUP should have WRITE access to the HFS file.

Valid Values: Y or N

Default: N

Note: PATHMGRP=(N,Y,N) is the equivalent of PATHMODE=SIWGRP in JCL.

Positional parameter 3 specifies whether the user's GROUP should have EXEC access to the HFS file.

Valid Values: Y or N

Default: N

Note: PATHMGRP=(N,N,Y) is the equivalent of PATHMODE=SIXGRP in JCL.

Example: PATHMGRP=(Y,Y,N)

This specifies that the user's group should have read and write access to the HFS file.

Notes: PATHMGRP=(Y,Y,Y) is the equivalent of PATHMODE=SIRWXG in JCL.

This keyword is ignored unless the PATH= keyword is specified to indicate that an HFS file should be created.

PATHMOTH in PRINTER MEMBER

PATHMOTH= Specifies, via 3 positional parameters, the PATHMODE access to the HFS file for users which are not the file owner or within the file owner's group.

Positional parameter 1 specifies whether OTHER users should have READ access to the HFS file.

Valid Values: Y or N

Default: Y

Note: PATHMODE=(Y,N,N) is the equivalent of PATHMODE=SIROTH in JCL.

Positional parameter 2 specifies whether OTHER users should have WRITE access to the HFS file.

Valid Values: Y or N

Default: N

Note: PATHMOTH=(N,Y,N) is the equivalent of PATHMODE=SIWOTH in JCL.

Positional parameter 3 specifies whether OTHER users should have EXEC access to the HFS file.

Valid Values: Y or N

Default: N

Note: PATHMOTH=(N,N,Y) is the equivalent of PATHMODE=SIXOTH in JCL.

Example: PATHMOTH=(Y,N,N)

This specifies that users other than the owner and the owner's group should have read access to the HFS file.

Notes: PATHMOTH=(Y,Y,Y) is the equivalent of PATHMODE=SIRWXO in JCL.

This keyword is ignored unless the PATH= keyword is specified to indicate that an HFS file should be created.

PATHMUSR

in PRINTER MEMBER

PATHMUSR= Specifies via 3 positional parameters, the PATHMODE access to the HFS file for the user.

Positional parameter 1 specifies whether the user should have READ access.

Valid Values: Y or N

Default: Y

Note: PATHMUSR=(Y,N,N) is the equivalent of PATHMODE=SIRUSR in JCL.

Positional parameter 2 specifies whether the user should have WRITE access to the HFS file.

Valid Values: Y or N

Default: Y

Note: PATHMUSR=(N,Y,N) is the equivalent of PATHMODE=SIWUSR in JCL.

Positional parameter 3 specifies whether the user should have EXEC access to the HFS file.

Valid Values: Y or N

Default: N

Note: PATHMUSR=(N,N,Y) is the equivalent of PATHMODE=SIXUSR in JCL.

Example: PATHMUSR=(Y,Y,Y)

This specifies that the user should have read, write and execute access to the HFS file.

Notes: PATHMUSR=(Y,Y,Y) is the equivalent of PATHMODE=SIRWXU in JCL.

This keyword is ignored unless the PATH= keyword is specified to indicate that an HFS file should be created.

PATHOPTS in PRINTER MEMBER

PATHOPTS= Specifies, via 7 positional parameters, the PATH options for the HFS file. Up to 7 parameters can be specified, in any order.

Valid Values: **OAPPEND** indicates that DRS should write print records to the end of the file.

OCREATE indicates that if the file does not exist, it should be created. If the file already exists and **OEXCL** is NOT specified, the existing file will be used. If the file already exists and **OEXCL** is specified, allocation will fail.

OEXCL indicates that if the file does not exist, it should be created. If the file does exist, allocation will fail.

ONOCPTY specifies that if the file identifies a terminal device, the file does not become the controlling terminal.

ONONBLOCK specifies that an open request will not wait until the device is ready.

OSYNC specifies that the system is to move data from buffer storage to permanent storage before returning control to the program that performed the write.

OTRUNC specifies that the system should truncate the file length to zero if the file specified by **PATH=** exists, the file is a regular file, and the file is successfully opened with **READ** or **READ/WRITE** access.

Default: OCREAT

Example: PATHOPTS=(OCREAT,OEXCL)

This indicates that DRS/VPI should create a new file and that the allocation should fail if the file already exists.

Note: This keyword is ignored unless the **PATH=** keyword is specified to indicate that an HFS file should be created.

PRTNAME

in PRINTER MEMBER

PRTNAME= Specifies a long name to be used to control the DRS/VPI printer.

Valid Values: One to 32 characters of upper or lower case alphabetic, numeric, punctuation, or special characters or blanks.

Default: None.

Example1: PRTNAME=BLDG5ROOM101
This specifies a printer name of 'BLDG5ROOM101'.

Example2: PRTNAME='The Company President's Printer'
This specifies a printer name of 'The Company President's Printer'. If an apostrophe is required, 2 apostrophes must be specified in the keyword value.

PRTROPTS in PRINTER MEMBER

PRTROPTS= A four byte hex representation of special printer options to be in effect for this printer. The value is specified as eight digits, representing four hex bytes. The printer option bit specifications are:

- 80000000** = Reserved. (Replaced by CC= keyword.)
- 40000000** = Reserved. (Replaced by CC= keyword.)
- 20000000** = Eliminate null lines in print block (LU-0 and LU-3 only).
- 10000000** = Do not force LRECL of 80 if WRITER=INTRDR.
- 08000000** = Re-block incoming AFPDS X'5A' records.
- 04000000** = Space one position after form feed (LU-0 and LU-3 only).
- 02000000** = Ignore last form feed in report.
- 01000000** = Reserved.
- 00800000** = Use first data byte in record as carriage control byte.
- 00400000** = MPP is applicable to TRN data (LU-1 only).
- 00200000** = Reserved. (Replaced with PRTXLATE keyword.)
- 00100000** = Eliminate 2nd form feed if no data between it and previous form feed.
- 00080000** = SCS transparent data should be individual spool records.
- 00040000** = Clear output buffer for every write command (LU-0 and LU-3 only).
- 00020000** = Reserved. (Replaced by TRN=T.)
- 00010000** = Consider X'1A' end of file if processing AFPDS X'5A' records.
- 00008000** = Consider all input data as fixed records (LPD only).
- 00004000** = Output buffer requires EOM (LU0 and LU3).
- 00002000** = Reserved.
- 00001000** = Bypass adding page eject when Set Vertical Format command received (SCS only).
- 00000800** = Process carriage restore and line feed when line length is set by WCC (LU0 and LU3 only).
- 00000400** = Treat EOM (X'19') as NL (X'15'). (SCS only.)
- 00000200** = Retain X'41' as data (SCS only).
- 00000100** = Reserved. (Replaced by ERRACTN= keyword.)
- 00000080** = Use DRS/PC headers to update report attributes.
- 00000040** = Reserved for DRS/PC header testing.
- 00000020** = Use first 2 bytes of data record as length field (LPD only).
- 00000010** = Emulate automatic new line for DSC.
- 00000008** = Undefined.
- 00000004** = For DSC and SCS, ignore last NL in report.
- 00000002** = Treat DBCS "shift out" (X'0E') and "shift in" (X'0F') as data.
- 00000001** = Reserved for testing.

PRTROPTS

in PRINTER MEMBER

Valid Values: 00000000 - FFFFFFFF

Default: 00000000

Example: PRTROPTS=20000000

This specification indicates that DRS/VPI should eliminate null lines when processing print data received using LU-0 or LU-3 sessions.

Note 1: With PRTROPTS=08000000, files which contain X'5A' in the first position will be processed as AFP records. All records must begin with X'5A' and contain a length field at the proper location. Any AFP format errors will cause processing to be terminated and the printer EDRAINED.

AFP file re-blocking allows applications running on the LAN or on a TCP/IP host to create Advanced Function Printing resources or documents which can be printed to devices attached to the MVS system.

When an application or an AFP driver creates a block of records which contain AFP structures, the blocks must be separated into individual records in order for them to be processed or printed on MVS. DRS/VPI can separate the records in these AFP blocks and place the records on the JES spool or into a DASD file. Then the AFP records can be used as resources (PAGEDEF, FORMDEF, OVERLAY, etc.), or the documents can be printed by VPS/IPDS, VPS/PCL or other AFP software.

PRTXDBCS in PRINTER MEMBER

PRTXDBCS= Specifies, via 5 positional parameters, the type of translation that should be done for DBCS data received.

Positional parameter 1 specifies whether or not any DBCS data should be translated.

Valid Values: Y or N

Default: N

Positional parameter 2 specifies the name of the translate table to be used for DBCS data.

Valid Values: Any valid translate table name that exists as a member in the DRS/VPI load library.

Default: None

Positional parameter 3 indicates what action should be taken for shift-out and shift-in characters.

Valid Values: KEEP, DELT, REPL, ADD

KEEP = Maintains the SOSI characters in the print line.

DELT = Deletes the SOSI characters from the print line.

REPL = Replaces the SO and SI characters with the replacement SO and SI characters specified in the fourth and fifth positional parameters of the PRTXDBCS keyword.

ADD = Adds the SO and SI characters with the replacement SO and SI characters specified in the fourth and fifth positional parameters of the PRTXDBCS keyword. The SOSI characters are added based upon the DBCSID keyword used when creating the DBCS translate table. (ADD is only allowed for COMMTYPE=TCPIP.)

Default: KEEP

Positional parameter 4 indicates the shift-out (SO) replacement character.

Valid Values: Any 1-3 byte hex value.

Default: X'0E'

Note 1: This value is ignored unless positional parameter 3 is ADD or REPL.

PRTXDBCS

in PRINTER MEMBER

Positional parameter 5 indicates the shift-in (SI) replacement character.

Valid Values: Any 1-3 byte hex value.

Default: X'0F'

Note 2: This value is ignored unless positional parameter 3 is ADD or REPL.

Example: PRTXDBCS=(Y,VXTABLE,ADD,0E,0F)
This specifies that this printer should translate DBCS data using translation table VXTABLE, that the SO/SI characters should be added before and after any DBCS data located in the input datastream.

Note 3: For more information on using DBCS with DRS/VPI and DRS/TCPIP, see [“Creating a User Translation Table”](#) on page 10.2.

PRTXLATE in PRINTER MEMBER

PRTXLATE= Specifies, via five positional parameters, the type of translation to be applied to data when it is received. The last 3 parameters are only used for virtual printers with COMMTYPE=VTAM with LU-1 (SCS) sessions.

Positional parameter 1 specifies whether or not any translation of normal data should take place for the virtual printer.

Valid Values: Y or N

Default: N

Positional parameter 2 specifies the name of the translate table to be used for normal data received.

Valid Values: Any valid translate table name that exists as a member in the DRS/VPI load library.

Default: DVSSXLTE

Positional parameter 3 specifies whether or not any translation should be done for data received as transparent data. This value is only valid for COMMTYPE=VTAM and LU-1 sessions. For more information on transparent data, see the TRN keyword.

Valid Values: Y or N

Default: N

Positional parameter 4 specifies the name of the translate table to be used for transparent data received.

Valid Values: Any valid translate table name that exists as a member in the DRS/VPI load library.

Default: None

Note: This value is ignored unless positional parameter 3 is Y.

Positional parameter 5 indicates what should be done with any transparency characters received.

Valid Values: DELT or KEEP

Default: KEEP

Example 1: PRTXLATE=(Y,DVSSXEBC)

This specifies that DRS/VPI should translate data using a translate table named DVSSXEBC.

Example 2: PRTXLATE=(Y,DVSSXLTE,Y,DVSSXEBC,DELT)

This specifies that normal data received should be translated using a table named DVSSXLTE, that any transparent data should be translated using a table named DVSSXEBC, and that the transparency characters should be deleted from the data.

QBUFSIZE

in PRINTER MEMBER

QBUFSIZE= Specifies the buffer size that DRS/VPI will use when writing to and reading from the staging dataset.

Valid Values: 4096 - 32760

Default: 4096

Example: QBUFSIZE=6144

This specification indicates that DRS/VPI should use a 6144 byte buffer for building staging buffers.

Note: The QBUFSIZE parameter is only used for DRS/TCPIP virtual printers defined with COMMTYPE=(TCPIP,LPD). Staging is only necessary if the data file is received before the control file, and the control file must be used to determine how the data file should be processed.

No staging is done for devices with COMMTYPE=VTAM or COMMTYPE=APPC.

The minimum acceptable QBUFSIZE value can be calculated as:

$$((R + 62) / 63) + R + 6$$

where "R" is the maximum receive buffer size from the second value of the BUFSIZE keyword. If the QBUFSIZE value is not large enough, the printer will fail activation, and message DRSV821N will be issued with the text "QBUFSIZE INSUFFICIENT FOR RECV BUFSIZE". The default values of 4096 for QBUFSIZE and 3840 for the maximum receive buffer size are acceptable.

QSPACE in PRINTER MEMBER

QSPACE= Specifies, via three positional parameters, the amount of DASD space to be allocated for the staging dataset. This parameter is used only for print queue definitions for TCP/IP devices using LPR/LPD protocols.

Positional parameter 1 specifies the allocation type for the staging dataset.

Valid Values: C - Allocate in cylinders.
T - Allocate in tracks.

Default: T

Positional parameter 2 specifies the primary allocation amount for the staging dataset.

Valid Values: 1 - 999

Default: 30

Positional parameter 3 specifies the secondary allocation amount for the staging dataset.

Valid Values: 0 - 999

Default: 15

Example: QSPACE=(C,10,5)

This specification indicates that DRS/VPI should allocate the temporary staging dataset using cylinders. The primary allocation amount will be 10 cylinders, and the secondary amount will be 5 cylinders.

Note: The QSPACE parameter is only used for DRS/TCPIP virtual printers defined with COMMTYPE=(TCPIP,LPD). Staging is only necessary if the data file is received before the control file, and the control file must be used to determine how the data file should be processed.

No staging is done for devices with COMMTYPE=VTAM or COMMTYPE=APPC.

QUNIT

in PRINTER MEMBER

QUNIT= Specifies the unit type of the device on which DRS/VPI is to allocate the staging dataset.

Valid Values: Any valid DASD unit name

Default: SYSDA

Example: QUNIT=3380

This specification indicates that DRS/VPI should allocate the temporary staging dataset on a device with unit type of 3380.

Note: The QUNIT parameter is only used for DRS/TCPIP virtual printers defined with COMMTYPE=(TCPIP,LPD). Staging is only necessary if the data file is received before the control file, and the control file must be used to determine how the data file should be processed.

No staging is done for devices with COMMTYPE=VTAM or COMMTYPE=APPC.

QVOLUME in PRINTER MEMBER

QVOLUME= Specifies the volume on which DRS/VPI is to allocate the staging dataset. If this parameter is not specified, DRS/VPI will allocate the staging dataset on any available public or storage volume.

Valid Values: Any valid DASD volume name

Default: None

Example: QVOLUME=WRK101

This specification indicates that DRS/VPI should allocate the temporary staging dataset on a volume with a name of WRK101.

Note: The QVOLUME parameter is only used for DRS/TCPIP virtual printers defined with COMMTYPE=(TCPIP,LPD). Staging is only necessary if the data file is received before the control file, and the control file must be used to determine how the data file should be processed.

No staging is done for devices with COMMTYPE=VTAM or COMMTYPE=APPC.

RECFM

in PRINTER MEMBER

RECFM= Specifies, via two positional parameter values, the record format and carriage control attributes to be used when DRS/VPI creates the print file on the JES spool or on a DASD volume.

Positional parameter 1 specifies the record format.

Valid Values: F, U, or V, where:
F = fixed record format
U = undefined record format
V = variable record format

Default: V

Positional parameter 2 specifies the carriage control to be used when creating the print file.

Valid Values: A, M or blank, where
A = ASA carriage control
M = Machine carriage control
Blank = No carriage control

Default: A

Example 1: RECFM=(V,A)

This specification indicates that DRS/VPI should create the print file with variable record format and ASA carriage control.

Example 2: RECFM=(F,)

This specification indicates that DRS/VPI should create the print file with a fixed record format and no carriage control. The second parameter value must be nullified, because its default is A.

Note: RECFM=(,M) is only allowed if PRTROPTS=00800000 is specified to indicate that the incoming data already has a carriage control byte in the first position of each record.

RECLIMIT in PRINTER MEMBER

RECLIMIT= Specifies the maximum number of records to be accepted for a print file. If more records are received, an error will be reported and the partial file will be processed based on the ERRACTN keyword.

Valid Values: 0 - 999,999,999

Default: 0 (no limit)

Example 1: RECLIMIT=2000

This indicates that no files with more than 2000 records should be accepted. If more records are received, the printer will be EDRAINED and the partial file received will be held, kept or purged based on the value of the ERRACTN keyword.

RETPD

in PRINTER MEMBER

RETPD= Specifies the retention period for a DASD file to be created by DRS/VPI.

Valid Values: 0 - 9999

Default: None

Example: RETPD=30

This specification indicates that the file would be retained for 30 days.

Note: RETPD=0 is valid and indicates that the file expires today. If no retention period is wanted, the keyword should not be specified.

EXPDT and RETPD are mutually exclusive keywords.

SEPAR in PRINTER MEMBER

SEPAR= Specifies, via two positional parameter values, information about the separator pages, if any, that should be added to the print file created by DRS/VPI.

Positional parameter 1 indicates when separator pages should be added.

Valid Values: S, E, B, or N, where:
S = separator at start of dataset only
E = separator at end of dataset only
B = separators at both start and end of dataset
N = no separators

Default: N

Positional parameter 2 indicates the name of the separator load module to be used for formatting the separators for this virtual printer.

Valid Values: Any valid member name of a load module in the DRS/VPI load library

Default: DVSSSEPR

Example: SEPAR=(B,DVSSSEP4)

This specification indicates that DRS/VPI should add a separator page at the start and at the end of the print file. The name of the module that will be called to add the separator lines is DVSSSEP4.

Note: The DVSSSEPR separator routine that is loaded when DRS/VPI is initialized is provided in the DRS load module library on the distribution cartridge. The source for other sample separator routines can be found in the LRS.DRS.V1R34.ASM library from the distribution cartridge.

For more information about using the DRS/VPI separator routines, see [“Separator Routine” on page 9.2.](#)

SERVER

in PRINTER MEMBER

SERVER= Specifies the name of the LRS/MVS Server started task that the printer is to be connected to. This keyword is required for all DRS/VPI printers that are to be controlled using DMCF. The LRS/MVS Server started task is not required to be active in order to activate a printer that names the started task using this keyword. However, the printer cannot be controlled using DMCF while the LRS/MVS Server is inactive.

Valid Values: The name of an LRS/MVS Server started task.

Default: None.

Example: SERVER=VSV01

This specification indicates that the printer will be attached to the LRS/MVS Server VSV01.

SNAP in PRINTER MEMBER

SNAP= Specifies whether the DRS/VPI should automatically take a snap dump when this virtual printer task encounters an unrecoverable error situation.

Valid Values: Y or N

Default: Y

Example: SNAP=N

This specification would signify that the DRS/VPI should not automatically generate snap dumps for this virtual printer task.

SPACE

in PRINTER MEMBER

SPACE= Specifies, via five positional parameters, the amount of space to be allocated for a DASD print file. This parameter is ignored if the DSN keyword is not specified.

Positional parameter 1 specifies the allocation type for the DASD print file.

Valid Values: B, C, R, or T, where:
B = Allocate in blocks.
C = Allocate in cylinders.
R = Allocate in records.
T = Allocate in tracks.

Default: T

Positional parameter 2 specifies the primary allocation amount for the DASD print file.

Valid Values: 0 - 32767

Default: 30

Positional parameter 3 specifies the secondary allocation amount for the DASD print file.

Valid Values: 0 - 32767

Default: 10

Positional parameter 4 specifies the number of directory blocks to be allocated if the DASD file is a PDS. This parameter is required if the MEMBER keyword is specified and DISP=NEW.

Valid Values: 0 - 32767

Default: 0

Positional parameter 5 specifies whether unused space should be released when the file is unallocated.

Valid Values: RLSE

Default: None

Example: SPACE=(C,1,10)

This specification indicates that DRS/VPI should allocate the DASD print file using cylinders allocation. The primary allocation amount will be 1 cylinder, and the secondary allocation amount will be 10 cylinders.

Note: If the first positional parameter of the SPACE keyword specifies "R" for record allocation, the AVGREC keyword will be used to determine the size of the average record and how the primary and secondary allocation numbers should be used to obtain DASD space.

STORCLAS in PRINTER MEMBER

STORCLAS= Specifies the name of the storage class to be used by SMS to allocate a DASD file.

Valid Values: 1 to 8 character SMS storage class name

Default: None

Example: STORCLAS=MYSTOR

This specification indicates that SMS should use the MYSTOR storage class when allocating this DASD file. The storage class name used must be one that has been pre-defined by the storage administrator at your installation.

SUBSYS

in PRINTER MEMBER

SUBSYS= Specifies the name of the subsystem and the parameter that should be passed to that subsystem when a print file is initialized.

Positional parameter 1 specifies the name of the subsystem.

Valid Values: Any valid 1 - 4 character subsystem name.

Default: None

Positional parameter 2 specifies the parameter to be passed.

Valid Values: Any 1 - 16 characters.

Default: None

Example: SUBSYS=(VPC1,PARM1)

This specification indicates that the print file should be passed to a subsystem with the name VPC1 and that a parameter named PARM1 should be passed to that subsystem.

TAB in PRINTER MEMBER

TAB= Specifies the number of blanks to be used to replace the TAB character. This keyword is only valid for TCP/IP printer definitions.

Valid Values: 0 - 255

Default: 0 (do not replace TAB character)

Example: TAB=5

This indicates that DRS/TCPIP should place 5 blanks into the print line to replace the TAB character.

Note: This keyword is ignored if COMMTYPE=VTAM or COMMTYPE=APPC.

TCPLIMIT

in PRINTER MEMBER

TCPLIMIT= Specifies the maximum number of bytes to be accepted from a remote TCP/IP host using the LPR/LPD protocols. If an incoming "RECEIVE PRINT FILE" command indicates that the data file will be larger than the number specified in the TCPLIMIT keyword, the file will be rejected with the error text "DATA FILE LENGTH LIMIT EXCEEDED".

Valid Values: 0 - 9999999

Default: 0 (no limit)

Example: TCPLIMIT=10000

This specification indicates that DRS/VPI should reject any print file which is larger than 10,000 bytes.

Note: The TCPLIMIT parameter is used only for DRS/TCPIP virtual printers defined with COMMTYPE=(TCPIP,LPD).

TCPMRD in PRINTER MEMBER

TCPMRD= Specifies the time interval in minutes for DRS/VPI to wait for a TCP/IP request to complete. If the request fails to complete during that interval, the connection will be terminated.

Valid Values: 00 - 59

Default: 0 (never time out)

Example: TCPMRD=05

This specification indicates that DRS/VPI should terminate any connection if a TCP/IP request does not complete within five minutes.

Note: The TCPMRD parameter is used only for DRS/TCPIP virtual printers defined with COMMTYPE=TCPIP.

The TCPMRD keyword value must be specified as a two byte field; for example, TCPMRD=5 would not be valid.

TCPOPTS

in PRINTER MEMBER

TCPOPTS= A four byte hex representation of special processing options to be in effect for this TCP/IP printer. The value is specified as eight digits, representing four hex bytes. The printer option bit specifications are:

80000000 Ignore incoming control file.

This option can be set to ignore the control file and eliminate the need to place the data file in a temporary staging area. Staging is necessary if the control file is needed to process the data file correctly, and if the control file is received after the data file. No staging is done for any virtual printer except those with COMMTYPE=(TCPIP,LPD).

If the JOBNAME, DSN, or PATH keyword specifies any LPD variable and TCPOPTS=80 is specified, a null value will be substituted for that variable. If there are no other valid values in the JOBNAME, DSN or PATH field, printer activation will fail.

40000000 Force staging of data file.

Staging is not necessary if the control file is received before the data file, or if the control file can be ignored. This option can be set to force the data file to be staged, regardless of other options. No staging is done for any virtual printer except those with COMMTYPE=(TCPIP,LPD).

20000000 Change SYSOUT class based on CLASS record.

The first byte of the "C" class record which is received in the control file can be used for the SYSOUT class when the print file is placed on the JES spool.

10000000 Truncate lines based on WIDTH record.

Any value specified on the "W" width record in the control file normally causes the MPP value to be set and any data beyond that point on a line to be "wrapped" to the next line. If this option is set, the line will be truncated at the WIDTH value.

08000000 Use print queue name as printer name for DRS/STI.

The print queue name from the "RECEIVE PRINT JOB" command will be stored as the printer name in the Smart Tag Control Area. This control area is passed to the DRS/STI programs and used to obtain the SYSOUT characteristics to place the file on the JES spool.

04000000 Use print queue name as OUTPUT name for DRS/STI.

The print queue name from the "RECEIVE PRINT JOB" command will be stored as the OUTPUT name in the Smart Tag Control Area. This control area is passed to the DRS/STI programs and used to obtain the SYSOUT characteristics to place the file on the JES spool.

02000000 Undefined

01000000 Bypass orderly disconnection

Bypass the call to MVS TCP/IP to close the connection in an orderly manner. The connection will be abnormally terminated.

TCPOPTS in PRINTER MEMBER

| | |
|----------------------|---|
| 00800000 | Undefined |
| 00400000 | Undefined |
| 00200000 | Undefined |
| 00100000 | Undefined |
| 00080000 | Undefined |
| 00040000 | Undefined |
| 00020000 | Undefined |
| 00010000 | Undefined |
| 00008000 | Request acknowledgement before disconnect DRS/VPI will send an ACK before the connection is closed. |
| 00004000 | Use SHUTDOWN command before disconnect DRS/VPI will send a SHUTDOWN command to the remote host before the connection is closed. |
| 00002000 | Undefined |
| 00001000 | Undefined |
| 00000800 | Undefined |
| 00000400 | Undefined |
| 00000200 | Undefined |
| 00000100 | Undefined |
| 00000080 | Undefined |
| 00000040 | Undefined |
| 00000020 | Undefined |
| 00000010 | Undefined |
| 00000008 | Undefined |
| 00000004 | Undefined |
| 00000002 | Undefined |
| 00000001 | Reserved for testing. |
| Valid Values: | 00000000 - FFFFFFFF |
| Default: | 00000000 |
| Example: | TCPOPTS=30000000 |

This specification indicates that DRS/VPI should set the SYSOUT class based on the "C" class record in the control file, and truncate the data lines using the value from the "W" width record.

TERMRPT

in PRINTER MEMBER

TERMRPT= Specifies, via two positional parameters, under what conditions that DRS/VPI will terminate a report and make it available for printing.

Positional parameter 1 specifies the report termination option that should be used for this printer.

Valid Values: APPC, BRACKET, CHAIN, LPD, SESSION, TABLE or ss, where:

APPC = Terminate report at end of APPC dataset. This option is only valid for COMMTYPE=(APPC,DRSPC).

BRACKET = Terminate report at end of SNA bracket. This option is valid for COMMTYPE=VTAM, and is ignored for COMMTYPE=TCPIP and COMMTYPE=APPC.

CHAIN = Terminate report at end of SNA chain. This option is valid for COMMTYPE=VTAM, and is ignored for COMMTYPE=TCPIP and COMMTYPE=APPC.

LPD = Terminate report at end of print file. This option is only valid for COMMTYPE=(TCPIP,LPD).

SESSION = Terminate report when connection ends. This option is valid for COMMTYPE=VTAM or COMMTYPE=(TCPIP,SOK), and is ignored for COMMTYPE=(APPC,DRSPC) or COMMTYPE=(TCPIP,LPD).

ss = Terminate report at end of time interval where ss= the number of seconds to wait for additional data to be received. Valid values for ss are 01 – 59. This option is valid for COMMTYPE=VTAM, and is ignored for COMMTYPE=TCPIP and COMMTYPE=APPC.

TABLE = Terminate report using table. This option is valid for COMMTYPE=VTAM and is ignored for COMMTYPE=TCPIP and COMMTYPE=APPC. The name of the table to be used must be specified as positional parameter 2.

Default: **04** For COMMTYPE=VTAM, LU-0 session

BRACKET For COMMTYPE=VTAM, LU-1 session

BRACKET For COMMTYPE=VTAM, LU-3 session

APPC For COMMTYPE=(APPC,DRSPC)

LPD For COMMTYPE=(TCPIP,LPD)

SESSION For COMMTYPE=(TCPIP,SOK)

TERMRPT in PRINTER MEMBER

Positional parameter 2 specifies the name of the report termination table to be used if positional parameter 1 is “TABLE”.

Valid Values: Any valid member name of a load module which contains a report termination table.

Default: None

Example 1: TERMRPT=05

This specification would indicate that after 5 seconds have elapsed without receiving any further data, the DRS/VPI should close the current report and make it available for printing.

Example 2: TERMRPT=CHAIN

This specification would indicate that after receiving data which specified that it was the last in chain, DRS/VPI should close the current report and make it available for printing.

Example 3: TERMRPT=BRACKET

This specification would indicate that after receiving data which specified that the bracket was ended and that the session was in a between-bracket state, DRS/VPI should close the current report and make it available for printing.

Example 4: TERMRPT=(TABLE,DVSSTRPT)

This specifies that DRS/VPI would use the table named DVSSTRPT to determine the report termination options.

Note: For COMMTYPE=(APPC,DRSPC), TERMRPT will be set to APPC, regardless of how it is specified in the virtual printer definition member.

For COMMTYPE=(TCPIP,LPD), TERMRPT will be set to LPD, regardless of how it is specified in the virtual printer definition member.

For information on creating a report termination table, see [“Creating a Report Termination Table” on page 10.6.](#)

TRACE

in PRINTER MEMBER

TRACE= Specifies, via two positional parameters, if tracing is to be active for this printer and the type of tracing to be performed when tracing is active.

Positional parameter 1 specifies whether or not the DRS/VPI internal trace facility should be active for this printer. This parameter should generally be specified as Y, so that the required trace information will be available if needed for problem diagnosis. DRS/VPI internal tracing requires minimal system overhead.

Valid Values: Y or N

Default: Y

Positional parameter 2 is a one byte hex representation that specifies the types of printer events, in addition to those that are always traced, to be traced by the DRS/VPI. The trace type bit specifications are as follows:

- 80 = Normal printer tracing
- 40 = Detail printer tracing
- 20 = GTF trace output and print line blocks
- 10 = User exits (printer related)
- 08 = VTAM entry/exit
- 04 = GTF trace VTAM or TCP/IP buffers
- 02 = Storage management
- 01 = GTF tracing active

Valid Values: 00 - FF

Default: 00

Example 1: TRACE=(Y,09)

This specification would signify to the DRS/VPI that tracing should be on for this virtual printer task, that VTAM entry and exit should be traced, and that printer trace entries should be recorded in the GTF file.

Example 2: TRACE=N

This specification would signify to the DRS/VPI that internal tracing of DRS Virtual Printer Interface events should not be performed for this printer.

TRACK in PRINTER MEMBER

TRACK= Specifies, via two positional parameters, whether tracking data should be maintained for this printer and the amount of time, in hours, that SYSOUT tracking information should be retained after a dataset is purged from JES. Tracking information retained after print completion can be displayed via operator command or queried via a DRS client interface. For full details of the DRS/VPI tracking feature, please refer to [“Introduction to DRS/VPI SYSOUT Tracking Feature” on page 3.220](#).

Positional parameter 1 specifies whether or not tracking data should be maintained for the DRS virtual printer.

Valid Values: Y/N

Default: Y

Positional parameter 2 specifies the time, in hours, that tracking data should be retained after the dataset has been purged from the JES spool.

Valid Values: 0-9999

Default: 1

Example: TRACK=(Y,1)

This specification indicates that SYSOUT tracking information should be maintained for this printer and the tracking data should be retained for a period of one hour after the dataset is removed from JES.

Note: This keyword will be ignored if TRACK=N is specified in the DRS/VPI System Initialization member.

TRN

in PRINTER MEMBER

TRN= Specifies, via three positional parameters, the transparency method to be used when processing output for this printer.

Positional parameter 1 specifies the method of transparency to be used for this printer.

Valid Values: B, C, S, or T

B = Buffer transparency.

Valid for COMMTYPE=VTAM, LU-1 sessions.
Ignored for COMMTYPE=VTAM, LU-0 or LU-3 sessions. Ignored for COMMTYPE=APPC or COMMTYPE=TCPIP. Start transparency with a character and end transparency at the end of the buffer.

C = Character transparency.

Valid only for COMMTYPE=VTAM, LU-1 sessions.
Ignored for COMMTYPE=VTAM, LU-0 or LU-3 sessions. Ignored for COMMTYPE=APPC or COMMTYPE=TCPIP. Start transparency with a character and end transparency after the number of characters specified in the one-byte length field immediately following the transparency character.

S = Start/stop transparency.

Valid only for COMMTYPE=VTAM, LU-1 sessions.
Ignored for COMMTYPE=VTAM, LU-0 or LU-3 sessions. Ignored for COMMTYPE=APPC or COMMTYPE=TCPIP. Start transparency with a character string and end transparency when a second string is found.

T = Total transparency.

Valid for COMMTYPE=VTAM or COMMTYPE=TCPIP. Ignored for COMMTYPE=APPC. All data received should be treated as transparent (binary) data.

Default: C

Positional parameter 2 is a 1 - 8 byte hex representation that specifies the character which will begin transparency.

Valid Values: 00 - FF (for each byte)

Default: 35

Positional parameter 3 is a 1 - 8 byte hex representation that specifies the character which will end transparency.

Valid Values: 00 - FF (for each byte)

Default: None

TRN in PRINTER MEMBER

- Example 1:** TRN=(C,36)
This specification would signify to the DRS/VPI that transparency should begin when X'36' is found in the data and should continue for a length specified in the byte following the X'36'.
- Example 2:** TRN=(B,313257FF91C9C829)
This specification would signify to the DRS/VPI that transparency should begin when X'313257FF91C9C829' is found in the data and should continue until the end of the buffer.
- Example 3:** TRN=(S,35,36)
This specification would signify to the DRS/VPI that transparency should begin with when X'35' is found in the data and should continue until X'36' is found in the data.
- Notes:**
- If you specify the first positional parameter as 'C', the second parameter can be only one byte in length.
 - If you specify the first positional parameter as 'B', the second parameter can be 1-8 bytes in length and the third parameter is not allowed.
 - If you specify the first positional parameter as 'S', the second and third parameters can each be 1-8 bytes in length.
 - If you specify the first positional parameter as 'T', the second and third parameters are not allowed.

UCS

in PRINTER MEMBER

UCS= Specifies from 1 to 4 UCS names that should be used when placing reports on the spool for this virtual printer.

Valid Values: Any 1 - 4 character valid UCS image name

Default: None

Example 1: UCS=ABCD

This specification indicates that DRS/VPI should place reports on the spool using a UCS image name of ABCD.

Example 2: UCS=(ABCD,UCS5)

This specification indicates that DRS/VPI should place reports on the spool twice; once with a UCS name of ABCD and once with a UCS name of UCS5.

UDATA in PRINTER MEMBER

UDATA= Specifies 1-8 bytes of data to be associated with this virtual printer. This information will be passed to DRS/VPI user exits and separator routines to provide the ability to pass meaningful data to those routines.

Valid Values: Any character string from 1 to 8 bytes in length

Default: None

Example: UDATA=CICSPRTR

This specification would cause the character string 'CICSPRTR' to be passed to the DRS/VPI printer related exits. Those routines may take some action based on the value of this field.

UNIT

in PRINTER MEMBER

UNIT= Specifies, via two positional parameters, the unit type and number of the device(s) on which DRS/VPI should allocate the DASD print file. This parameter is ignored if the DSN keyword is not specified.

Positional parameter 1 specifies the unit name of the device to be used for the DASD print file.

Valid Values: Any valid DASD unit name

Default: SYSDA

Positional parameter 2 specifies the number of device units to be used for the DASD print file.

Valid Values: 0 - 59

Default: 0

Example: UNIT=3380

This specification indicates that DRS/VPI should allocate the DASD print file on a device with a unit type of 3380.

USERID in PRINTER MEMBER

| | |
|----------------------|--|
| USERID= | Specifies the user ID that should be used as the originating owner when a SYSOUT file is created. |
| Valid Values: | Up to 24 bytes of data, including symbolic parameters. Currently, the only value allowed for the USERID= keyword is the symbolic parameter &LRSQUID. All other values will be rejected, causing printer activation to fail. |
| Default: | None. |
| Example: | USERID=&LRSQUID This indicates that DRS should use the user ID that is passed in the LRS/Queue parameters as the user ID that should be associated with the SYSOUT file. |
| Notes: | The value of the originating user ID is only substituted for &LRSQUID if the DRS/VPI printer is receiving a SYSOUT file from VPS. For all other connections, a null value will be substituted for the user ID, which will indicate that the user ID associated with the SYSOUT file should be the user ID associated with the DRS/VPI job or started task. |

VOLCNT

in PRINTER MEMBER

VOLCNT= Specifies the volume count for volumes on which DRS/VPI should allocate the DASD print file. This parameter is ignored if the DSN keyword is not specified.

Valid Values: 0 - 255

Default: None

Example: VOLCNT=2

This specification indicates that DRS/VPI should use two volumes for the DASD print file.

VOLUME in PRINTER MEMBER

VOLUME= Specifies the volume on which DRS/VPI should allocate the DASD print file. If this parameter is not specified, DRS/VPI will allocate the DASD print file on any available public or storage volume. This parameter is ignored if the DSN keyword is not specified.

Valid Values: Any valid DASD volume name

Default: None

Example: VOLUME=WRK101

This specification indicates that DRS/VPI should allocate the DASD print file on the volume with the name of WRK101.

Note: If MOD is specified as the first parameter of DISP, and a new DASD file is created, VOLUME cannot be specified. A dynamic allocation error will occur.

WRITER

in PRINTER MEMBER

- WRITER=** Specifies from 1 to 4 writer program names that should be used when placing reports on the spool for this virtual printer.
- Valid Values:** Any alphanumeric specification from one to eight characters in length
- Default:** None
- Example 1:** WRITER=MYWRITER
- This specification indicates that DRS/VPI should place reports on the spool for this virtual printer using a program writer name of MYWRITER.
- Example 2:** WRITER=(MYWRITER,DBOK)
- This specification indicates that DRS/VPI should place reports on the spool for this virtual printer twice; once using a writer name of MYWRITER and once using a writer name of DBOK.

Building the Output Reference Members

One Output Reference Member can be defined for each set of OUTPUT statements that should be dynamically generated. The keyword parameters are equivalent to those specified on an OUTPUT statement in JCL. In addition, there is a comment keyword (@OUTDESC) which allows displaying up to 60 bytes of text which describe the OUTPUT statement reference.

Several OUTPUT reference members are provided in the LRS.DRS.V1R34.CNTL library on the DRS distribution cartridge. The sample OUTPUT reference members refer to PAGEDEF, FORMDEF and fonts provided with the VPS Advanced Function Printing products.

To use a particular Output Reference Member, specify the member name of that member as the value of the OUTREF keyword in a Printer Definition Member. If the Output Reference Member is modified, it is possible to reactivate the printer(s) that refer to the Output Reference Member and obtain the new characteristics.

For more information on how the Output Reference Member keyword values are used, see the section describing the OUTPUT JCL statement in the IBM Job Control Language Manual.

The keyword parameters that can be specified in an Output Reference Member are described in detail in the following pages.

@OUTDESC

in OUTPUT REFERENCE MEMBER

@OUTDESC= Specifies a comment to be included in a display of the Output Reference Member. The text is stored in the DROB control block which is built when the Output Reference Member is used to dynamically create the OUTPUT statement.

Valid Values: Any character string up to 60 bytes in length

Default: None

Example: @OUTDESC='LANDSCAPE, 1-UP, 60 LPP'

Note: If the value contains embedded blanks or commas, it must be enclosed in single quotes, as in the example shown above.

ADDRn in OUTPUT REFERENCE MEMBER

ADDRn= Specifies an address field to be used for separator pages for the SYSOUT dataset, where “n” is a value from 1 to 4.

Valid Values: Any character string up to 60 bytes in length

Default: None

Example: ADDR1='MAIL STOP A1'
ADDR2='TECHNICAL SUPPORT
DEPARTMENT'
ADDR3='2401 WEST MONROE'
ADDR4='SPRINGFIELD, IL 62704 USA'

Note: If the value contains embedded blanks or commas, it must be enclosed in single quotes, as in the examples shown above.

BUILDING

in OUTPUT REFERENCE MEMBER

BUILDING= Specifies a building value to be used for separator pages for the SYSOUT dataset.

Valid Values: Any character string up to 60 bytes in length

Default: None

Example: BUILDING='BUILDING 5'

Note: If the value contains embedded blanks or commas, it must be enclosed in single quotes, as in the example shown above.

BURST in OUTPUT REFERENCE MEMBER

BURST= Specifies whether the SYSOUT dataset printed on a 3800 printing subsystem is to go to the burster-trimmer-stacker, to be burst into separate sheets, or to the continuous forms stacker.

Valid Values: Y or N

Default: None

Example: BURST=Y

CHARS

in OUTPUT REFERENCE MEMBER

CHARS= Specifies the names of up to 4 character arrangement tables for printing the SYSOUT dataset.

Valid Values: Any 1-5 byte valid character arrangement table name

Default: None

Example 1: CHARS=K110

Example 2: CHARS=(GT10,GT12,GT15,GT18)

CKPTLINE in OUTPUT REFERENCE MEMBER

CKPTLINE= Specifies the maximum number of lines on a logical page for JES to use when taking checkpoints while printing the dataset.

Valid Values: 0 to 32767

Default: None

Example: CKPTLINE=66

CKPTPAGE

in OUTPUT REFERENCE MEMBER

CKPTPAGE= Specifies the maximum number of pages to be used by JES when taking checkpoints while printing the dataset.

Valid Values: 1 to 32767

Default: None

Example: CKPTPAGE=10

CKPTSEC in OUTPUT REFERENCE MEMBER

CKPTSEC= Specifies the maximum number of seconds allowed to elapse when JES is taking checkpoints while printing the dataset.

Valid Values: 1 to 32767

Default: None

Example: CKPTSEC=120

CLASS

in OUTPUT REFERENCE MEMBER

CLASS= Specifies the SYSOUT class to assign to the dataset.

Valid Values: Any valid SYSOUT class (A-Z, 0-9, *)

Default: None

Example: CLASS=B

COLORMAP in OUTPUT REFERENCE MEMBER

COLORMAP= Specifies the AFP resource for the print file which contains color translation information.

Valid Values: Any 1 - 8 character valid AFP resource name

Default: None

Example: COLORMAP=CMAP

COMPACT

in OUTPUT REFERENCE MEMBER

COMPACT= Specifies the name of a compaction table to be used by JES when sending the dataset.

Valid Values: Any valid compaction table name

Default: None

Example: COMPACT=TBL99

COMSETUP in OUTPUT REFERENCE MEMBER

COMSETUP= Specifies the APF resource for the print file which contains setup information.

Valid Values: Any 1 - 8 character valid APF resource name

Default: None

Example: COMSETUP=CSETUP

CONTROL

in OUTPUT REFERENCE MEMBER

CONTROL= Specifies whether the dataset contains carriage control or if the dataset should be printed by JES with single, double or triple spacing.

Valid Values: PROGRAM, SINGLE, DOUBLE, or TRIPLE
where:

- PROGRAM = Record has carriage control
- SINGLE = Force single spacing
- DOUBLE = Force double spacing
- TRIPLE = Force triple spacing

Default: None

Example: CONTROL=DOUBLE

COPIES in OUTPUT REFERENCE MEMBER

COPIES= Specifies the number of copies to be printed.
Valid Values: 1 to 255
Default: None
Example: COPIES=3

COPYGRP

in OUTPUT REFERENCE MEMBER

COPYGRP= Specifies the number of copies of each page to be printed before the next page is printed. Up to 8 values can be specified.

Valid Values: 1 to 255 for each subfield

Default: None

Example: COPYGRP=(4,2)

DATAACK in OUTPUT REFERENCE MEMBER

DATAACK= Specifies whether or not print-positioning and invalid-character data check errors are to be blocked.

Valid Values: BLOCK, UNBLOCK, BLKCHAR, BLKPOS
where:

- **BLOCK** = Printer is not to report any invalid-character or print-positioning errors.
- **UNBLOCK=** Printer is to report all data check exceptions.
- **BLKCHA** = Printer is not to report any invalid-character errors.
- **BLKPOS** = Printer is not to report any print-positioning errors.

Default: None

Example: DATAACK=BLKCHAR

DEPT

in OUTPUT REFERENCE MEMBER

DEPT= Specifies the department name to be used for separator pages.

Valid Values: Any character string up to 60 bytes in length

Default: None

Example: DEPT='MANUFACTURING DEPARTMENT'

Note: If the value contains embedded blanks or commas, it must be enclosed in single quotes, as in the example shown above.

DEST in OUTPUT REFERENCE MEMBER

DEST= Specifies the destination to be used for SYSOUT processing.

Valid Values: 1 - 60 byte destination field

Default: None

Example 1: DEST=LOCAL

Example 2: DEST=LRS1.R1999

Example 3: DEST=IP:199.9.99.4

DPAGELBL

in OUTPUT REFERENCE MEMBER

DPAGELBL= Specifies whether the system should print the security label on each page of printed output.

Valid Values: Y or N

Default: None

Example: DPAGELBL=Y

DUPLEX in OUTPUT REFERENCE MEMBER

DUPLEX= Specifies whether printing is to be done on both sides of the sheet.

Valid Values: NO, NORMAL, TUMBLE

NO = Indicates that printing is to be one only on one side of the sheet

NORMAL = Indicates printing on both sides of the sheet with the physical page rotated around the Y axis.

TUMBLE = Indicates printing on both sides of the sheet with the physical page rotated around the X axis.

Default: None

Example: DUPLEX=NORMAL

FCB

in OUTPUT REFERENCE MEMBER

FCB= Specifies the name of the forms control buffer (FCB) to be used to guide printing of this output.

Valid Values: Any valid 1-4 character FCB name

Default: None

Example: FCB=M6

FLASH in OUTPUT REFERENCE MEMBER

FLASH= Specifies, via two positional parameters, the forms overlay and copy count.

Positional parameter 1 specifies the name of the forms overlay to be used when printing this output.

Valid Values: Any valid 1-4 character forms overlay name, NONE or STD

Default: None

Positional parameter 2 specifies the number of copies on which the forms overlay should be printed.

Valid Values: 0 to 255

Default: None

Example: FLASH=(LTHD,5)

FORMDEF

in OUTPUT REFERENCE MEMBER

FORMDEF= Specifies the name of a FORMDEF in an Advanced Function Printing FORMDEF library which should be used to print the SYSOUT dataset.

Valid Values: Any valid 1-6 character FORMDEF name

Default: None

Example: FORMDEF=SMPLXL

FORMLEN **in OUTPUT REFERENCE MEMBER**

FORMLEN= Specifies the numeric length and unit type that will be used to change the physical paper length without reconfiguring the printer.

Valid Values: nn.nnnUU (n is a digit 0-9)
 UU = Represents one of the following units:
 IN = Inches
 CM = Centimeters

Default: None

Example: FORMLEN=8.5IN

FORMS

in OUTPUT REFERENCE MEMBER

FORMS= Specifies the form name to be used when printing the SYSOUT dataset.

Valid Values: Any valid 1-8 character form name

Default: None

Example: FORMS=STD

GROUPID in OUTPUT REFERENCE MEMBER

GROUPID= Specifies the name of the output reference group to which this dataset belongs.

Valid Values: Any valid 1-8 character name

Default: None

Example: GROUPID=OUTGRP3

INDEX

in OUTPUT REFERENCE MEMBER

INDEX= Specifies the left margin on a 3211 printer with the indexing feature.

Valid Values: 1 - 31

Default: None

Example: INDEX=5

INTRAY in OUTPUT REFERENCE MEMBER

INTRAY= Specifies the paper source when printing AFP files.

Valid Values: 1 - 255

Default: None

Example: INTRAY=2

LINDEX

in OUTPUT REFERENCE MEMBER

LINDEX= Specifies the right margin on a 3211 printer with the indexing feature.

Valid Values: 1 - 31

Default: None

Example: LINDEX=7

LINECT in OUTPUT REFERENCE MEMBER

LINECT= Specifies the maximum number of lines JES is to print on each output page.

Valid Values: 0 - 255

Default: None

Example: LINECT=60

MAILBCnn in OUTPUT REFERENCE MEMBER

MAILBCnn= Specifies a blind copy recipient email address for an email message, where nn is a value from 01 to 32.

Valid Values: Any valid email address up to 60 bytes in length.

Default: None

Example: MAILBC01='user@sample.com'

Notes: If the value has embedded blanks, commas or other punctuation, then the value should be enclosed within apostrophes as shown above.
Specifying MAILBCnn other than MAILBC01 requires that MAILBC01 and all the other preceding MAILBCnn values are also specified.

MAILCCnn in OUTPUT REFERENCE MEMBER

MAILCCnn= Specifies a copy recipient email address for an email message, where nn is a value from 01 to 32.

Valid Values: Any valid email address up to 60 bytes in length.

Default: None.

Example: MAILCC01='another.user@sample.com'

Notes: If the value has embedded blanks, commas or other punctuation, then the value should be enclosed within apostrophes as shown above.
Specifying MAILCCnn other than MAILCC01 requires that MAILCC01 and all the other preceding MAILCCnn values are also specified.

MAILFILE

in OUTPUT REFERENCE MEMBER

MAILFILE= Specifies the file name of an attachment for an email message.

Valid Values: Any valid file name up to 60 bytes in length.

Default: None.

Example: MAILFILE='myfile.doc'

Note: If the value has embedded blanks, commas or other punctuation, then the value should be enclosed within apostrophes as shown above.

MAILFROM in OUTPUT REFERENCE MEMBER

MAILFROM= Specifies a name to be associated with the sender of an email message.

Valid Values: Any valid name up to 60 bytes in length.

Default: None.

Example: MAILFROM='President Abe Lincoln'

Note: If the value has embedded blanks, commas or other punctuation, then the value should be enclosed within apostrophes as shown above.

MAILTO_{nn} in OUTPUT REFERENCE MEMBER

MAILTO_{nn}= Specifies a primary recipient email address for an email message, where nn is a value from 01 to 32.

Valid Values: Any valid email address up to 60 bytes in length.

Default: None.

Example: MAILTO01='primary.user@sample.com'

Notes: If the value has embedded blanks, commas or other punctuation, then the value should be enclosed within apostrophes as shown above.

Specifying MAILTO_{nn} other than MAILTO01 requires that MAILTO01 and all the other preceding MAILTO_{nn} values are also specified.

MODIFY in OUTPUT REFERENCE MEMBER

MODIFY= Specifies, via two positional parameters, the copy modification module name and TRC value.

Positional parameter 1 specifies the name of the copy modification module that JES will use to print the dataset.

Valid Values: 1-4 character copy modification module name

Default: None

Positional parameter 2 specifies which character arrangement table name is to be used; the value is an offset into the CHARS parameters, where 0 indicates that the first CHARS subfield is to be used, 1 indicates that the second CHARS subfield is to be used, etc.

Valid Values: 0 - 3

Default: None

Example: MODIFY=(MODA,2)

NAME

in OUTPUT REFERENCE MEMBER

NAME= Specifies a name to be used for separator pages for the SYSOUT dataset.

Valid Values: Any character string up to 60 bytes in length

Default: None

Example: NAME='MR. GEORGE WASHINGTON'

Note: If the value contains embedded blanks or commas, it must be enclosed in single quotes, as in the example shown above.

NOTIFY in OUTPUT REFERENCE MEMBER

NOTIFY= Specifies a userid to be notified when a job completes; the user's ID can be prefixed with a valid JES node name.

Valid Values: 1 - 17 character userid

Default: None

Example: NOTIFY=LRS1.GWASH

NOTIFY2

in OUTPUT REFERENCE MEMBER

NOTIFY2= Specifies the second userid to be notified when a job completes; the user's ID can be prefixed with a valid JES node name.

Valid Values: 1 - 17 character userid

Default: None

Example: NOTIFY2=LRS3.ALINCOLN

Note: If this value is specified, the NOTIFY keyword must also be specified.

NOTIFY3 in OUTPUT REFERENCE MEMBER

NOTIFY3= Specifies the third userid to be notified when a job completes; the user's ID can be prefixed with a valid JES node name.

Valid Values: 1 - 17 character userid

Default: None

Example: NOTIFY3=LRS3.SCLAUS

Note: If this value is specified, the NOTIFY and NOTIFY2 keywords must also be specified.

NOTIFY4

in OUTPUT REFERENCE MEMBER

NOTIFY4= Specifies the fourth userid to be notified when a job completes; the user's ID can be prefixed with a valid JES node name.

Valid Values: 1 - 17 character userid

Default: None

Example: NOTIFY4=LRS3.JSMITH

Note: If this value is specified, the NOTIFY, NOTIFY2 and NOTIFY3 keywords must also be specified.

OFFSETXB in OUTPUT REFERENCE MEMBER

OFFSETXB= Specifies the offset in the x direction from the page origin for the back side of each page of output.

Valid Values: mmm.nnnUU
m = A digit from 0 - 9
n = A digit from 0 - 9
UU = Represents one of the following units:

- IN inches
- CM centimeters
- MM millimeters
- PELS
- POINTS

Default: None

Example: OFFSETXB=0.9CM

Note: If the UU (units) value is PELS or POINTS, the nnn value is not allowed; a whole number must be specified.

OFFSETXF

in OUTPUT REFERENCE MEMBER

OFFSETXF= Specifies the offset in the x direction from the page origin for the front side of each page of output.

Valid Values: mmm.nnnUU
m = A digit from 0 - 9
n = A digit from 0 - 9
UU = Represents one of the following units:

- IN inches
- CM centimeters
- MM millimeters
- PELS
- POINTS

Default: None

Example: OFFSETXF=0.050IN

Note: If the UU (units) value is PELS or POINTS, the nnn value is not allowed; a whole number must be specified.

OFFSETYB in OUTPUT REFERENCE MEMBER

OFFSETYB= Specifies the offset in the y direction from the page origin for the back side of each page of output.

Valid Values: mmm.nnnUU

m = A digit from 0 - 9

n = A digit from 0 - 9

UU = Represents one of the following units:

- IN inches
- CM centimeters
- MM millimeters
- PELS
- POINTS

Default: None

Example: OFFSETYB=10PELS

Note: If the UU (units) value is PELS or POINTS, the nnn value is not allowed; a whole number must be specified.

OFFSETYF

in OUTPUT REFERENCE MEMBER

OFFSETYF= Specifies the offset in the y direction from the page origin for the front side of each page of output.

Valid Values: mmm.nnnUU

m = A digit from 0 - 9

n = A digit from 0 - 9

UU = Represents one of the following units:

- IN inches
- CM centimeters
- MM millimeters
- PELS
- POINTS

Default: None

Example: OFFSETYF=20POINTS

Note: If the UU (units) value is PELS or POINTS, the nnn value is not allowed; a whole number must be specified.

OUTBIN in OUTPUT REFERENCE MEMBER

OUTBIN= Specifies the printer output bin identifier to be used for the SYSOUT dataset.

Valid Values: 1 to 5 decimal digits with a value from 1 to 65535

Default: None

Example: OUTBIN=2

OUTDISP

in OUTPUT REFERENCE MEMBER

OUTDISP= Specifies, via two positional parameters, the output disposition for this SYSOUT dataset.

Positional parameter 1 specifies the normal disposition.

Valid Values: WRITE, HOLD, KEEP, LEAVE, PURGE

Default: None

Positional parameter 2 specifies the abnormal disposition.

Valid Values: WRITE, HOLD, KEEP, LEAVE, PURGE

Default: None

Example: OUTDISP=(WRITE,PURGE)

OVERLAYB in **OUTPUT REFERENCE MEMBER**

OVERLAYB= Specifies that the named medium overlay is to be placed on the back side of each sheet to be printed.

Valid Values: Any 1 - 8 character overlay name

Default: None

Example: OVERLAYB=BACK

OVERLAYF

in OUTPUT REFERENCE MEMBER

OVERLAYF= Specifies that the named medium overlay is to be placed on the front side of each sheet to be printed.

Valid Values: Any 1 - 8 character overlay name

Default: None

Example: OVERLAYF=FRONT

OVFL in OUTPUT REFERENCE MEMBER

OVFL= Specifies whether or not JES3 should test for page overflow on an output printer. (JES3 only)

Valid Values: ON or OFF

Default: None

Example: OVFL=OFF

PAGEDEF

in OUTPUT REFERENCE MEMBER

PAGEDEF= Specifies the name of a PAGEDEF in an Advanced Function Printing PAGEDEF library which should be used to print the SYSOUT dataset.

Valid Values: Any valid 1-6 character PAGEDEF name

Default: None

Example: PAGEDEF=1UPL60

PIMSG in OUTPUT REFERENCE MEMBER

PIMSG= Specifies, via two positional parameters, whether error messages should be printed after the dataset is printed, and an error message maximum count.

Positional parameter 1 specifies whether error messages should be sent to the printer after the dataset has been printed.

Valid Values: Y or N

Default: None

Positional parameter 2 specifies the number of errors which would cause printing of the PIMSG errors to be terminated.

Valid Values: 0 - 999

Default: None

Example: PIMSG=(Y,25)

PORTNO

in OUTPUT REFERENCE MEMBER

PORTNO= Specifies the TCP/IP port number at which the printing application connects to the printer.

Valid Values: 1 - 65535

Default: None

Example: PORTNO=515

PRMODE in OUTPUT REFERENCE MEMBER

PRMODE= Specifies the process mode to be used to print the SYSOUT dataset.

Valid Values: LINE or PAGE or any installation-defined process mode name

Default: None

Example: PRMODE=PAGE

PRTEROR

in OUTPUT REFERENCE MEMBER

PRTEROR= Specifies how a SYSOUT dataset that has had printing terminated by a functional subsystem is to be released by JES.

Valid Values: DEFAULT, QUIT, HOLD

DEFAULT= Indicates the default functional subsystem action is to be taken.

QUIT = Indicates the functional subsystem should release the dataset even if a terminating error occurred during printing.

HOLD = Indicates the functional subsystem should request the dataset to be held on the JES spool for possible corrective action if a terminating error occurred.

Default: None

Example: PRTEROR=QUIT

PRTOPTNS in OUTPUT REFERENCE MEMBER

PRTOPTNS= Specifies the named entity that contains additional print options for an IP-destined dataset that is being sent by a functional subsystem.

Valid Values: Any 1 - 16 character name of a printer options entity.

Default: None

Example: PRTOPTNS=OPT1

PRTQUEUE

in OUTPUT REFERENCE MEMBER

PRTQUEUE= Specifies the print queue name used when printing the IP-destined dataset.

Valid Values: Any 1 - 60 character name of a TCP/IP print queue

Default: None

Example: PRTQUEUE=LPT1

PRTY in OUTPUT REFERENCE MEMBER

PRTY= Specifies the initial priority at which the SYSOUT dataset enters the output queue in JES.

Valid Values: 0 - 255

Default: None

Example: PRTY=10

REPLYTO

in OUTPUT REFERENCE MEMBER

REPLYTO= Specifies an email address to be used to reply to an email message.

Valid Values: Any valid email address up to 60 bytes in length.

Default: None.

Example: REPLYTO='user99@sample.com'

Note: If the value has embedded blanks, commas or other punctuation, then the value should be enclosed within apostrophes as shown above.

RESFMT in OUTPUT REFERENCE MEMBER

RESFMT= Specifies the resolution used to format the print dataset.

Valid Values: P240, P300

P240 = Specifies 240 PELS per inch

P300 = Specifies 300 PELS per inch

Default: None

Example: RESFMT=P240

RETAINF

in OUTPUT REFERENCE MEMBER

RETAINF= Specifies how long a functional subsystem will retain an IP-destined dataset after a failed transmission.

Valid Values: Any 1 - 10 character value supported by the FSS

Default: None

Example: RETAINF=02:30

RETAINS in OUTPUT REFERENCE MEMBER

RETAINS= Specifies how long a functional subsystem will retain an IP-destined dataset after a successful transmission.

Valid Values: Any 1 - 10 character value supported by the FSS

Default: None

Example: RETAINS=01:15

RETRYL

in OUTPUT REFERENCE MEMBER

RETRYL= Specifies the number of attempts an FSS will try for transmission of an IP-destined dataset.

Valid Values: 1 -32767

Default: None

Example: RETRYL=3

RETRYT in OUTPUT REFERENCE MEMBER

RETRYT= Specifies how much time a functional subsystem will wait between retries of transmission attempts of a dataset.

Valid Values: Any 1 - 10 characters supported by the FSS

Default: None

Example: RETRYT=00:15

ROOM

in OUTPUT REFERENCE MEMBER

ROOM= Specifies a room identification to be used for separator pages for the SYSOUT dataset.

Valid Values: Any character string up to 60 bytes in length

Default: None

Example: ROOM='LAST ROOM ON THE RIGHT'

Note: If the value contains embedded blanks or commas, it must be enclosed in single quotes, as in the example shown above.

SYSAREA in OUTPUT REFERENCE MEMBER

SYSAREA= Specifies whether or not the system should reserve an area on the security label on each page of printed output.

Valid Values: Y or N

Default: None

Example: SYSAREA=Y

TITLE

in OUTPUT REFERENCE MEMBER

TITLE= Specifies a title identification to be used for separator pages for the SYSOUT dataset.

Valid Values: Any character string up to 60 bytes in length

Default: None

Example: TITLE='VICE-PRESIDENT OF MARKETING'

Note: If the value contains embedded blanks or commas, it must be enclosed in single quotes, as in the example shown above.

TRC in OUTPUT REFERENCE MEMBER

TRC= Specifies whether or not the SYSOUT dataset should have a TRC character in the second character of each record.

Valid Values: Y or N

Default: None

Example: TRC=Y

UCS

in OUTPUT REFERENCE MEMBER

UCS= Specifies the name of a universal character set, print train, or character arrangement table.

Valid Values: Any valid 1-4 character UCS name

Default: None

Example: UCS=PN

USRDTAnn in OUTPUT REFERENCE MEMBER

USRDTAnn= Specifies a user data field to be used for this dataset, where “nn” is a value from 01 to 16.

Valid Values: Any character string up to 60 bytes in length

Default: None

Example 1: USRDTA01='MY DATA'

Example 2: USRDTA14='SOME MORE DATA'

Note: If the value contains embedded blanks or commas, it must be enclosed in single quotes, as in the example shown above.

USRLIBnn

in OUTPUT REFERENCE MEMBER

USRLIBnn= Specifies the name of a user library to be used when printing the SYSOUT dataset, where “nn” is a value from 01 to 08.

Valid Values: Any valid 1-44 character dataset name

Default: None

Example 1: USRLIB01=LRS.VPS.R70.PDEFLIB

Example 2: USRLIB05=SYS1.SAMPLE.PDEFLIB

WRITER in OUTPUT REFERENCE MEMBER

WRITER= Specifies the writer name to be associated with the SYSOUT dataset.

Valid Values: Any valid 1-8 character writer name

Default: None

Example: WRITER=MYWTR

Introduction to DRS/VPI SYSOUT Tracking Feature

The DRS/VPI SYSOUT tracking facility is a new feature that integrates the report creation facilities of DRS with the print delivery functions of VPS and JES providing end to end monitoring of all reports. The tracking facility uses the new JES Client/Server print interface functions to monitor the status of all SYSOUT datasets from creation until they are finally purged from the JES spool.

With the tracking facility enabled, DRS records detailed information of all client print requests and continually monitors the status of these reports until they are finally processed and removed from the JES spool. The tracking status of all SYSOUT datasets is recorded in the DRS LOG providing an audit trail of all documents processed by DRS. The SYSOUT tracking information can also be displayed using operator commands and can be queried remotely using client query requests. For example, clients using the LPR/LPD protocol to route output to DRS will be able to use the LPR Queue Status (LPQ command) to display details of active and completed print requests.

To implement the DRS/VPI tracking feature, an additional VSAM dataset has been added which is used to store tracking data for all print requests. The tracking data includes all details provided by the requesting client at print creation to identify the print output and continually updated status information. To enable quick and efficient access to the tracking data, and to enable DRS to monitor a very large number of datasets, key tracking information is also maintained in a data space.

The JES Client/Server print interface functions of OS/390 introduced the concept of a SYSOUT Client Token (CTOKEN) which can be requested when allocating a SYSOUT dataset. This CTOKEN uniquely identifies the SYSOUT dataset and can be used to monitor the status of the dataset as it is processed through the JES complex. With the tracking interface enabled, DRS will request a CTOKEN for all SYSOUT datasets it creates, and it will allocate a unique DRS tracking number to each request. The tracking information for this request is saved in the DRS tracking dataset, and the CTOKEN value is added to the list of datasets currently being tracked. DRS/VPI then uses an MVS Event Notification Facility (ENF) exit to monitor SYSOUT status events generated by JES to continually update the status of the tracking data. The tracking events generated by JES are cross system events and enable DRS to monitor the status of a SYSOUT dataset even if it is processed by another member of a SYSPLEX configuration. (Note: DRS is not able to track datasets sent via NJE to another JES system).

During restart of the DRS/VPI address space, it is necessary for the tracking data to be re-synchronized with the JES spool as DRS is unable to monitor events while it is not executing. This is done using a JES Extended Status Subsystem request to check the current status of all active datasets. If a SYSOUT dataset is not found during restart, its tracking status will be changed to "Unknown", indicating that DRS does not know whether this dataset was printed or simply purged from the spool.

The DRS/VPI tracking data for each request will, by default, be retained for 1 hour after the document is successfully processed. This will enable clients to query the ultimate destination and status of a completed request. The tracking retention period can be specified at the printer level, via the DRS/VPI TRACK keyword, and history information can be retained for a period of 0 to 99999 hours after the dataset is removed from JES.

Installation Procedure

The steps required to install the DRS/VPI tracking feature are:

1. Install DRS/VPI (see [“Installation Procedure” on page 3.5](#)).
2. Define the tracking VSAM dataset.
3. Add DRSTRACK DD statement to execution JCL.
4. APF Authorize DRS load library.
5. Add TRACK=Y keyword to DRSSTART member.
6. Optionally, add TRACK keyword to DRS printer definitions.

Defining the Tracking Dataset

The DRS/VPI tracking dataset is a variable length record VSAM KSDS which is used to store tracking data associated with a client print request. Sample JCL to define the tracking dataset is contained in member TRACKDEF in dataset LRS.DRS.V1R34.CNTL. The JCL is reproduced here:

```
//JOBNAME JOB (YOUR JOB CARD INFORMATION)
//*
//DEFINE EXEC PGM=IDCAMS,REGION=1M
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
DELETE LRS.DRS.V1R34.TRACK CLUSTER PURGE
IF LASTCC EQ 8 THEN SET MAXCC = 0
DEFINE CLUSTER(
    NAME(LRS.DRS.V1R34.TRACK)
    VOLUMES(xxxxxx)
    INDEXED
    KEYS(12 0)
    RECORDSIZE(512 4096)
    CYLINDERS(50 10)
    SHAREOPTIONS(4 3)
)
DATA(
    NAME(LRS.DRS.V1R34.TRACK.DATA)
)
INDEX(
    NAME(LRS.DRS.V1R34.TRACK.INDEX)
    CONTROLINTERVALSIZE(4096)
)
```

After defining the tracking dataset a DRSTRACK DD statement must be added to the DRS started task JCL. See [“Defining DRS/VPI Job Control Language” on page 3.10](#).

Note 2: The tracking dataset is a VSAM KSDS and will require periodic maintenance to ensure optimum performance and space utilization. Sample JCL to reorganize the tracking dataset can be found in member TRACKREO of dataset LRS.DRS.V1R34.CNTL.

APF Authorize DRS/VPI Load Library

The DRS/VPI tracking feature uses MVS facilities that require it to run from an APF authorized library. This can be done by updating the appropriate member in SYS1.PARMLIB or by dynamically adding the DRS library using the MVS SETPROG command.

DRS Initialization Member Changes

To request DRS/VPI to initialize the SYSOUT tracking facility you must add the TRACK=Y keyword to the DRS/VPI System Initialization member (DRSSTART). When restarted DRS/VPI will then open and initialize the tracking dataset and begin monitoring of newly created datasets. If you wish to specify the retention period for tracking data after print completion, the TRACK keyword can be added to individual printer members or to the default printer member.

Displaying Tracking Data

DRS/VPI System Log

During normal operation DRS/VPI will continually listen for SYSOUT status event notifications and will record all status changes in the DRS/VPI LOG. During report allocation DRS/VPI assigns a unique tracking number to each SYSOUT dataset and this number will appear in all status messages associated with this report.

Below is an example of the tracking information available via the DRS/VPI LOG.

```
DRSV100N DRSV prtId SYSOUT 0000000D ALLOCATED - SYSOUT(A,PRT01,,)
DRSV101N DRSV prtId SYSOUT 0000000D UNALLOCATED - SYSOUT(A,PRT01,,)
DRSV043I DRSV prtId SYSOUT 0000000D PRINTING DEVICE=VPS.PRT01 SYSTEM=JES2
DRSV043I DRSV prtId SYSOUT 0000000D PRINTED DEVICE=VPS.PRT01 SYSTEM=JES2
DRSV043I DRSV prtId SYSOUT 0000000D PURGED SYSTEM=JES2
DRSV043I DRSV prtId SYSOUT 0000000D TRACKING DATA EXPIRED
```

Dataset Status Codes:

| | |
|----------------------------|---|
| PURGED | - Dataset has been purged from JES |
| PRINTING | - Dataset has been selected for processing by the device indicated. |
| PRINTED | - Dataset has been de-selected after successful processing. |
| PRINTING ERROR | - Dataset has been de-selected after unsuccessful processing. |
| ERROR PRINTING(HELD) | - Dataset has been de-selected after unsuccessful processing and held. |
| ERROR PRINTING(SYSHOLD) | - Dataset has been de-selected after processing error and placed in system hold. |
| END-OF-DATASET(NORMAL) | - Dataset processed to end of dataset normally. |
| END-OF-DATASET(ERROR) | - Dataset processed to end of dataset with errors. |
| CTOKEN CHANGE | - Client Token associated with tracking data has changed. |
| NOT FOUND - STATUS UNKNOWN | - Dataset was not found during restart and status has been changed to UNKNOWN. |
| TRACKING DATA EXPIRED | - Dataset tracking data retained after completion has now expired and been removed. |

Device and System Information:

When DRS/VPI receives notification of a dataset being selected for processing, the selecting device name and originating system id are provided as part of the notification. The device name will either contain the physical JES device which is processing the output or the name of the selecting application. It is recommended that VPS should be configured to use the SAPI interface as DRS is then able to identify the selecting VPS system and the specific printer which is processing the output.

Below are some examples of device name values:

| | |
|----------------------|--|
| DEVICE=PRT1 | Output is being processed by JES defined printer PRT1. |
| DEVICE=STCID.PRINTER | Output has been selected by VPS running the SAPI interface. The device name consists of the VPS started task id followed by the printer member name. |
| DEVICE=LnSTn | Output has been selected for transmission via NJE. The device name indicates the NJE line number and SYSOUT transmitter. |
| DEVICE=PRSYSOUT | Output has been selected by as application using the JES PSO (external writer) interface. |

In a SYSPLEX configuration the system id will identify the JES system which is processing the output.

Displaying Tracking Information via the Console

Additional operator commands have been added to enable tracking information to be displayed via the console. The DRS/VPI DISPLAY,SYSTEM response has been extended to show system level tracking statistics. The system level display shows the total number of active SYSOUT datasets and the number of retained SYSOUT tracking elements.

Example DISPLAY,SYSTEM response:

```
DRSV942R *SYSTEM DATASET TRACKING(ACTIVE(150) RETAINED(50)) EVENT QUEUE(0))
```

The DRS/VPI printer display command has also been enhanced to enable detailed tracking data to be display for a specific virtual printer. The DISPLAY,prtId,FILES command will display all tracking data for the specified printer.

Example:

```
F DRS,DISPLAY,VPRT1,FILES  
DRSV920R VPRT1 DISPLAY COMMAND ACKNOWLEDGED  
DRSV969R VPRT1 FILES(ACTIVE(2) RETAINED(1)) STATS(PRINTED(0) PURGED(1) ERRORS(0))  
DRSV962R VPRT1 00000003 STATUS(WAITING) DEVICE(N/A) SYS(N/A) TIME(05:03 25SEP)  
DRSV963R VPRT1 - LPR OWNER(GODDARD) HOST(LRS002) JOB(EXPENSES.DOC)  
DRSV987R VPRT1 - JES JOB(DRSMG34 STC08443 C=H D=LRST F=STD) HELD  
DRSV962R VPRT1 00000004 STATUS(PURGED) DEVICE(N/A) SYS(JES2) TIME(05:30 25SEP)  
DRSV963R VPRT1 - LPR OWNER(GODDARD) HOST(LRS002) JOB(Test print job)  
DRSV962R VPRT1 00000005 STATUS(PRINTING) DEVICE(VPS80.PRT123) SYS(JES2) TIME(03:36:57 04OCT)  
DRSV963R VPRT1 - LPR OWNER(GODDARD) HOST(LRS002) JOB(DRS34.DOC)  
DRSV987R VPRT1 - JES JOB(ABC123 STC08443 C=A D=LRST.PRT123 F=STD)
```

For full details of DRS/VPI operator commands and responses please refer to the appropriate section of the manual.

Displaying Tracking Data Using Remote Clients

LPR Client Queries

Clients routing output to DRS/TCPIP using the LPR/LPD protocol can query the status of their reports using the LPQ command. The LPQ command implements the Query State Short and Query State Long LPR commands which request either a long or short display from the target LPD server. With the tracking feature enabled, DRS/TCPIP now supports both query requests and will respond with a formatted display of all tracking data for the requested printer.

Below is an example of the LPQ command issued from a Windows 2000 host.

```
LPQ -s MVS1 -P VPRT1 -l

LRS PRINT SERVER V1R3.4.000 04-OCT-2001 04:16:24

      QUEUE \\MVS1\VPRT1
JOBID  DETAILS
-----
00000001 STATUS(WAITING) ORG(LPR)
        OWNER(GODDARD)
        HOST(LRS002)
        JOBNAME(EXPENSE.DOC)
        FILENAME(EXPENSE.DOC)
        CLASSIFICATION(Expenses claim)
        LINES(200) PAGES(8) BYTES(120K)
        CREATED(25-SEP 09:43:32) PRINTED(N/A)
        PURGED (N/A) LAST EVENT(N/A)
        JES JOBNAME(DRSMG34) JOBID(STC08443)
        SYSOUT (C=H D=LRST F=STD) HELD
00000004 STATUS(PURGED) ORG(LPR)
        OWNER(GODDARD)
        HOST(LRS002)
        JOBNAME(Test print job)
        FILENAME(TEST.TXT)
        CLASSIFICATION(TEST REPORT)
        LINES(120) PAGES(5) BYTES(50K)
        CREATED(25-SEP 05:18:30) PRINTED(N/A)
        PURGED (25-SEP 05:30:45) LAST EVENT(25-SEP 05:30:45)
00000005 STATUS(PRINTED) DEVICE(VPS80.PRT1) SYSTEM(JES2) ORG(LPR)
        OWNER(GODDARD)
        HOST(LRS002)
        JOBNAME(DRS34.DOC)
        FILENAME(DRS34.DOC)
        CLASSIFICATION(N/A)
        LINES(407) PAGES(50) BYTES(226K)
        CREATED(26-SEP 10:41:35) PRINTED(04-OCT 03:38:21)
        PURGED (04-OCT 03:38:21) LAST EVENT(04-OCT 03:38:21)
        JES JOBNAME(ABC123) JOBID(STC08443)
        SYSOUT (C=A D=LRST.PRT1 F=STD)
```

The STATUS field in the LPQ response indicates the current tracking status of the report and will contain one of the following values.

| | |
|-------------------|---|
| WAITING | Dataset is waiting to be processed. |
| PRINTING | Dataset is currently selected and being processed. |
| PRINTED | Dataset has been de-selected after successful processing. |
| PRINTED-R | Dataset has been de-selected after successful processing and retained on the spool. |
| PURGED | Dataset has been purged from the JES spool without being successfully processed. |
| ERROR | Dataset has been de-selected after unsuccessful processing. |
| ERROR HELD | Dataset has been de-selected after unsuccessful processing and held. |
| ERR SYSHLD | Dataset has been de-selected after unsuccessful processing and placed in system hold. |
| ERR PURGED | Dataset reported an error while printing and was purged. |
| UNKNOWN | Dataset was deleted while DRS was inactive and the status is unknown. |

LRS/Queue Client Query

The LRS/Queue client can be used to query the status of individual reports or can query the entire output queue for a specific DRS printer.

Example:

```
LRSQ /Server:MVS1 /Port:515 /Query:VPRT1:00000004
```

For complete details of the LRSQ command please refer to [page 13.18](#).

Canceling Print Requests

Previously submitted print requests can be canceled by the remote client and the output will be removed from the JES spool. To cancel an output request, the user must specify the unique 8-byte tracking number associated with the output request.

Clients using the LPR command to submit output requests can use the LPRM (Line Printer Remove) command. Below is an example of the TSO LPRM command.

```
LPRM 00000004 (HOST MVS1 PRINTER VPRT1
```

Note: The LPRM command can only be used to cancel output requests that are owned by the requesting user.

LRS/Queue clients can use the /CANCEL keyword to delete a previously submitted print request. For full details of the LRSQ command please refer to [page 13.18](#).

Note: Output requests cannot be cancelled once they have started printing. If you wish to cancel a currently printing dataset, you must either use VMCF to issue a VPS printer command or you can use the 'CANCEL JOB' button on the control panel of the printer. The CANCEL button on the printer control panel is only supported if you are using a TCP/IP connection with BIP (BiDirectional Internet Printing - PJLCMDS=Y).

Section 4

DRS/VPI With VTAM Applications

DRS/VPI can intercept output from VTAM online applications such as CICS, IMS, IDMS, etc. DRS/VPI supports printer session types of LU-0, LU-1 or LU-3. For LU-0 and LU-3, the Data Stream Compatibility (DSC) buffer format is supported. For LU-1, the SNA Character Set (SCS) buffer format and Intelligent Printer Data Stream (IPDS) format are supported.

The member name of the virtual printer must match the name of an APPL definition which is active to VTAM. (See [“VTAM Definition Requirements” on page 3.6](#)). When DRS/VPI is started, the virtual printer members are read from the DRSVLIB PDS. DRS/VPI opens the ACB that matches the member name, and notifies VTAM that it is ready to receive connection requests for that name.

When the online application needs to print, it will start a session with the virtual printer to send the print data. The network name used by the online application must match the member name of the virtual printer. For example, the CICS or IMS printer definition would contain the member name of the virtual printer as the VTAM network name.

As the print data is received by DRS/VPI, the print buffers are transformed into print lines. The reports created by DRS/VPI are either placed on the JES spool or in a DASD file. If the reports go to the JES spool, DRS/VPI uses attributes from SYSOUT keywords. If the report is placed in a DASD file, DRS/VPI uses attributes from DASD keywords. Up to four SYSOUT files and one DASD file can be created for each print request.

If the report is placed on the JES spool, any system which obtains output from the JES spool can access the report. For example, the report could be printed by JES, VPS, or PSF, or it could be acquired by a report distribution and archival product. Because OUTPUT statement information can be associated with the print data, PAGEDEF, FORMDEF, CHARS, etc., could be used for special formatting.

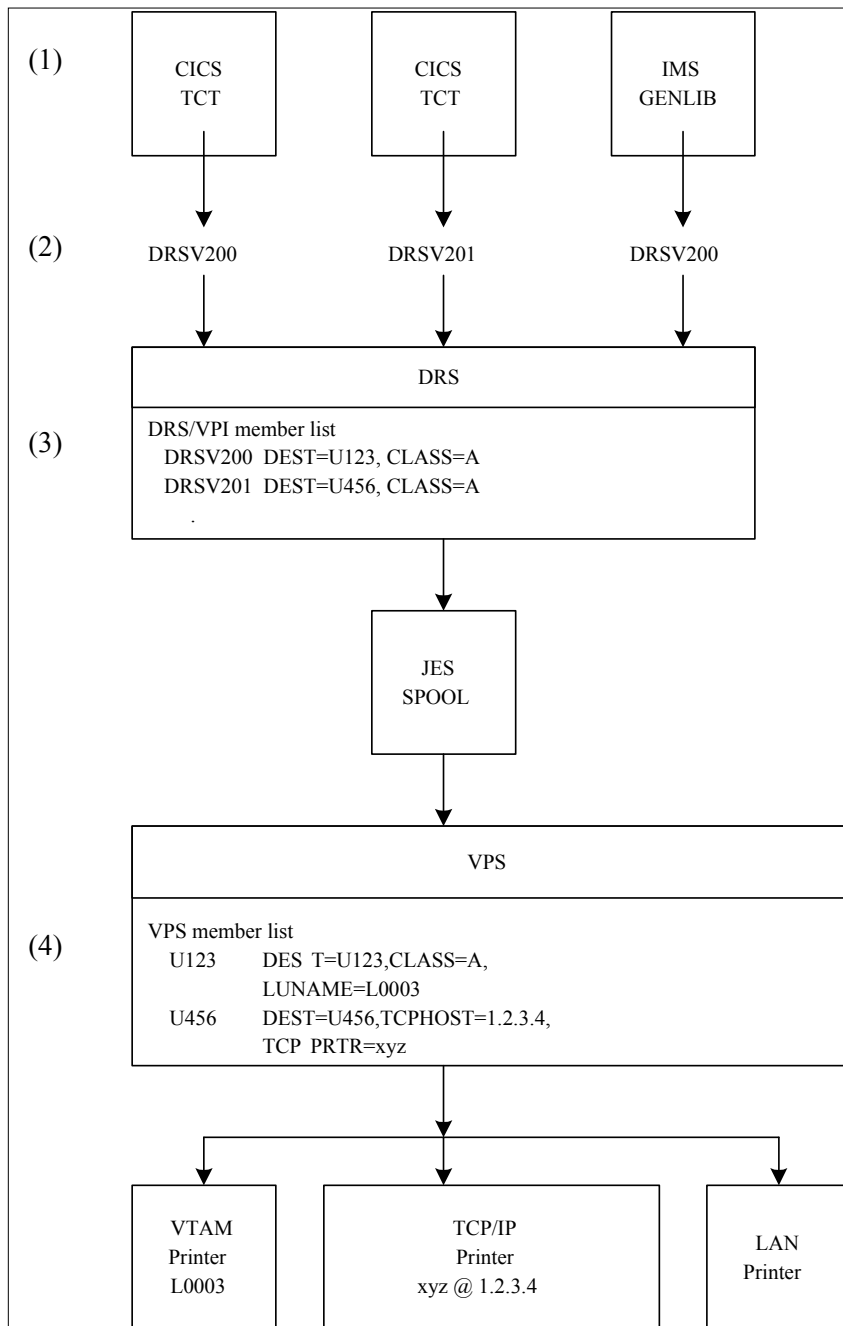
An example of a printer definition member for a VTAM virtual printer is shown here:

```
* -----*
* MEMBER NAME = VPRT001 *
* -----*
CLASS=A,                SYSOUT CLASS
COMMTYPE=VTAM,          VTAM DEFINITION
DEST=R987,              DESTINATION
FORM=STD                 FORM NAME
```

This example indicates that the communication type is VTAM, which is the default. The output received for the VPRT001 printer will be placed on the JES spool with destination of R987, SYSOUT class of A and form name of STD. For more information on printer definition keywords, see [“Building the Printer Definition Members” on page 3.63](#).

In a typical online environment, a single online application owns a VTAM printer at any point in time. An application wanting to “acquire” a printer must wait until it is “released” by the application currently using the printer. Operational problems, such as forms jams, out of forms, or power off, can cause online transaction delays or abends. Also, this environment can typically route only to devices that are defined to VTAM. DRS/VPI supplies the functions needed to improve the online environment. The next diagram describes how the originating application regions are changed to map printer names to “virtual” printers rather than “real” printers.

- Applications (1) are mapped to point to the LU names of “virtual” VTAM printers (2) rather than “real” VTAM printers.
- When DRS/VPI receives data for a particular virtual printer, it creates a dataset with the attributes found in DRS/VPI’s printer definition for that printer. The resulting dataset is placed on the JES spool (3).
- The VPS address space requests SYSOUT datasets from the JES spool for printers defined in VPS’ printer list. As the datasets are selected from the JES spool, they can be sent to VTAM printers, TCP/IP printers, or LAN printers (4).



Section 5

DRS/VPI With DRS/PC

The DRS Virtual Printer Interface allows receiving print data from DRS/PC. DRS/PC obtains print files from users in a LAN environment and sends those print files to DRS/VPI. Installation steps for DRS/PC are listed in the DRS/PC manual.

In order to activate a DRS/PC virtual printer definition, the KEYDRSPC keyword in the DRS/VPI system initialization member must specify a valid trial or license key for the DRS/PC product. Any virtual printer definition which is to be used with DRS/PC must specify COMMTYPE=(APPC,DRSPC).

DRS/PC connects to DRS/VPI using a VTAM APPC (LU6.2) connection. The member name of the virtual printer which will receive from DRS/PC must match the name of an APPL definition which is active to VTAM. The APPL statement should specify a DLOGMOD and MODETAB which contain LU6.2 parameters. The following example shows the logon mode table parameters which are recommended:

```
LRSMODE  MODETAB
LRSAAPP  MODEENT LOGMODE=LRSAAPP,                X
          TYPE=0,          NEGOTIABLE BIND        X
          FMPROF=X'13',    REQUIRED FOR LU6         X
          TSPROF=X'07',    REQUIRED FOR LU6         X
          PRIPROT=X'B0',   REQUIRED FOR LU6         X
          SECPROT=X'B0',   REQUIRED FOR LU6         X
          COMPROT=X'D0B1', REQUIRED FOR LU6         X
          RUSIZES=X'8787', 1024/1024              X
          SSNDPAC=X'3F'    NON-ZERO FORCES USE OF VPACING X
          PSNDPAC=X'3F'    NOT USED BY DRS/PC      X
          SRCVPAC=X'3F'    NOT USED BY DRS/PC      X
          PSERVIC=X'0602000000000000000000000000'
          MODEEND
          END
```

The VTAM APPL statement which describes the virtual printer must include keywords which indicate that it is capable of supporting LU6.2 sessions. The following keywords should be specified:

```
MODETAB=lrsmode,    Logon mode table name
DLOGMOD=lrsappc,    Logon mode entry which contains LU6.2 parms
APPC=YES,           Allow DRS to issue APPCCMD macros
VPACING=n,          Non-zero pacing value
PARSESS=YES,        Must be YES, even though session limit is 1
DMINWNL=1,          DRS will win if session contention
DMINWNR=0,          DRS/PC will lose if session contention
DSESLIM=1           Session limit of 1
```

For more information on defining the VTAM APPL statements to be used for the virtual printers, see [“VTAM Definition Requirements” on page 3.6](#).

When DRS/PC sends output to DRS/VPI, a special record is sent before the data buffers. This special record describes whether the print file should be placed on the JES spool or in a DASD file. If the file is destined for the JES spool, the SYSOUT attributes are sent, such as CLASS, DEST, FORM, WRITER. If the print data should be stored in a DASD file, DASD keyword values are sent, such as DSN, DISP, SPACE, UNIT, VOLUME. If allocation fails using the attributes passed in the header record, DRS/VPI will use the SYSOUT and/or DASD keywords specified in the DRS virtual printer definition. Up to four SYSOUT files and one DASD file can be created for each print request.

If the report is placed on the JES spool, any system which obtains output from the JES spool can access the report. For example, the report could be printed by JES, VPS or PSF, or it could be acquired by a report distribution and archival product. Because OUTPUT statement information can be associated with the print data, PAGEDEF, FORMDEF, CHARS, etc., could be used for special formatting.

An example of a virtual printer definition member for a DRS/PC printer is shown here:

```
* - - - - - *
* MEMBER NAME = DRSPC01 *
* - - - - - *
CLASS=A,                SYSOUT CLASS
COMMTYPE=(APPC,DRSPC),  APPC DEFINITION FOR DRSPC
DEST=LOCAL,             DESTINATION
HOLD=YES,               PLACE IN HOLD QUEUE
MPP=0                   NO MAXIMUM LINE LENGTH
```

This example indicates the communication type is APPC. The second subfield specifies that the sender is DRS/PC, which is the default if the first subfield is APPC. The output received for the DRSPC01 printer will be processed using the information received from DRS/PC header records. If that allocation fails, an informational message will be displayed, and the print file will be placed on the JES spool with destination of LOCAL, SYSOUT class of A and will be held. MPP=0 allows lines up to 32756 to be received.

For more information on printer definition keywords, see [“Building the Printer Definition Members” on page 3.63](#).

Receiving AFP records from the LAN using DRS/PC

AFP file re-blocking allows applications running on the LAN to create Advanced Function Printing resources or documents which can be printed to devices attached to the MVS system.

If an application or an AFP driver on the LAN creates a block of records which contain AFP structures, the blocks must be separated into individual records in order for them to be processed or printed on MVS. DRS/VPI can separate the records in these AFP blocks and place the records on the JES spool or into a DASD file. Then the AFP records can be used as resources (PAGEDEF, FORMDEF, OVERLAY, etc.) or the documents can be printed by VPS/IPDS, VPS/PCL or other AFP software.

DRS/PC can be used to send the AFP blocks to DRS/VPI on MVS. There are two methods to indicate to DRS/VPI to re-block these incoming AFP buffers of data. One is to specify PRTOPTS=0800 in the virtual printer definition for DRS/PC. The other is to define a print queue as one which would send AFP records by setting the AFPDS=Y flag in the DRS initialization file for DRS/PC. For more information on setting the AFPDS flag, see the DRS/PC installation manual. For more information on specifying PRTOPTS, see [“Building the Printer Definition Members” on page 3.63](#).

If either method is used, files which contain X'5A' in the first position will be processed as AFP records. All records must begin with X'5A' and contain a length field at the proper location. Any AFP format errors will cause processing to be terminated and the printer EDRAINED.



Section 6

DRS/VPI With DRS/TCPIP

The DRS Virtual Printer Interface allows receiving output from TCP/IP hosts using LPR/LPD protocols. DRS/TCPIP connects to the MVS TCP/IP system and listens for connections on the PORT number specified in the TCPPORT keyword. The TCPPORT defaults to be 515, which is the standard 'well-known PORT' for a Line Printer Daemon.

In addition to LPR/LPD protocols, DRS/TCPIP supports LRS products which use an LRS-defined protocol. For example, DRS/TCPIP can receive print requests from SAP R/3 using DRS/OutputManager or from the LRSQ command on various platforms.

When a connection is received from the remote TCP/IP host, the first command expected is a 'receive print job' command. This command contains a print queue name. The name must match the member name of the virtual printer. Therefore, it is restricted to a maximum length of 8 characters and should begin with an alphabetic or national character. No special characters are allowed.

The connection is then passed to the virtual printer that matches the print queue name. If no member is active with that name, DRS/VPI will use the AUTOACT keyword values to accept or reject the connection. If AUTOACT=(N,N) was specified, DRS/VPI will refuse the connection. If AUTOACT=(Y,N) was specified, DRS/VPI will attempt to activate a member with the name specified. If none exists, the connection will be rejected. If AUTOACT=(Y,Y) was specified and no matching printer definition is found, DRS/VPI will define a printer using the print queue name as the member name and keyword values from the default member specified at DRS/VPI system initialization.

For LPR/LPD, DRS/VPI will receive a control file and a data file from the TCP/IP host. The control file has records which identify the originator of the print file and records which indicate how the file should be printed. The data file is ASCII print data. DRS/VPI can use or ignore the control file based on the TCPOPTS virtual printer keyword. The print data can be translated from ASCII to EBCDIC based on the PRTXLATE keyword.

The reports created by DRS/VPI are either placed on the JES spool, in a DASD file, or in an HFS file. If the reports go to the JES spool, DRS/VPI uses attributes from SYSOUT keywords, such as: CLASS, DEST, FORM, WRITER, OUTREF, etc. If the report is placed in a DASD file, the attributes of the file use DASD keywords, such as: DSN, MEMBER, DISP, SPACE, UNIT, VOLUME, etc. If the report is placed in an HFS file, the attributes of the file use HFS keywords, such as: PATH, PATHDISP, PATHOPTS, etc. Up to four SYSOUT files, one DASD file, and one HFS file can be created for each print request.

If the report is placed on the JES spool, any system which obtains output from the JES spool can access the report. For example, the report could be printed by JES, VPS or PSF or it could be acquired by a report distribution and archival product. Because OUTPUT statement information can be associated with the print data, PAGEDEF, FORMDEF, CHARS, etc., could be used for special formatting.

In order to activate a TCP/IP virtual printer, the KEYLPD keyword in the DRS/VPI system initialization member must specify a valid trial or license key for the DRS/TCPIP product. Any virtual printer which is to be used with DRS/TCPIP must specify COMMTYPE=TCPIP. If dynamic definition is specified by setting AUTOACT=(Y,Y), the DEFLTMEM keyword in the system initialization member must specify a default printer definition member which includes a keyword value of COMMTYPE=TCPIP.

An example of a virtual printer definition member for a TCP/IP virtual printer is shown here:

```
* -----*
* MEMBER NAME = U9988 *
* -----*
CLASS=A,                SYSOUT CLASS
COMMTYPE=TCPIP,        TCP/IP DEFINITION
DEST=U9988,            DESTINATION
PRTXLATE=(Y,DVSSXEBC) ASCII TO EBCDIC TRANSLATION
```

This example indicates that the communication type is TCP/IP. The print data received for this print queue will be translated from ASCII to EBCDIC using the DVSSXEBC translate table module and will be placed on the JES SPOOL with destination of U9988 and SYSOUT class of A.

For more information on using DRS/TCPIP see [“Introduction to DRS/TCPIP”](#) on page 12.1.

Receiving AFP Records using DRS/TCPIP

AFP file re-blocking allows applications running on a TCP/IP host to create Advanced Function Printing resources or documents which can be printed to devices attached to the MVS system.

If an application or an AFP driver on a TCP/IP host creates a block of records which contain AFP structures, the blocks must be separated into individual records in order for them to be processed or printed on MVS. DRS/VPI can separate the records in these AFP blocks and place the records on the JES spool or into a DASD file. Then the AFP records can be used as resources (PAGEDEF, FORMDEF, OVERLAY, etc.) or the documents can be printed by VPS/IPDS, VPS/PCL or other AFP software.

To indicate that DRS/VPI should re-block these incoming AFP buffers of data, specify `PRTROPTS=0800` in the virtual printer definition for the print queue. For more information on using `PRTROPTS`, see [“Building the Printer Definition Members” on page 3.63](#).

With `PRTROPTS=0800`, files which contain `X'5A'` in the first position will be processed as AFP records. All records must begin with `X'5A'` and contain a length field at the proper location. Any AFP format errors will cause processing to be terminated and the printer `EDRAINED`.



Section 7

DRS/VPI With DRS/STI

The DRS Virtual Printer Interface allows receiving output containing DRS Smart Tag Interface (DRS/STI) buffers. The DRS/STI buffers are used to override the SYSOUT characteristics associated with the virtual printer. This allows a single virtual printer to route output to the JES spool with different SYSOUT attributes.

DRS/VPI scans each buffer received, looking for the DRS/STI buffer. Note that the scan is only performed if a valid KEYSTI= keyword was specified during DRS/VPI initialization. Within the Smart Tag buffer is information that is used to extract the report's SYSOUT characteristics from the DRS/STI Smart Tag rules database. The rules database is a VSAM KSDS dataset containing information on where and how a report is to be printed.

Upon detecting a Smart Tag buffer, DRS/VPI will close and unallocate the current report, regardless of the TERMRPT= keyword option, and immediately allocate and open a new report with the SYSOUT characteristics retrieved from the Smart Tag rules database. After the new report has been successfully initialized, DRS/VPI discards the Smart Tag buffer and proceeds with normal processing.

If a Smart Tag buffer is received and a valid KEYSTI= keyword was not specified during DRS/VPI initialization, then DRS/VPI will treat the Smart Tag buffer as data and simply write it to the currently allocated report. No error message will be generated.



Section 8

DRS/VPI Operation

Introduction

There are many situations in which an operator or person at the “help” desk may wish to communicate with the DRS/VPI system. For example, an operator in the computer room may wish to start or stop the DRS/VPI task. “Help” desk personnel may wish to inquire about the status of a DRS virtual printer or to diagnose a problem with a particular virtual printer.

These functions can be accomplished via the OS/MVS START, STOP and MODIFY commands.

The START, STOP, and MODIFY Commands

The START (abbreviated as S) command is used only for starting the DRS/VPI system. Its format is:

```
S stcname
```

where stcname is the name of the DRS/VPI started task. The START command is not used if the DRS/VPI system is executed as a batch job.

The STOP (abbreviated as P) command is used only for stopping the DRS/VPI address space. Its format is:

```
P stcname
```

where stcname is the name of the DRS/VPI started task (or the jobname of the DRS/VPI batch job). A STOP command is used for DRS/VPI “fast” termination. SYSOUT datasets that are currently being received, if any, will be terminated, and kept or deleted according to the ERRACTN specified in the virtual printer definition.

The MODIFY (abbreviated as F) command can be used for all other DRS/VPI operator communications. Its format is:

F stcname,cmd{,prtrid}{,parml,parm2,parmn},u=userid

where:

stcname: The name of the DRS/VPI started task (all examples in this section assume a started task name of DRSV).

cmd: The DRS/VPI command name (only sufficient characters to make the command unique need be specified).

prtrid: The name of the virtual printer(s) to which the command applies; “prtrid” is one of the following:

- The full member name of the virtual printer in DRSVLIB.
- A generic or partial member name (for example, ABC*).
- S=status where status is:
 - A** = For active printers (those currently busy doing work).
 - I** = For idle printers (those waiting for work).
 - F** = For virtual printer tasks whose sessions have been terminated by the FORCE command.
 - E** = For error drained printers (those that are drained due to an unrecoverable error).
- SYSTEM can be used in place of prtrid to indicate that the command applies to the DRS/VPI system as a whole rather than an individual printer. The commands which allow SYSTEM to be specified are:

DISPLAY

SNAP

- OUTREF can be used in place of prtrid to indicate that the command applies to OUTPUT reference members. To display all OUTREF members, specify “*” for the next display parameter. To display a specific OUTREF member or a group of OUTREF members, use the full or partial name of the OUTREF member(s).

parms: Consist of variable data, depending upon the requested command.

userid: Specifies the TSO userid to which the command response will be sent to.

Examples of using the prtrid in DRS/VPI commands are listed below.

| | |
|----------------------|---|
| F DRSV,DIS,* | Displays all activated printers. |
| F DRSV,DIS,ABC* | Displays all printers whose names begin with ‘ABC’. |
| F DRSV,DIS,SYSTEM | Displays current DRS/VPI system status. |
| F DRSV,DIS,OUTREF,* | Displays a list of OUTPUT reference members. |
| F DRSV,DIS,ABCD,ATTR | Displays report attributes for printer ‘ABCD’. |
| F DRSV,DIS,ABCD,OUT | Displays OUTPUT references for printer ‘ABCD’. |
| F DRSV,DIS,S=E | Displays all printers which are EDRAINED. |
| F DRSV,ACT,XYZ | Activates a virtual printer named ‘XYZ’. |
| F DRSV,FOR,ABCD | Forces session termination and drains printer ‘ABCD’. |
| F DRSV,REA,ABCD | Inactivates and re-activates virtual printer ‘ABCD’. |

For more information about each command, see the following pages.

DRS/VPI Command Summary

| COMMAND NAME | FUNCTION |
|-------------------|---|
| <u>ABEND</u> | Abnormally terminate DRS/VPI. |
| <u>ACTIVATE</u> | Add a printer to the DRS/VPI system. |
| <u>CLOSELOG</u> | Close and re-open the DRS/VPI log dataset. |
| <u>DISPLAY</u> | Display DRS/VPI status and option information. |
| <u>END</u> | Normally terminate DRS/VPI. |
| <u>FORCE</u> | Force termination of the session for specified printer. |
| <u>INACTIVATE</u> | Remove a printer from the DRS/VPI system. |
| <u>LOG</u> | Put a message in the DRS/VPI log dataset. |
| <u>PURGE</u> | Purge an outstanding output request from the JES spool. |
| <u>REACTIVATE</u> | Remove a printer from the DRS/VPI system and immediately add the printer to the DRS/VPI system. |
| <u>SET</u> | Change current DRS/VPI printer parameters. |
| <u>SNAP</u> | SNAP dump DRS/VPI control blocks. |
| <u>SSET</u> | Change current DRS/VPI system parameters. |
| <u>START</u> | Start (remove drained status from) specified printer. |

DRS/VPI Commands

ABEND

Function: Abnormally terminate DRS/VPI.
Description: This command will abnormally terminate the DRS Virtual Printer Interface with a U001 abend.
Format: **F DRSV,ABEND**
Comments: This command has no operands or prtrid specification.
Example: **F DRSV,ABEND**
Abnormally terminate DRS/VPI.

ACTIVATE

Function: Add a printer to the DRS/VPI System.
Description: This command allows the addition of a printer to the DRS/VPI System without having to terminate and restart the DRS/VPI address space.
Format: **F DRSV,ACTIVATE,membernm**
Comments: membernm is the DRSVLIB PDS member name defining the printer to be added.
Example: **F DRSV,ACTIVATE,DRSPRT99**
Add the printer that is described in the DRSVLIB member DRSPRT99 to the DRS/VPI System.

CLOSELOG

Function: Close and re-open the DRS/VPI log dataset.
Description: This command provides the facility to close and re-open the DRS/VPI log dataset. If the DRS/VPI log dataset is a pre-allocated DASD dataset, the CLOSELOG command will be rejected. If the DRS/VPI log dataset is a SYSOUT dataset, the log dataset will be available for printing, and a new SYSOUT dataset will be allocated and opened for continued logging.
Format: **F DRSV,CLOSELOG**
Comments: This command has no operands or prtrid specification.
Example: **F DRSV,CLOSELOG**
Close the DRS/VPI log dataset.

DISPLAY

- Function:** Display DRS/VPI status and option information.
- Description:** This command provides the facility to display option and status information pertinent to the individual virtual printers and/or the DRS VPI system.
- Format:** **F DRSV,DISPLAY,EXITS**
Display status of DRS user exits (this can be coded as EXITS to see the status of all user exits, as EXITnn to display the status of an individual user exit, or as EXITnn-nn to display the status of a range of user exits.)
- F DRSV,DISPLAY,OUTREF,***
Display all OUTPUT reference members currently in use.
- F DRSV,DISPLAY,OUTREF,O99***
Display all OUTPUT reference members currently in use with names that begin with "O99".
- F DRSV,DISPLAY,prtrid,disopt1{,disopt2.....,disoptn}**
Display options in a particular printer member, where disoptn specifies the requested display option(s).
Only sufficient characters to make the option unique need be specified.
- ATTRIBUTES** Printer spooling or DASD attributes.
- DIAG** Printer diagnostic information.
- FACTIVE** Printer file tracking data for active datasets.
- FILES** Printer file tracking data.
- FSUMMARY** Printer file tracking summary.
- MISC** Printer miscellaneous options.
- OUTREF** Printer OUTPUT reference information.
- PROCESSING** Printer processing statistics.
- QUEUE** Printer staging information.
- STATUS** Printer status.
- TCPIP** TCP/IP related information.
- VTAM** VTAM related information.
- *** All the above except DIAG, OUTREF, FILES AND FACTIVE.
- F DRSV,DISPLAY,SYSTEM**
Display the current system-wide options and status.
- F DRSV,DISPLAY,SYSTEM,KEYS**
Display each valid LRS product key that was specified during DRS/VPI initialization.
- F DRSV,DISPLAY,SYSTEM,MODULE,modnam**
Display information about a specific DRS module, including the load address, entry point address, length, etc.
- F DRSV,DISPLAY,SYSTEM,SAPTASKS**
Display tasks associated with SAP R/3 communications.

F DRSV,DISPLAY,SYSTEM,STATUS

Display the current system-wide options and status.

F DRSV,DISPLAY,SYSTEM,STORAGE

Display the current system storage usage.

F DRSV,DISPLAY,SYSTEM,TASKS

Display current active tasks

F DRSV,DISPLAY,SYSTEM,*

Display system status, storage and keys.

Comments: STATUS is the default display option for a printer display if no options are specified.

Example: **F DRSV,DISPLAY,DRSPRT99,S,V**
Display status information and VTAM information for printer DRSPRT99.

END

Function: Normally terminate DRS/VPI.

Description: This command will notify DRS/VPI to initiate normal termination processing.

Format: **F DRSV,END**

Comments: This command has no operands or prtrid specification. The DRS/VPI system will not terminate until all printers that are currently busy complete the report that they are processing.

Example: **F DRSV,END**
Normally terminate DRS/VPI.

FORCE

Function: Terminate a virtual printer session immediately.

Description: This command will terminate the session between a virtual printer and its partner application. The virtual printer will be placed in a "FORCED" status, and a START command will be required to allow new sessions to be established.

Format: **F DRSV,FORCE,prtrid**

Comments: This command can be used to stop a virtual printer immediately.

Example: **F DRSV,FORCE,DRSPRT99**
Terminate the session for DRSPRT99 and place the virtual printer in a "FORCED" status.

INACTIVATE

- Function:** Remove a printer from the DRS/VPI System.
- Description:** This command allows the removal of a printer from the DRS/VPI System without having to terminate and restart the DRS/VPI address space. If the printer is currently busy, the inactivation will be scheduled and completed after the current job being printed is complete.
- Format:** **F DRSV,INACTIVATE,prtrid**
- Comments:** Printer parameters can be dynamically changed without terminating the DRS/VPI address space by changing the parameters in the printer definition member, issuing an inactivate command for the printer, and issuing an activate command for the printer. At activation, the values specified in the printer definition member are brought into the DRS/VPI system.
- Example:** **F DRSV,INACTIVATE,DRSPRT99**
Remove printer with a printer id of the DRSPRT99 from the DRS/VPI System.

LOG

- Function:** Put a message in the DRS/VPI log dataset.
- Description:** This command allows a message to be placed in the DRS/VPI log dataset.
- Format:** **F DRSV,LOG,message**
- Comments:** The message must not be greater than 50 characters.
- Example:** **F DRSV,LOG,THIS IS A MESSAGE**
Place "THIS IS A MESSAGE" in the DRS/VPI log dataset.

PURGE

- Function:** Delete a SYSOUT dataset.
- Description:** This command can be used to delete a previously created SYSOUT dataset. DRS allocates a unique tracking number to all SYSOUT datasets. This number can be seen in the DRS/VPI log or can be displayed in response to a DISPLAY,prtrid,FILES command. This command will remove the SYSOUT dataset associated with a specific tracking number.
Note: Datasets cannot be deleted that are selected or actively printing.
- Format:** **F DRSV,PURGE,printer,trackno**
- Comments:** printer - The name of the DRS virtual printer.
Trackno - The 8 byte SYSOUT tracking number.
- Example:** **F DRSV,PURGE,VPRT1,00000123**
This command will delete the SYSOUT dataset associated with DRS tracking number 00000123.

REACTIVATE

- Function:** Remove a printer from the DRS/VPI System and immediately add the printer to the DRS/VPI system.
- Description:** This command allows the definition of a DRS virtual printer to be “refreshed” from the Printer Definition Member in the DRS/VPI Control Library.
- Format:** **F DRSV,REACTIVATE,prtrid**
- Comments:** The most common use for this command would be to bring into the DRS/VPI an updated printer definition member for a printer already activated to the DRS/VPI.
- Example:** **F DRSV,REACTIVATE,DRSPRT99**
Remove the printer with a printer id of DRSPRT99 from the DRS/VPI system and immediately add it to the DRS/VPI system, using the printer definition in the DRS/VPI Control Library.

SET

- Function:** Change current printer options.
- Description:** This command provides the facility to change printer options.
- Format:** **F DRSV,SET,prtrid,optn=(value1,value2)**
optn = The option to be changed
value = The new value to be assigned to the option
- Comments:** The SET command must be issued for a specific printer; it provides the facility to change the following DRS/VPI printer parameters:
TRACE (2 positional subparameters)
To retain the original value for a particular positional parameter value, use a dash. To remove a value, use a null.
- Example 1:** **F DRSV,SET,DRSPRT99,TRACE=(Y,FF)**
Activate internal tracing for printer DRSPRT99 and to set the trace options to X'FF'.
- Example 2:** **F DRSV,SET,DRSPRT11,TRACE=N**
Inactivate internal tracing for printer DRSPRT11.
- Example 3:** **F DRSV,SET,DRSPRT11,TRACE=(-,03)**
Set the trace options to X'03'.

SNAP

- Function:** SNAP dump DRS/VPI control blocks.
- Description:** This command provides the facility to snap dump DRS/VPI blocks for a specified printer or for the DRS/VPI system.
- Option 1:** **F DRSV,SNAP,prtrid**
- Comments:** Command must be issued for a specific virtual printer.
The SNAP command has no parameters.
The output of the SNAP command will be queued to the class, destination, form, and writer specified in the DRSSSTART member via the SNAPOUTP parameter.
- Example:** **F DRSV,SNAP,DRSPRT99**
Snap the control blocks for printer DRSPRT99.
- Option 2:** **F DRSV,SNAP,SYSTEM**
Snap the control blocks for the DRS Virtual Printer Interface address space to obtain system diagnostic information.
- Note:** Use the SYSTEM option only by request of the DRS technical support staff to diagnose a particular problem. This option consumes a large amount of CPU time.

SSET

- Function:** Change current DRS/VPI system parameters.
- Description:** This command provides the facility to modify the DRS/VPI System parameters.
- Format:** **F DRSV,SSET,sopt=value**
optn = The option to be changed
value = The new value to be assigned to the option
- Comments:** The SSET command provides the facility to change the following the DRS/VPI System parameters:
- EXITnn=E|D** To enable (E) or disable (D) DRS/VPI user exit nn. The exit number can be specified as a 1 or 2 digit number; i.e., EXIT01 and EXIT1 are both acceptable.
- LOG=Y|N** To enable (Y) or disable (N) DRS/VPI logging.
- MAXVTAM=nnnn** To specify the maximum number of VTAM virtual printers that can be concurrently active. This value can be set from 0 to the maximum VTAM printers specified at DRS/VPI initialization.
- MAXTCPIP=nnnn** To specify the maximum number of TCP/IP virtual printers that can be concurrently active. This value can be set from 0 to the maximum TCP/IP printers specified at DRS/VPI initialization.
- TRYPES=** To specify the types of DRS/VPI system events to be traced.
- Example:** **F DRSV,SSET,LOG=N**
Inactivate the DRS/VPI logging.

START

- Function:** Start (remove drained status from) specified printer.
- Description:** This command provides the ability to notify a printer to allow session establishment.
- Format:** **F DRSV,START,prtrid**
- Comments:** The START command will be rejected if DRS/VPI system termination is in process.
- Example:** **F DRSV,START,DRSPRT99**
Notify printer DRSPRT99 that SYSOUT processing can resume.

Section 9

DRS/VPI User Exits

This section describes the DRS/VPI modules which you can modify to fit the needs of your installation or to activate particular functions of DRS/VPI.

The DRS/VPI Separator Routine is described first. Although it is not really an “exit,” it can be modified to suit your needs, so it is included in this section. Several versions of the separator (banner) page are supplied to you on the distribution cartridge in both source and load module format. You can also create your own separator modules.

The User Exits allow you to write specialized code for your installation which will be invoked at certain key points in DRS/VPI processing. The distribution cartridge will contain sample source code for these exits.

Separator Routine

Function: The DRS/VPI separator routine is responsible for adding separator (banner) pages at the start and end of each print file. Several sample separator routines are supplied on the distribution cartridge, or you can write your own separator routine. The separator routines should be linked into the DRS/VPI load module library, along with the other DRS/VPI modules and user exits. The SEPAR= printer keyword determines the name of the load module that will be called to create separator pages for a virtual printer; each virtual printer can have its own separator page routine.

Supplied Separator Routines: Six separator routines (both source and load modules) are supplied with DRS/VPI. They are:

| Source Name | Load Name | Description | Width |
|-------------|-----------|--|-------|
| DVSSSEPR | DVSSSEPR | Block letters - standard | 132 |
| DVSSSEP2 | DVSSSEP2 | Block letters - standard | 80 |
| DVSSSEP3 | DVSSSEP3 | DRS/PC separator | 80 |
| DVSSSEP4 | DVSSSEP4 | TCP/IP separator | 132 |
| DVSSSEP5 | DVSSSEP5 | TCP/IP separator | 132 |
| DVSSSEP6 | DVSSSEP6 | TCP/IP separator to print control file | 132 |

Table 9.1 - Supplied Separator Routines

Language: The separator routine must be written in Assembler Language.

Reentrancy Considerations: The separator page routine must be reentrant.

Execution Environment: The separator routine is given control in problem state, storage protect key 8. The \$SYSAUTH flag in the System Attributes will indicate if DRS/VPI is authorized.

Linkage Conventions: When the separator page routine receives control, register 15 contains the entry point of the separator page routine, register 14 contains the address to which the separator page routine must return control, and register 13 points to an 18-word save area. When a separator page routine receives control, it must save the caller's registers according to standard MVS linkage conventions.

When the separator page routine returns control, it must restore the caller's registers, except register 15, which must be set to an appropriate return code.

Point of Processing: If the virtual printer keyword SEPAR=S or SEPAR=B is specified, the separator routine is given control after the INIT call has been made to initialize the report, but before the first PUT call to add data lines to the report. If SEPAR=N or SEPAR=E is specified, the separator routine will not be given control for start dataset processing.

If the virtual printer keyword SEPAR=E or SEPAR=B is specified, the separator routine is given control before the TERM call terminates the report. If SEPAR=N or SEPAR=S is specified, the separator routine will not be given control for end dataset processing.

Recovery:

- If the separator page routine abends, the virtual printer will be EDRAINED.

Register Contents on Entry:

| | |
|---------------|---|
| R0 | Request code 00 - Call is for a start separator 04 - Call is for an end separator 08 - Call is for a cleanup request (The separator routine will be called with this request code only if an event has occurred that will prevent further calls to the separator routine) |
| R1 | Address of parameter list in the following format: Word 0 (+00) Address of DRS/VPI System Attributes (DRSVSYAT) Word 1 (+04) Address of 2-Word User Work Area Word 2 (+08) Address of Printer Attributes (DRSVPRAT) Word 3 (+12) Address of Spooling Attributes (DRSDRIB) Word 4 (+16) Address of DRS/PC Lan Attributes (DRSLANA), if available Word 5 (+20) Address of TCP/IP Control Area (#LRTCCNT), if available Word 6 (+24) Address of area for separator record The high-order bit of the last parameter will be set to 1. |
| R2-R12 | N/A |
| R13 | Address of register save area |
| R14 | Return Address |
| R15 | Entry Address |

Register Contents on Exit:

| | |
|---------------|--------------------|
| R0-R14 | Same as upon entry |
| R15 | Return code |

Return Codes:

| | |
|-----------|--|
| 00 | Separator record available to print and return control |
| 04 | Nothing to print and do not return control |
| 08 | Reserved |
| 12 | Reserved |
| 16 | Disastrous error, nothing to print and do not return control |

Programming Considerations:

1. If the separator routine is being called for a cleanup request (request code = 08), no more separator lines can be added. The only purpose of this type of call is to give the separator routine an opportunity to do any necessary cleanup processing. For example, if your separator routine had issued a GETMAIN during start separator processing and intended to issue a FREEMAIN during end separator processing, the FREEMAIN would need to be issued when the cleanup call is made.
2. All print lines added by the separator routine should be in VBA format. All lines will be re-formatted by DRS/VPI to match the record format specified for the print data file.
 - The separator line should have a 4-byte RDW. The first 2 bytes of the RDW should contain the length of the print record, including the 4-byte RDW. The second 2 bytes of the RDW should be zero.
 - The first byte of the separator line should contain an ASA carriage control character.
3. If the separator is being called for a start or end request (i.e., other than a cleanup request), and you wish to add separator records to the report:
 - Move the separator print line to the area whose address is provided in the parameter list.
 - Set the return code to 00 to indicate there is a print line to be added to the report.
 - When all lines have been added, set return code to 04 to indicate that the separator routine does not need to be called again.
4. If the separator is being called for a start or end request (i.e., other than a cleanup request), and you do not wish to add any separator records to the report, set the return code to 04 on the initial call and exit.

DRS/VPI Exits

The following user exits are supplied with DRS/VPI and can be installed as required:

1. **DRS/VPI Startup Exit:**
Receives control during DRS/VPI initialization. When it is called, DRS/VPI has already allocated the virtual printer control blocks and the trace table and has loaded all the user exits.
2. **DRS/VPI Shutdown Exit:**
Receives control after DRS/VPI termination processing is complete.
3. **DRS/VPI Activation Exit:**
Receives control prior to activating a virtual printer to the DRS/VPI system.
4. **DRS/VPI Inactivation Exit:**
Receives control prior to inactivating a virtual printer (removing it from the DRS/VPI system).
5. **DRS/VPI Command Exit:**
Receives control prior to the execution of every DRS/VPI command. The exit can modify the command text or request that the command not be executed.
6. **DRS/VPI WTO Exit:**
Receives control prior to the issuing of any DRS/VPI message. The exit can modify the WTO or request that the WTO not be issued.
7. **DRS/VPI Report Initialization Exit:**
Receives control before the DRS INIT call for each dataset. The exit can modify any parameter in the SYSOUT attributes (DRIB) for that dataset.
8. **DRS/VPI Error Retry Exit**
Receives control after any error that would EDRAIN the virtual printer. The exit can decide to restart the printer, leave the printer EDRAINED, or inactivate the printer.
9. **DRS/VPI TCP/IP Command Exit**
Receives control as print commands and print files are received from the TCP/IP remote host. The exit can modify the control file received or reject the print data file.
10. **DRS/VPI Report Termination Exit**
Receives control after the DRS TERM call for each dataset.

The source to the sample user exits is distributed as members in library LRS.DRS.V1R34.ASM on the distribution cartridge. Sample JCL to assemble and linkedit the user exits is provided as member EXITASMV in file LRS.DRS.V1R34.CNTL.

The following pages give more information about using the DRS/VPI user exits.

Exit 01: DRS/VPI Startup Exit

Function: This exit is called during DRS/VPI initialization. When it is called, DRS/VPI has already allocated its printer control blocks and trace table and has loaded the user exits. After this exit is invoked, DRS/VPI will complete initialization, including activating any virtual printers listed for automatic activation via an Inclusion List Member or Exclusion List Member and initializing the DRS/VPI VTAM connection (OPEN ACB and SETLOGON START) for each active printer.

Exit Type: System
Exit TCB: System
Point of Processing: This exit is taken during DRS/VPI initialization, before any printers have been activated.
Related Exits: N/A

Recovery:

- If recovery is off and this exit abends, the DRS/VPI address space will be terminated.
- If recovery is on and this exit abends, the exit will automatically be disabled and a storage dump will be taken.

Since the DRS/VPI address space will be terminated if this exit abends and recovery is off, it is recommended that recovery always be on for this exit.

Register Contents on Entry:

R0 Request Code (always 00)
R1 Address of parameter list in the following format:
Word 0 (+00) Address of DRS/VPI System Attributes (DRSVSYAT)
The high-order bit of the last parameter will be set to 1.
R2-R12 N/A
R13 Address of register save area
R14 Return Address
R15 Entry Address

Register Contents on Exit:

R0-R14 Same as upon entry
R15 Return code

Return Codes:

00 Must be zero

Exit Dependent Trace Data:

On Entry User words (SYAUSRWD) from System Attribute DSECT (DRSVSYAT)
On Exit User words (SYAUSRWD) from System Attribute DSECT (DRSVSYAT)

Programming Considerations:

1. This exit can store information in the user words of the System Attribute DSECT (DRSVSYAT). This information would then be available to all other DRS/VPI exits invoked after this point in processing. If the DRS/VPI WTO Exit is in effect (User Exit 06), the WTO Exit would be invoked before this exit for any DRS/VPI messages issued during earlier stages of initialization.

Sample Program: Member DRS DVSSUE01 in the DRS distribution file LRS.DRS.V1R34.ASM is an example of the DRS/VPI Startup Exit. This example merely issues a message via WTO which includes the DRS/VPI job name.

Exit 02: DRS/VPI Shutdown Exit

| | |
|-----------------------------|--|
| Function: | This exit is called after DRS/VPI termination processing has been completed. |
| Exit Type: | System |
| Exit TCB: | System |
| Point of Processing: | This exit is taken after DRS/VPI termination processing has been completed. |
| Related Exits: | N/A |

Recovery:

- If recovery is off and this exit abends, the DRS/VPI address space will be terminated.
- If recovery is on and this exit abends, the exit will automatically be disabled and a storage dump will be taken.

Since the DRS/VPI address space will be terminated if this exit abends and recovery is off, it is recommended that recovery always be on for this exit.

Register Contents on Entry:

| | |
|---------------|--|
| R0 | Request Code (always 00) |
| R1 | Address of parameter list in the following format: Word 0 (+00) Address of DRS/VPI System Attributes (DRSVSYAT) The high-order bit of the last parameter will be set to 1. |
| R2-R12 | N/A |
| R13 | Address of register save area |
| R14 | Return Address |
| R15 | Entry Address |

Register Contents on Exit:

| | |
|---------------|--------------------|
| R0-R14 | Same as upon entry |
| R15 | R15 Return code |

Return Codes:

| | |
|-----------|--------------|
| 00 | Must be zero |
|-----------|--------------|

Exit Dependent Trace Data:

| | |
|-----------------|--|
| On Entry | User words (SYAUSRWD) from System Attribute DSECT (DRSVSYAT) |
| On Exit | User words (SYAUSRWD) from System Attribute DSECT (DRSVSYAT) |

Programming Considerations:

Sample Program: Member DVSSUE02 in the DRS distribution file LRS.DRS.V1R34.ASM is an example of the DRS/VPI Shutdown Exit. This example issues a message via WTO which includes the DRS/VPI job name, the highest number of active printers, the maximum virtual storage allocated, and the total number of lines and datasets printed.

Exit 03: DRS/VPI Activate Exit

| | |
|-----------------------------|---|
| Function: | This exit is called prior to activating a printer to the DRS/VPI System. |
| Exit Type: | Printer |
| Exit TCB: | System |
| Point of Processing: | This exit is taken prior to activating a virtual printer to the DRS/VPI System. |
| Related Exits: | N/A |

Recovery:

- If recovery is off and this exit abends, the DRS/VPI address space will be terminated.
- If recovery is on and this exit abends, the exit will automatically be disabled and a storage dump will be taken.

Since the DRS/VPI address space will be terminated if this exit abends and recovery is off, it is recommended that recovery always be on for this exit.

Register Contents on Entry:

| | |
|---------------|--|
| R0 | Request Code 00 - Activate request at DRS/VPI Startup 04 - Activate request by Command |
| R1 | Address of parameter list in the following format: Word 0 (+00) Address of DRS/VPI System Attributes (DRSVSYAT) Word 1 (+04) Address of 2-Word User Work Area Word 2 (+08) Address of Printer Attributes (DRSVPRAT) The high-order bit of the last parameter will be set to 1. |
| R2-R12 | N/A |
| R13 | Address of register save area |
| R14 | Return Address |
| R15 | Entry Address |

Register Contents on Exit:

| | |
|---------------|--------------------|
| R0-R14 | Same as upon entry |
| R15 | Return code |

Return Codes:

| | |
|-----------|--------------|
| 00 | Must be zero |
|-----------|--------------|

Exit Dependent Trace Data:

| | |
|-----------------|--|
| On Entry | 8-Byte - Printer member name 2-Byte - Printer sequence number 1-Byte - Printer transparency flag 4-Byte - Printer option flags |
| On Exit | 8-Byte - Printer member name (LUNAME) 2-Byte - Printer sequence number 1-Byte - Printer transparency flag 4-Byte - Printer option flags |

Programming Considerations:

Sample Program: Member DVSSUE03 in the DRS distribution file LRS.DRS.V1R34.ASM is an example of the DRS/VPI Activate Exit. This example issues a WTO which includes the DRS/VPI job name, the printer member name, and spooling attributes defined for the printer (CLASS, DEST, USERID, FORM and WRITER).

Exit 04: DRS/VPI Inactivate Exit

| | |
|-----------------------------|--|
| Function: | This exit is called prior to inactivating a virtual printer (removing it from the DRS/VPI System). |
| Exit Type: | Printer |
| Exit TCB: | System |
| Point of Processing: | This exit is taken prior to inactivating a virtual printer (removing it from the DRS/VPI System). |
| Related Exits: | N/A |

Recovery:

- If recovery is off and this exit abends, the DRS/VPI address space will be terminated.
- If recovery is on and this exit abends, the exit will automatically be disabled and a storage dump will be taken.

Since the DRS/VPI address space will be terminated if this exit abends and recovery is off, it is recommended that recovery always be on for this exit.

Register Contents on Entry:

| | |
|---------------|--|
| R0 | Request Code (always 00) |
| R1 | Address of parameter list in the following format: Word 0 (+00) Address of DRS/VPI System Attributes (DRSVSYAT) Word 1 (+04) Address of 2-Word User Work Area Word 2 (+08) Address of Printer Attributes (DRSVPRAT) The high-order bit of the last parameter will be set to 1. |
| R2-R12 | N/A |
| R13 | Address of register save area |
| R14 | Return Address |
| R15 | Entry Address |

Register Contents on Exit:

| | |
|---------------|--------------------|
| R0-R14 | Same as upon entry |
| R15 | Return code |

Return Codes:

| | |
|-----------|--------------|
| 00 | Must be zero |
|-----------|--------------|

Exit Dependent Trace Data:

| | |
|-----------------|---|
| On Entry | 8-Byte - Printer member name 2-Byte - Printer sequence number 1-Byte - Printer transparency flag 4-Byte - Printer option flags |
| On Exit | 8-Byte - Printer member name 2-Byte - Printer sequence number 1-Byte - Printer transparency flag 4-Byte - Printer option flags |

Programming Considerations:

Sample Program: Member DVSSUE04 in the DRS distribution file LRS.DRS.V1R34.ASM is an example of the DRS/VPI Inactivate Exit. This example issues a WTO which includes the DRS/VPI job name, the printer member name, and the number of lines and number of datasets received and spooled.

Exit 05: DRS/VPI Command Exit

| | |
|-----------------------------|---|
| Function: | This exit is called prior to processing each command sent to DRS/VPI. It can modify the command, or it can request that the command be ignored. |
| Exit Type: | System |
| Exit TCB: | System |
| Point of Processing: | This exit is taken prior to processing of every command that is being sent to DRS/VPI. |
| Related Exits: | N/A |

Recovery:

- If recovery is off and this exit abends, the DRS/VPI address space will be terminated.
- If recovery is on and this exit abends, the exit will automatically be disabled and a storage dump will be taken.

Since the DRS/VPI address space will be terminated if this exit abends and recovery is off, it is recommended that recovery always be on for this exit.

Register Contents on Entry:

| | |
|---------------|--|
| R0 | Request Code (always 00) |
| R1 | Address of parameter list in the following format: Word 0 (+00) Address of DRS/VPI System Attributes (DRSVSYAT) Word 1 (+04) Address of Command Buffer (see Programming Considerations for format) The high-order bit of the last parameter will be set to 1. |
| R2-R12 | N/A |
| R13 | Address of register save area |
| R14 | Return Address |
| R15 | Entry Address |

Register Contents on Exit:

| | |
|---------------|--------------------|
| R0-R14 | Same as upon entry |
| R15 | Return code |

Return Codes:

| | |
|-----------|---------------------|
| 00 | Process the command |
| 04 | Ignore the command |

Exit Dependent Trace Data:

| | |
|-----------------|--------------------------------------|
| On Entry | First 16 bytes of the command buffer |
| On Exit | First 16 bytes of the command buffer |

Programming Considerations:

1. The second word of the input parameter list will contain the address of the command buffer for all commands except "P DRSV". If the command is "P DRSV", the second word will contain binary zeroes, except that the high-order (X'80') bit will be set.
2. The command buffer format is:
 - 2 byte length (does not include length of length field itself).
 - 120 bytes command text
3. Both the command buffer length and data fields can be altered.

Sample Program: Member DVSSUE05 in the DRS distribution file
LRS.DRS.V1R34.ASM is an example of the Command Exit. This example indicates that DRS/VPI should ignore a DRS/VPI ABEND command.

Exit 06: DRS/VPI WTO Exit

| | |
|-----------------------------|--|
| Function: | This exit is called prior to the issuing of all WTOs. The exit can modify the WTO, or it can request that the WTO not be issued. |
| Exit Type: | System |
| Exit TCB: | System |
| Point of Processing: | This exit is taken prior to issuing every WTO. |
| Related Exits: | N/A |

Recovery:

- If recovery is off and this exit abends, the DRS/VPI address space will be terminated.
- If recovery is on and this exit abends, the exit will automatically be disabled and a storage dump will be taken.

Since the DRS/VPI address space will be terminated if this exit abends and recovery is off, it is recommended that recovery always be on for this exit.

Register Contents on Entry:

| | |
|---------------|---|
| R0 | Request Code (always 00) |
| R1 | Address of parameter list in the following format: Word 0 (+00) Address of DRS/VPI System Attributes (DRSVSYAT) Word 1 (+04) Address of WTO Attributes (DRSVWTAT) The high-order bit of the last parameter will be set to 1. |
| R2-R12 | N/A |
| R13 | Address of register save area |
| R14 | Return Address |
| R15 | Entry Address |

Register Contents on Exit:

| | |
|---------------|--------------------|
| R0-R14 | Same as upon entry |
| R15 | Return code |

Return Codes:

| | |
|-----------|--|
| 00 | Proceed with the WTO. |
| 04 | Do not issue the WTO. |
| 08 | Do not issue the WTO and do not log the WTO. |

Exit Dependent Trace Data:

| | |
|-----------------|---|
| On Entry | First 16 bytes of the WTO DSECT (DRSVWTAT format) |
| On Exit | First 16 bytes of the WTO DSECT (DRSVWTAT format) |

Programming Considerations:

1. The WTO attributes can be altered.
2. The WTO text and length can be altered.

Sample Program: Member DVSSUE06 in the DRS distribution file LRS.DRS.V1R34.ASM is an example of the WTO Exit.

This example changes the attribute of the initialization message (DRSV000N) from normal to action.

Exit 07: DRS/VPI Report Initialization Exit

| | |
|-----------------------------|---|
| Function: | This exit is called prior to calling DRS for the INIT call to create a new SYSOUT dataset on the JES spool. The exit can modify any of the SYSOUT attributes (stored in DRSDRIB control block) before the dataset is initialized. |
| Exit Type: | Printer |
| Exit TCB: | Printer |
| Point of Processing: | This exit is taken prior to initializing each report. |
| Related Exits: | N/A |

Recovery:

- If recovery is off and this exit abends, the DRS virtual printer will be EDRAINED.
- If recovery is on and this exit abends, the exit will automatically be disabled and a storage dump will be taken.

Register Contents on Entry:

| | |
|---------------|--|
| R0 | Request Code (always 00) |
| R1 | Address of parameter list in the following format: Word 0 (+00) Address of DRS/VPI System Attributes (DRSVSYAT) Word 1 (+04) Address of 2-word user work area Word 2 (+08) Address of Printer Attributes (DRSVPRAT) Word 3 (+12) Address of Spooling Attributes (DRSDRIB) Word 4 (+16) Address of DRS/PC LAN attributes (DRSLANA) Word 5 (+20) Address of TCP/IP Control Area (#LRTCCNT) Word 6 (+24) Address of first print record The high-order bit of the last parameter will be set to 1. |
| R2-R12 | N/A |
| R13 | Address of register save area |
| R14 | Return Address |
| R15 | Entry Address |

Register Contents on Exit:

| | |
|---------------|--------------------|
| R0-R14 | Same as upon entry |
| R15 | Return code |

Return Codes:

| | |
|-----------|---|
| 00 | Only return code expected. Any other return code will be ignored. |
|-----------|---|

Exit Dependent Trace Data:

- On Entry** 8 bytes - Printer member name
2 bytes - Printer sequence number
1 bytes - Printer transparency option
4 bytes - Printer options flags
- On Exit** 8 bytes - Printer member name
2 bytes - Printer sequence number
1 bytes - Printer transparency option
4 bytes - Printer options flags

Programming Considerations:

1. Any spooling attributes located in the DRSDRIB control block can be updated by the exit.
2. The exit can decide to change the spooling attributes based on the current session information (partner application, for example), printer attributes, or the text in the first record of the report.
3. The first print record of the report is preceded by a 4 byte RDW. The first 2 bytes of the RDW contain the length of the print record, including the RDW. The second 2 bytes of the RDW are X'0000'.
4. The text of the first line of the report should not be altered. However, if the text is altered, the LENGTH of the text MUST NOT be changed.
5. Additional control blocks that describe the printer and the file(s) to be created are now passed to DRS/VPI User Exit 07 in the DRS/VPI Printer Attributes (DRSVPRAT) control block. The address of one or more DRS OUTPUT statement (DROB) control blocks will be passed for any SYSOUT file(s) to be created. If the OUTPUT statement keywords are modified by DRS/VPI User Exit 07, DRS will dynamically create an OUTPUT statement reference for the SYSOUT file and delete it when the file is unallocated. In addition, an address for the SAP R/3 information area (DRSVSAPD) or the LRS/Queue information area (DRSVLRQD) will be passed to the exit. The Printer Attributes (DRSVPRAT) control block now contains flags to indicate the type of connection (APPC, TCPIP, VTAM) and the protocol being used for a TCP/IP connection (LPD, SAP, LRSQUEUE).

Sample Program: Member DVSSUE07 in the DRS distribution file LRS.DRS.V1R34.ASM is an example of the Report Initialization Exit.

This example changes the class associated with the SYSOUT to “V” if the partner application for the printer has a VTAM APPL name which begins with the characters “VPS”. In addition, the exit issues a WTO to show the CLASS, DEST, FORM and WRITER associated with the current report as well as the virtual printer member name.

Exit 08: DRS/VPI Error Retry Exit

| | |
|-----------------------------|---|
| Function: | This exit is called after an error causes the DRS virtual printer to be EDRAINED. The exit can allow the printer to remain EDRAINED, attempt to restart the printer after the error, or inactivate the printer. |
| Exit Type: | Printer |
| Exit TCB: | System |
| Point of Processing: | This exit is called after a session is terminated for a printer error that caused the printer to be EDRAINED. |
| Related Exits: | N/A |

Recovery:

- If recovery is off and this exit abends, the DRS/VPI address space will be terminated.
- If recovery is on and this exit abends, the exit will automatically be disabled and a storage dump will be taken.

Since the DRS/VPI address space will be terminated if this exit abends and recovery is off, it is recommended that recovery always be on for this exit.

Register Contents on Entry:

| | |
|---------------|--|
| R0 | Request Code (always 00) |
| R1 | Address of parameter list in the following format: Word 0 (+00) Address of DRS/VPI System Attributes (DRSVSYAT) Word 1 (+04) Address of 2-word user work area Word 2 (+08) Address of Printer Attributes (DRSVPRAT) Word 3 (+12) Address of Printer Error Information (DRSVPRER) The high-order bit of the last parameter will be set to 1. |
| R2-R12 | N/A |
| R13 | Address of register save area |
| R14 | Return Address |
| R15 | Entry Address |

Register Contents on Exit:

| | |
|---------------|--------------------|
| R0-R14 | Same as upon entry |
| R15 | Return code |

Return Codes:

| | |
|-----------|--------------------------|
| 00 | Retry the error. |
| 04 | Don't retry the error. |
| 08 | No more retries allowed. |
| 12 | Inactivate the printer. |

Exit Dependent Trace Data:

| | |
|-----------------|-------------------------------|
| On Entry | 16 bytes of error information |
| On Exit | 16 bytes of error information |

Programming Considerations:

1. Since this exit runs under a major DRS/VPI system TCB, it should not perform any function which would suspend the TCB.
2. The error retry count field (PRECOUNT) of the Printer Error Information DSECT (DRSVPRER) is incremented by 1 each time this exit returns to DRS/VPI with a return code of 00. The count is set to zero after DRS/VPI has successfully created a print file. Therefore, the PRECOUNT field is the total number of errors that have occurred for the file currently being processed.

Sample Program: Member DVSSUE08 in the DRS distribution file LRS.DRS.V1R34.ASM is an example of the Error Retry Exit.

This example contains a table of possible error codes that could cause the virtual printer to be EDRAINED. For all error codes, the exit sets return code to 04 to cause the printer to remain EDRAINED. For any error code that retries should be allowed, the table can be changed to enable the retry. A maximum retry count can be set in the error table.

Exit 09: DRS/VPI TCP/IP Command Exit

| | |
|-----------------------------|--|
| Function: | This exit is called when TCP/IP LPR/LPD commands are received from the TCP/IP remote host. The exit can modify the control file received or reject the print data file. |
| Exit Type: | Printer |
| Exit TCB: | Printer |
| Point of Processing: | This exit is called at four times in the TCP/IP LPR/LPD processing. Each time, a request code is used to indicate which command or file was received from the remote host. The exit can deny access to the print queue at any of these points. |
| Related Exits: | N/A |

Recovery:

- If recovery is off and this exit abends, the DRS virtual printer will be EDRAINED.
- If recovery is on and this exit abends, the exit will automatically be disabled and a storage dump will be taken.

Register Contents on Entry:

| | |
|---------------|--|
| R0 | Request Code 00 - RECEIVE PRINT JOB subcommand 04 - RECEIVE CONTROL FILE subcommand 08 - RECEIVE DATA FILE subcommand 12 - Validate control file |
| R1 | Address of parameter list in the following format: Word 0 (+00) Address of DRS/VPI System Attributes (DRSVSYAT) - for all request codes Word 1 (+04) Address of 2-word user work area - for request codes 04, 08, 12 Word 2 (+08) Address of Printer Attributes (DRSVPRAT) - for request codes 04, 08, 12 Word 3 (+12) Address of Spooling Attributes (DRSDRIB) - for request codes 04, 08, 12 Word 4 (+16) Address of TCP/IP Control Area (#LRTCCNT) - for all request codes Word 5 (+20) Address of Smart Tag Control Area (DRSVSTCA) - for request codes 04, 08, 12 Word 6 (+24) Address of print queue name - for all request codes The high-order bit of the last parameter will be set to 1. |
| R2-R12 | N/A |
| R13 | Address of register save area |
| R14 | Return Address |
| R15 | Entry Address |

Register Contents on Exit:

R0-R14 Same as upon entry
R15 Return code

Return Codes:

00 Continue processing print file.
04 Send negative acknowledgement and deny print file.
08 Processing error - continue processing print file.

Exit Dependent Trace Data:

On Entry 8 bytes - Printer member name
2 bytes - Printer sequence number
1 byte - Printer transparency option
4 bytes - Printer options flags
On Exit 8 bytes - Printer member name
2 bytes - Printer sequence number
1 byte - Printer transparency option
4 bytes - Printer options flags

Programming Considerations:

1. This exit can modify the print queue name. The print queue name received in the "RECEIVE PRINT JOB" subcommand is placed in a 32-byte work area and passed to this exit with request code 00. All characters of the name will be translated to uppercase by DRS. The first eight bytes of the name returned to DRS will be used as the virtual printer member name.
2. This exit can modify the control file to change how DRS/TCPIP processes the print data file. For example, by setting a binary filter, translation and line control processing could be avoided.
3. This exit can reject the print file based on any combination of the following criteria:
 - Virtual Printer characteristics: member name, UDATA, etc.
 - SYSOUT characteristics: CLASS, DEST, FORM, WRITER, etc.
 - DASD characteristics: DSN, MEMBER, DISP, VOLUME, etc.
 - Source information: IP address, host name, user name, etc.
 - Size of data file or control file.

Sample Program: Member DVSSUE09 in the DRS distribution file LRS.DRS.V1R34.ASM is an example of the TCP/IP Command Exit.

This example compares a table of remote TCP/IP host names and MVS spool destinations and denies access to certain print destinations, based on the source TCP/IP system.

Exit 10: DRS/VPI Report Termination Exit

Function: This exit is called after the DRS TERM call to terminate a print file.
Exit Type: Printer
Exit TCB: Printer
Point of Processing: This exit is called after terminating each report.
Related Exits: N/A

Recovery:

- If recovery is off and this exit abends, the DRS virtual printer will be EDRAINED.
- If recovery is on and this exit abends, the exit will automatically be disabled and a storage dump will be taken.

Register Contents on Entry:

R0 Request Code (always 00)
R1 Address of parameter list in the following format:
Word 0 (+00) Address of DRS/VPI System Attributes (DRSVSYAT)
Word 1 (+04) Address of 2-word user work area
Word 2 (+08) Address of Printer Attributes (DRSVPRAT)
Word 3 (+12) Address of Spooling Attributes (DRSDRIB)
Word 4 (+16) Address of DRS/PC LAN Attributes (DRSLANA)
Word 5 (+20) Address of TCP/IP Control Area (#LRTCCNT)
Word 6 (+24) Address of DRS Termination Block (DRSDRTB)
The high-order bit of the last parameter will be set to 1.
R2-R12 N/A
R13 Address of register save area
R14 Return Address
R15 Entry Address

Register Contents on Exit:

R0-R14 Same as upon entry
R15 Return code

Return Codes:

00 Only return code expected. Any other return code will be ignored.

Exit Dependent Trace Data:

- On Entry** 8 bytes - Printer member name
2 bytes - Printer sequence number
1 byte - Printer transparency option
4 bytes - Printer options flags
- On Exit** 8 bytes - Printer member name
2 bytes - Printer sequence number
1 byte - Printer transparency option
4 bytes - Printer options flags

Programming Considerations:

1. This exit can issue a command to notify another address space that a print file has been delivered. If SVC34 is used to issue a command, the DRS/VPI modules, including this exit, must be loaded from an authorized load library.

Sample Program: Member DVSSUE10 in the DRS distribution file
LRS.DRS.V1R34.ASM is an example of the Report Termination Exit.

This example issues SVC34 to send a "POST" command to notify VPS that a print file has been created on the JES spool. The POST command will cause VPS to search for work immediately. Because it is necessary to be authorized to issue SVC34, the exit tests a flag in the System Attributes to see if DRS/VPI is authorized.



Section 10

Special Topics

Introduction

Because this section covers a wide range of topics, all of it may not be applicable to your environment.

We will not attempt to cover error conditions here. That information is included in [“Messages and Codes” on page 36.1](#).

As always, feel free to call DRS Support any time you need information about DRS. We would also be interested in your suggestions for topics to be added to this section.

Creating a User Translation Table

Overview

DRS/VPI allows for the translation of both single-byte character sets (SBCS) and double-byte character sets (DBCS) in print lines.

The character mappings used for translation are contained in translation look-up tables. These tables are specified using the printer keyword `PRTXLATE` for SBCS and `PRTXDBCS` for DBCS. The translation tables are in two formats, one for SBCS and one for DBCS. The user can compile these tables using macros supplied in `LRS.DRS.V1R34.MACLIB`, and several examples have been supplied in `LRS.DRS.V1R34.ASM`.

Definitions

A “single-byte character set” (SBCS) uses one byte to encode each character. EBCDIC and ASCII are both single-byte character sets.

A “double-byte character set” (DBCS) uses two bytes to encode each character. Double-byte character sets are necessary for those languages such as Japanese requiring more than the 256 code points (distinguishable characters) a single-byte character set can hold.

“Shift-out” (SO) and “shift-in” (SI) character codes signal the beginning and end of a run of DBCS data within a mixed SBCS/DBCS dataset. SO has the value of `X'0E'`; SI has the value of `X'0F'`.

Translation of Single Byte Character Sets

The default for SBCS translation is `PRTXLATE=N` which indicates that DRS/VPI should not translate any incoming SBCS data. An example of a useful SBCS translation is the removal of data characters not printable on a given printer. If the first positional parameter of the `PRTXLATE` keyword is “Y”, then DRS/VPI will perform SBCS translation.

The translation table which DRS/VPI uses for the SBCS translation process is identified in the second positional parameter value of the `PRTXLATE` keyword. The default translation table name is `DRSSXLTE`. You receive the source version of this translation table on the distribution cartridge as member `DVSSXLTE` in file `LRS.DRS.V1R34.ASM` and the load module version as member `DVSSXLTE` in file `LRS.DRS.V1R34.LOAD`.

To put your translation table into effect for a printer, enter its load module name as the second positional parameter of the `PRTXLATE` keyword. For example, if you linked the load module with a member name of `MYTABLE`, you would code `PRTXLATE=(Y,MYTABLE)` in the printer definition for each printer which should use that SBCS translation table.

Translation of Double Byte Character Sets

DBCS translation tables are specified using the PRTXDBCS printer keyword, which takes five positional parameters.

The first positional parameter indicates whether any DBCS translation at all should be performed for the specified printer. The default is “N”, specifying no translation.

The second positional parameter identifies the DBCS translate table. Unlike the case for SBCS, there is no default DBCS translate table, and you must specify it explicitly in the PRTXDBCS parameter list. To put your translation table into effect for a printer, enter its load module name as the second positional parameter value of the PRTXDBCS keyword.

The third through fifth positional parameters specify the treatment of SOSI codes during translation of mixed SBCS/DBCS datasets. One of four possible behaviors can be specified using the third positional parameter. If this parameter value is “KEEP”, the SOSI codes are passed through unchanged. If the value is “DELT”, the SOSI codes are deleted. If the value is “REPL”, the codes are replaced with new values as follows: the SO and SI codes are replaced with the fourth and fifth positional parameter values respectively. If the value is “ADD”, the SOSI codes are added using the fourth and fifth positional parameters.

For example, to specify that a printer should translate DBCS data using the translate table DBTABLE, and that the SOSI codes in mixed SBCS/DBCS datasets should be passed through unchanged, you would code PRTXDBCS=(Y,DBTABLE,KEEP) in the printer definition for each printer which should use the translation table.

Creating Translation Tables

When you have created the source code for your translation table, assemble it and link it into the same library as the other DRS/VPI load modules. **Be sure to link it as reentrant.**

There is one additional consideration when you create your own load module. Do not give it a name identical to any DRS load module which is already in existence. For Version 1 Release 3.4 of DRS, you should be very careful not to name one of your own load modules with a name that starts with “DV34”, “DVSS”, “DRSS” or “DPSS”. If you do so, you run the risk of replacing one of DRS’ primary load modules with your own module, and results will be unpredictable.

Creating a SBCS Translation Table

The source code for the SBCS translation table (minus comments) is reproduced here:

```
DVSSXLTE  CSECT
          DC  X'40404040404040404040404040404040'  (HEX00-0F)
          DC  X'40404040404040404040404040404040'  (HEX10-1F)
          DC  X'40404040404040404040404040404040'  (HEX20-2F)
          DC  X'40404040404040404040404040404040'  (HEX30-3F)
          DC  X'4040404040404040404040404A4B4C4D4E4F'  (HEX40-4F)
          DC  X'5040404040404040404040405A5B5C5D5E5F'  (HEX50-5F)
          DC  X'60614040404040404040406A6B6C6D6E6F'  (HEX60-6F)
          DC  X'40404040404040404040797A7B7C7D7E7F'  (HEX70-7F)
          DC  X'40818283848586878889904040404040'  (HEX80-8F)
          DC  X'40919293949596979899904040404040'  (HEX90-9F)
          DC  X'40A1A2A3A4A5A6A7A8A9404040404040'  (HEXA0-AF)
          DC  X'40404040404040404040404040404040'  (HEXB0-BF)
          DC  X'C0C1C2C3C4C5C6C7C8C9404040404040'  (HEXC0-CF)
          DC  X'D0D1D2D3D4D5D6D7D8D9404040404040'  (HEXD0-DF)
          DC  X'E040E2E3E4E5E6E7E8E9404040404040'  (HEXE0-EF)
          DC  X'F0F1F2F3F4F5F6F7F8F9404040404040'  (HEXF0-FF)
          END
```

The translation table consists of 256 values, each of which represents a character which should be substituted for a character of the equivalent hexadecimal value. For example, if translation table DVSSXLTE shown above is used, print line characters with a value from X'00' through X'49' (among others) will be translated to X'40' by DRS.

A translation table for translating ASCII to EBCDIC is supplied as member DVSSXEBC in file LRS.DRS.V1R34.ASM and as member DVSSXEBC in file LRS.DRS.V1R34.LOAD. This translation table is normally used for printers controlled by DRS/TCPIP.

Creating a DBCS Translation Table

DBCS translation tables are built using the macro LRDBCS in LRS.R10.MACLIB. The LRDBCS macro is written as follows:

```
LRDBCS TYPE=INITIAL,  
      DESC='table description',  
      DEFAULT=0000  
  
LRDBCS TYPE=DBCSSID, ID=(81-FF)  
LRDBCS TYPE=DBCS, XLATE=(in,out)  
LRDBCS TYPE=DBCS, XLATE=(in,out)  
LRDBCS TYPE=DBCS, XLATE=(in,out)  
  
LRDBCS TYPE=FINAL
```

TYPE=INITIAL must be the first LRDBCS macro coded, and TYPE=FINAL must be the last. DESC= specifies a 40-byte table description, and only applies to TYPE=INITIAL. DEFAULT= specifies a two-byte hex value to be used if an invalid DBCS character is encountered, and only applies to TYPE=INITIAL. Default value for DEFAULT= is 0000.

Each LRDBCS TYPE=DBCS macro within the table specifies an input value, and its corresponding translated output value. Both are two-byte hex values.

The LRDBCS TYPE=DBCSSID macro identifies the values of the first byte of DBCS pairs if no “shift-out” or “shift-in” characters will be found in the data.

LRS has provided two sample DBCS translate tables, LRSDBCS1 and LRSDBCS2, that may be used as models in constructing additional DBCS translate tables. LRSDBCS1 translates from Japanese EBCDIC (code page 300) to Japanese ASCII (code page 301), and LRSDBCS2 translates from Japanese ASCII to Japanese EBCDIC. Both tables were generated from information contained in the IBM Character Data Representation Architecture Level 1 Registry (SC09-1391-00). These tables are supplied as members LRSDBCS1 and LRSDBCS2 of distribution file LRS.DRS.V1R34.ASM.

Note: If a DBCS translation table will be created, restore from the DRS distribution libraries the file indicated in the table below.

| FILE SEQUENCE NUMBER (with VPS V1R8.0) | DSNAME | CONTENTS |
|--|------------------|---|
| #03 | LRS.V1R12.MACLIB | Mapping macros for Common Product Interfaces |

Creating a Report Termination Table

Overview

DRS/VPI allows a report termination table to be associated with any VTAM virtual printer. This table specifies different report termination options that should be used when the virtual printer is connected to certain session partners or using certain session LU types. To specify that the report termination table should be used, the first positional parameter of the TERMRPT keyword should be set to TABLE and the second positional parameter should be the name of the table to be used. TERMRPT=TABLE is considered valid only for COMMTYPE=VTAM, and if specified for a printer with COMMTYPE=TCPIP or COMMTYPE=APPC, an error message will be issued and printer activation will fail.

Definitions

A partner LU (PLU) is the name of the VTAM application which is connected to the virtual printer, such as CICS or IMS. The partner LU is normally the primary LU for the VTAM session.

The LUTYPE is the type of session that has been established between the virtual printer LU and the PLU. The LU type can be 0, 1 or 3.

The TERMRPT option specifies how the report should be terminated. The report can be terminated when the end-of-chain flag is received by DRS/VPI, when the bracket is ended, when the session is ended, or after a wait interval has expired.

Defining the Report Termination Table

The report termination table is created using the \$DRSTRPT macro in LRS.DRS.V1R34.MACLIB. The \$DRSTRPT macro is written as follows:

```
$DRSTRPT TYPE=INITIAL  
$DRSTRPT  
TYPE=ENTRY,LUTYPE=a,PLUNAME=bbbbbbb,TERMRPT=ccccccc  
$DRSTRPT TYPE=ENTRY,LUTYPE=d,PLUNAME=eee,TERMRPT=ffffff  
$DRSTRPT TYPE=FINAL
```

TYPE=INITIAL must be the first \$DRSTRPT macro coded, and the TYPE=FINAL must be the last. The TYPE=ENTRY macros specify the report termination options to be used.

LUTYPE specifies the type of session established. Valid values are 0, 1, 3, or *. If LUTYPE is specified as '*', then all session types will be considered to match.

PLUNAME specifies the name of the session partner. Values can be 1-8 alphanumeric or national characters, * or ?. An asterisk (*) can be specified to create a generic prefix or suffix for the value. A question mark (?) can be used to indicate any character can be a match at that location. The asterisk (*) and the question mark (?) cannot both be specified in the same PLUNAME value.

If PLUNAME=ABC* is specified, any partner LU name that begins with ABC would be considered a match. If PLUNAME=*XYZ is specified, any partner LU name that ends with XYZ would be considered a match. If PLUNAME=* or PLUNAME=** is specified, all partner LU names would match.

If PLUNAME=A?C?E is specified, partner LU names that have A in the first position, C in the third position and E in the fifth position would be considered a match. For example, ABCDE would be considered a match, but ABCDF or ABCDEFG would not.

TERMRPT specifies the report termination option. Valid values are BRACKET, CHAIN, SESSION or ss, where ss is a two-byte number that represents a time interval. TERMRPT=BRACKET indicates the report should be terminated when the bracket state is ended. TERMRPT=CHAIN indicates the report should be terminated whenever the end-of-chain indicator is received. TERMRPT=SESSION indicates the report should be terminated whenever the session is ended. TERMRPT=ss indicates the report should be terminated after that number of seconds has expired with no additional data received.

NOTE: Since the report termination option will be chosen when the first PLUNAME and LUTYPE values in the table are matched to the current session partner name and the session LU type, it is important to arrange the table with the most specific values before those which are more generic. If no matching entries are located in the table, the default report termination option will be chosen based on the session LU type. For more information on the default report termination values, see [“TERMRPT” on page 3.134](#).

The source for a sample report termination table is distributed as DVSSTRPT in the LRS.DRS.V1R34.ASM and the load module is distributed as member DVSSTRPT in LRS.DRS.V1R34.LOAD. This sample table provides the same report termination as would be chosen if no TERMRPT value were specified for the printer.

```
$DRSTRPT TYPE=INITIAL
$DRSTRPT TYPE=ENTRY,LUTYPE=0,PLUNAME=*,TERMRPT=04
$DRSTRPT
TYPE=ENTRY,LUTYPE=1,PLUNAME=*,TERMRPT=BRACKET
$DRSTRPT
TYPE=ENTRY,LUTYPE=3,PLUNAME=*,TERMRPT=BRACKET
$DRSTRPT TYPE=FINAL
```

Creating a User Report Termination Table

To create a user report termination table, develop the source for the table using the \$DRSTRPT macro as described above. Assemble and linkedit the table into the load library used for DRS/VPI. Sample JCL is distributed in members TRPTASMH and TRPTASML in LRS.DRS.V1R34.CNTL. Then, modify the TERMRPT keyword to specify TABLE for the first positional parameter and the name of your table for the second positional parameter. The next time you activate the virtual printer definition, you will obtain the new TERMRPT values.

For more information on report termination, see [“TERMRPT” on page 3.134](#).



Section 11

DRS/VPI Problem Determination

This section contains hints about diagnosing problems with DRS/VPI. DRS/VPI provides many service aids which assist in problem determination.

- DRS/VPI display commands provide information about system and printer status.
- DRS/VPI messages are issued for any significant event, including system and printer errors.
- The DRS/VPI log provides an audit trail of all DRS/VPI messages issued.
- DRS/VPI has an internal trace table that records events as requested in the TRACE keywords in the system initialization member and in the printer definition members.
- GTF tracing can be activated to allow tracing system or printer events, as well as input and output buffers.
- SNAP dumps can be created automatically when errors occur or upon request, without disturbing the DRS/VPI system. SNAP dumps contain system and/or printer control blocks, the values of system or printer keywords, and the text for each error message.
- Any ABEND of the DRS/VPI address space will create a storage dump in a SYSUDUMP dataset, if allocated.

Many types of problems may occur in a system as complex as DRS/VPI. The most common problem is incorrect output. By tracing the buffers of data received and the print lines which are being created from those buffers, it is possible to determine the cause of most errors.

If you find you need assistance to resolve any problem, the DRS support staff is always ready to help you.

Display Commands

The DRS/VPI display command is a tool for gathering information about a printer or the DRS/VPI system. The display command is a good starting point for most types of problem determination. In all the examples below, 'drsv' should be replaced with the name of the DRS/VPI system (job name or started task name), 'prtr-id' with the member name of the printer, and 'out-id' with the member name of the OUTPUT statement reference member.

Displaying DRS/VPI System Status

To obtain the DRS/VPI system status, including storage used and the values of keywords specified at system initialization, issue the following command:

```
F drsv,DISPLAY,SYSTEM,*
```

Messages DRSV940R - DRSV955R will be issued in response to the system display command. The messages show the current version, release and fix level of DRS. The DRSV948R message indicates if DRS/VPI is connected to the MVS TCP/IP system to allow receiving data using DRS/TCPIP.

Displaying DRS/VPI User Exit Status

To obtain status information about DRS/VPI user exits, issue the following command:

```
F drsv,DISPLAY,EXITS
```

Message DRSV939R will be displayed for each user exit. It is also possible to issue the same command for a specific user exit, such as EXIT07. The status messages show the name of the user exit module and whether the user exit is currently enabled or disabled.

Displaying DRS/VPI OUTREF information

To determine which OUTPUT statement reference members are in use in the DRS/VPI system, issue the following display command:

```
F drsv,DISPLAY,OUTREF,*
```

Message DRSV960R will be displayed for each OUTREF in use. The status will indicate whether the OUTREF is in use (ACTIVE) and how many printers are currently referring to this OUTPUT statement reference.

It is also possible to display all the OUTPUT characteristics defined by a specific OUTREF member with the following command, where out-id is the name of the member which contains the OUTPUT statement keywords:

```
F drsv,DISPLAY,OUTREF,out-id
```

Message DRSV960R will be issued to display all the OUTREF keyword values.

Displaying DRS/VPI Virtual Printers

To determine the status of a specific printer in the DRS/VPI system, issue the following display command:

```
F drsv,DISPLAY,prtr-id
```

DRSV970R will indicate if the printer is IDLE, whether it is connected to another system, or if it is in a DRAINED or EDRAINED status. If the printer is EDRAINED, the error message text displayed will indicate the type of error which caused the printer to be stopped. For more information on error text messages, see [“EDRAINED Printer Error Messages” on page 36.137](#). The original message which reported the error will be stored in the DRS/VPI log dataset. See [“DRS/VPI Log” on page 11.5](#) for more information about message logging.

For a VTAM printer, including a DRS/PC printer definition which uses a VTAM APPC connection, it may also be helpful to issue the following command to display the VTAM status:

F drsv,DISPLAY,prtr-id,VTAM

Messages DRSV997R and DRSV998R will be issued to indicate whether the VTAM ACB has been opened and the SETLOGON start was successful. If the message indicates SLU(DISABLED), then a START command should be issued to make the printer available for sessions. If the printer is currently in session, the session partner name and the bind parameters used for the session will be displayed.

For a TCP/IP printer, the following display will show the status of a connection to the remote host:

F drsv,DISPLAY,prtr-id,TCPIP

Messages DRSV995R and DRSV996R will be issued showing if a connection is active. If there is a connection, the remote host IP address and port number will be displayed.

In order to determine if the printer has successfully received reports and placed them in DASD or JES spool files, issue the following command:

F drsv,DISPLAY,prtr-id,PROCESSING

The DRSV971R message will indicate how many print records and how many print datasets have been created since the printer was activated.

In addition to DRS/VPI display commands, it may be helpful to use VTAM display commands to display VTAM virtual printers. Because it is necessary to activate an APPL statement which matches the member name of the VTAM virtual printer, the following display could help determine the VTAM status of the definition:

D NET,E,ID=prtr-id

The VTAM virtual printer should be ACTIVE and indicate the JOBNAME of the DRS/VPI address space that has opened the ACB.

If the DRS/VPI tracking feature is enabled it is possible to display detailed tracking information about all files received by a DRS virtual printer including their current status and ultimate destination. To display SYSOUT tracking details for a printer issue the following command:

F drsv,DISPLAY,prtr-id,FILES

Messages

When DRS/VPI detects an exception condition, it will issue a message to the operator. This message will contain information about what DRS/VPI was attempting to do at the time. The message may be an informational message, a warning or an error message. Any return codes or other information obtained at the time of the error will be displayed in the message, including error codes from VTAM or TCP/IP.

If the message was for a virtual printer and is an informational or warning message, the printer will continue to receive print data and process the report. If the message is an error message, the printer will be EDRAINED, and the connection will be terminated with the remote system.

When a message is received, look up the message in [“Messages and Codes” on page 36.1](#). The error and the return codes will be explained, as well as possible action that could eliminate the error.

In some cases, the MVS system log (SYSLOG) may provide additional informational messages that were issued at the time of the error. For example, a VTAM message may be issued when an operator inactivated a virtual printer APPL statement; this would cause an error in the DRS/VPI system, and a message would also be issued by DRS/VPI.

DRS/VPI Log

The DRS/VPI log contains an audit trail of all commands and messages processed by DRS/VPI. The log contains date and time values to help correlate an event and the messages associated with the event. All DRS/VPI messages are entered into the DRS/VPI log, regardless of parameters which can be coded to prevent certain messages from appearing on the operator console. We recommend that logging always be active in the DRS/VPI system.

If the DRS/VPI log is defined as a SYSOUT dataset (rather than a pre-allocated DASD dataset), a “CLOSELOG” command can be issued to make the DRS/VPI log immediately available for viewing or printing. This allows problem determination without shutting down DRS/VPI.

For more information on the CLOSELOG command, see [“DRS/VPI Operation” on page 8.1](#). For more information about defining the LOG parameters, see [“Building the System Initialization Member” on page 3.18](#).

Internal Trace

The DRS/VPI system writes internal trace table records for events based on the TRACE keywords in the system initialization member and the printer definition members. The trace records are recorded in “wrap-around” mode so the trace table will not fill up and terminate tracing. The size of the trace table is specified in the system initialization member as a number of 4K pages of MVS storage.

When an event occurs, DRS/VPI records a 4-byte event type, a time stamp, and other significant data.

Certain system-related or printer-related events are always traced. This basic set of trace table entries provides a good representation of DRS/VPI processing, but it is not detailed. If more detailed tracing is needed, additional events can be traced via the TRACE keyword. For more system events to be traced, modify the TRACE keyword in the system initialization member. For more printer events, modify the TRACE keyword in the appropriate printer definition member. The first subfield of the TRACE printer keyword should always be set to ‘Y’ to do internal tracing.

You can also request that the internal DRS/VPI trace entries be written in the GTF trace file using the TRACE keyword. For more information on GTF tracing, see [“GTF Tracing” on page 11.7](#). For more information on the TRACE system and printer keywords, see [“Building the System Initialization Member” on page 3.18](#) and [“Building the Printer Definition Members” on page 3.63](#).

GTF Tracing

DRS/VPI allows tracing to the MVS GTF trace file. This allows tracing for data that cannot be written to the internal trace table, as well as the internal trace table entries.

The internal trace entries can be written to the GTF trace file by specifying a value for the TRACE keyword at system initialization or in the TRACE keyword in a printer definition.

Buffers of data can be written to the GTF trace file which show data received and the print lines created by DRS/VPI. All the parameters which are passed to user exits can be traced.

For more information on specifying the TRACE keyword in the system initialization member or the printer definition member, see [“Building the System Initialization Member” on page 3.18](#) or [“Building the Printer Definition Members” on page 3.63](#).

In order to write the trace records to GTF, GTF must be started with USR type tracing active. When the trace data has been created, GTF should be stopped. To print the trace records, use program LRSPRGTF supplied in the LRS.V1R12.LOAD library on the distribution cartridge. Sample JCL is supplied in member PRINTGTF in the LRS.DRS.V1R34.CNTL library on the DRS distribution cartridge.

If buffer records are to be printed, the LUNAME must be specified in the parameters for the LRSPRGTF program. The LUNAME should be set to the member name of the virtual printer that was traced. If LUNAME=* is specified, no buffer entries will be formatted. If the buffers received are in ASCII (when using DRS/TCPIP, for example), specifying OPTION=ASCII will allow formatting the printable characters based on how they would print on a ASCII device.

GTF will only record trace entries in the primary extent allocated for the GTF trace file. When the primary extent is full, GTF begins to write over the records already recorded in the primary extent. If the trace file “wraps” in this fashion, it will be necessary to reallocate the GTF trace file with a larger primary extent.

For more information on the LRSPRGTF program, see the documentation in the sample JCL supplied in member PRINTGTF in the LRS.DRS.V1R34.CNTL library.

Snap Dump

The snap dump facility of DRS/VPI captures a “picture” of certain DRS/VPI control blocks at the time the SNAP command was issued or at the time of an error. The title of the SNAP dump indicates whether the dump was taken for an error condition or was issued because of a SNAP command.

Each snap dump will dynamically create a SYSOUT dataset on the JES spool. Upon completion of the snap dump, the requested information is available for printing or viewing. This allows problem determination to begin immediately. DRS/VPI does not have to be shut down to print or view the dumps.

If SNAP=Y is specified in the virtual printer definition, DRS/VPI will automatically create a snap dump for certain error conditions. It is also possible to obtain a snap dump at any time by issuing a SNAP command. The SNAP command can be issued for the whole DRS/VPI system with the following command:

```
F drsv,SNAP,SYSTEM
```

To obtain information related to a specific printer, issue the following command:

```
F drsv,SNAP,prtr-id
```

For more information on how the SYSOUT dataset will be created, see the SNAP keywords in the system initialization member as described in [“Building the System Initialization Member” on page 3.18](#). For more information about the SNAP command, see [“DRS/VPI Operation” on page 8.1](#).

System Dump

The system dump is an operating system service aid. The dumps are automatically created by the system when a task within the DRS/VPI address space has abended. This dump is extremely valuable for resolving problems where a subtask has abended.

It is also possible to request that DRS/VPI create a system dump by issuing the ABEND command. This type of dump may be helpful if the DRS/VPI system seems to be hung up. If the ABEND command is not successful in stopping DRS/VPI, then a system command can be issued to cancel the DRS/VPI address space. If the cancel command is used, a dump should be requested.

When you have a system dump from DRS/VPI, you can call DRS support for assistance. Some problems of this type can be resolved in a phone conversation. In most cases, you will be asked to mail the dump to DRS support for diagnosis. You can choose to send the dump on a cartridge (3480, non-compacted) or in hardcopy format. It may also be possible to upload the dump to our Web site. Please call DRS support before sending any dump.



Section 12

Introduction to DRS/TCPIP

DRS/TCPIP allows receiving print files from remote TCP/IP hosts and placing those print files on the JES spool to be printed at a printer attached to the MVS system. The same DRS/VPI address space can be used to receive print data from VTAM online applications (CICS, IMS, IDMS, etc.) and from TCP/IP hosts. All print queues can be displayed and controlled using DRS/VPI console commands.

DRS/TCPIP provides the functions of a Line Printer Daemon (LPD) print server on MVS. DRS/TCPIP listens for connections on the PORT specified at DRS/VPI system initialization; the PORT should be set to 515 to receive print data using LPR/LPD protocols.

The LPR/LPD protocol defines a 'receive print job' command which provides a print queue name. DRS/TCPIP uses the print queue name to locate a virtual printer. Because the print queue name is also the name of a member in the DRS/VPI control library, it must be 1 to 8-characters, beginning with an alphabetic or a national character. If any part of the name is received in lower case, it will be translated to upper case. The virtual printer definition contains the SYSOUT characteristics (DEST, CLASS, FORM, WRITER, OUTREF, etc.) to be associated with the print data on the JES spool.

After the print queue name has been received, DRS/TCPIP will receive a control file and a data file. The data file contains the data to be placed on the JES spool to be printed. The control file contains records which indicate how the data should be printed. DRS/VPI User Exit 09 allows modifying the control file, which may cause DRS to process the file differently. It is also possible to indicate that the control file should be ignored for a print queue definition.

If the definition of the print queue indicates that the control file should be used to determine how to process the print data, but the control file is received after the data file, the data file must be kept in a temporary staging file until the control file can be processed. If the control file is delivered first, or if the control file can be ignored, no temporary staging is necessary.

The filter record of the control file indicates how the data file will be processed. For normal print filters, translation can be done from ASCII to EBCDIC based on the PRTXLATE keyword. For print queues with TRN=T or if a binary filter is received, no translation or line control processing will be done. The following table indicates which filters are considered valid and how DRS/TCPIP will process the data. DRS/VPI User Exit 09 can be used to change the value of the filter to change the manner in which DRS/TCPIP processes a file.

| FILTER | DESCRIPTION | DRS/TCPIP SUPPORT |
|---------------|--------------------------------------|---|
| c | Plot CIF file | Stored as binary data |
| d | Plot DVI file | Stored as binary data |
| f | Print formatted file | Text with ASA carriage control |
| g | Plot file (UNIX) | Stored as binary data |
| l | Print file leaving carriage control | Text with ASA carriage control |
| n | Print DITROFF file | Stored as binary data |
| o | Print PostScript file | Stored as binary data |
| p | Print with PR format | Text w/page headings added and ASA carriage control |
| r | Print using FORTRAN carriage control | Text with ASA carriage control |
| t | Print phototypesetter | Stored as binary data |
| v | Print raster file | Stored as binary data |

In addition to LPR/LPD protocol, DRS/TCPIP allows receiving files from other LRS products, including DRS/OutputManager for SAP R/3 and AnyQueue using LRS-defined protocol. A print queue name is passed to DRS/TCPIP, along with information about how the file should be allocated.

The print data is placed on the JES spool using the SYSOUT attributes defined for the print queue, including OUTPUT JCL characteristics. The print file is then ready to be delivered to the printer.

Section 13

DRS/TCPIP Installation

New Features in this Release

If you have been using DRS/TCPIP Release 3.2, or 3.3 at your installation, you will find Version 1 Release 3.4 will support all of the functions you are accustomed to. This release also gives you these new features.

- **Support for SYSOUT tracking**

The DRS/VPI SYSOUT tracking feature utilizes the new JES Client/Server print interface features to track the status of all SYSOUT datasets it creates. This new feature integrates the report capture facilities of DRS with the print delivery functions of VPS and JES. This enables users to monitor the progress of their reports from creation to successful delivery to the output device. With the new tracking feature enabled, all output is assigned a unique DRS tracking number and its status is continually monitored until the report is purged from JES. For details of the DRS/VPI SYSOUT tracking facility, refer to [“Introduction to DRS/VPI SYSOUT Tracking Feature” on page 3.220.](#)

- **Support for LPQ command**

Support has been added for the LPR/LPD query command (LPQ) which enables clients from any host to query the status of reports routed to DRS using the LPR protocol. The query support uses the functions of the new DRS/VPI SYSOUT tracking feature to save detailed information about client print requests and track their status until they are purged from the JES spool.

- **Support for LPRM command**

Support has been added for the LPR remove command (LPRM). This enables users to remotely cancel previously submitted print requests. To cancel a print request the LPRM command must specify the DRS printer name and the unique 8-byte SYSOUT tracking number associated with the output request.

- **Support for LRS/Queue Client**

The LRS/Queue client is a new general-purpose client for the LRS host and LAN based Enterprise Output Management products. This client provides a simple command line interface that enables users on multiple platforms to exploit the features of the LRS product range. The LRS/Queue client interfaces directly to DRS/TCPIP and provides functions to submit, query, and cancel previously submitted reports. For complete details of the LRS/Queue client refer to [“LRS/Queue Client” on page 13.15.](#)

- **Support for DRS/OutputManager for SAP R/3**

DRS/TCPIP supports DRS/OutputManager for SAP R/3, which allows SAP R/3 users to send print files to the JES spool and track the status of those files.

- **Support for DRS/Secure**

DRS/TCPIP supports decryption of data for connections to LRS products such as VPS, AnyQueue, and DRS/OutputManager which use LRS-defined protocols.

- **Support for DRS Monitor and Control Facility (DMCF)**

DRS/TCPIP system and printer information can be displayed in a full-screen environment using DMCF. Commands can be issued to display or modify the system information and the active printer definitions. SYSOUT tracking information can be viewed for files created by DRS/TCPIP.

- **HFS support**

DRS/TCPIP can now create HFS files in addition to DASD and SYSOUT files. The DRS/TCPIP printer member contains the PATH name to be updated. Up to 4 SYSOUT files, one DASD file, and one HFS file can be created from the same print report.

- **Support for OUTPUT keyword modification in DRS/VPI User Exit 7**

DRS V1R3.4 passes a copy of the current OUTPUT statement associated with the report to DRS/VPI user exit. If the exit modifies the OUTPUT statement keywords, DRS/VPI will dynamically create a new OUTPUT statement to associate with the report.

- **Option for JES destination validation**

DRS/VPI has a new DESTVAL keyword to indicate that destinations should be validated.

- **JOBNAME modification**

DRS/VPI V1R3.3 introduced the capability of specifying a JOBNAME to be associated with SYSOUT files that was different than the name of the DRS/VPI job or started task. The JOBNAME can be a constant value, or it can be set using symbolic parameters. Using the JOBNAME keyword requires that DRS modules be loaded from an authorized library.

Installation Procedure

The steps required to install the DRS/TCPIP product are:

1. **Install the MVS TCP/IP Software** (see [“DRS/TCPIP System Requirements”](#) on page 13.4).
2. **Install DRS/VPI** (see [“Installation Procedure”](#) on page 3.5).
3. **Add DRS/TCPIP keywords to the System Initialization Member for the DRS/VPI address space** (see [“Adding System Keywords for DRS/TCPIP”](#) on page 13.5).
4. **Build the DRS/TCPIP Printer Definition Members for the TCP/IP print queues** (see [“Building TCP/IP Print Queue Definitions”](#) on page 13.6 and [“Converting the IBM TCPIP LPD Configuration Dataset”](#) on page 13.9).
5. **Add the DRS TCP/IP printer definitions to the Printer Activation List** (optional) (see [“Adding TCP/IP Printers to DRS/VPI Activation List”](#) on page 13.13).
6. **Implement DRS/VPI User Exit 09 to modify the TCP/IP control file or to reject print files** (optional) (see [“Installing DRS/VPI User Exit 9 for TCP/IP”](#) on page 13.14).

DRS/TCPIP System Requirements

TCP/IP for MVS Requirements

Either TCP/IP for MVS from IBM or SNS/TCPassess for MVS from Interlink Computer Sciences must be installed on the MVS system where DRS/TCPIP will run.

For the TCP/IP for MVS product (SNS/TCPassess) from Interlink Computer Sciences, all releases after V1.1 are supported. The following parameters in your configuration member for API (APICFGxx) may need to be reviewed:

- MAXADDR** Set as large as the number of DRS/VPI systems using DRS/TCPIP.
- MAXUSER** Set to the sum of the maximum number of DRS/TCPIP print queues (second subfield of MAXPRTS keyword) plus the number needed for other products which use the API (for example, VPS/TCPIP).
- MAXEPA** Set to the sum of the maximum number of DRS/TCPIP print queues (second subfield of MAXPRTS keyword) plus the number needed for other products which use the API (for example, VPS/TCPIP).

MVS Requirements

To use the new JOBNAME= keyword, the DRS modules must be loaded from an authorized library and the system must be at level MVS/SP 4.1.0 or above.

Adding System Keywords for DRS/TCPIP

The following DRS/TCPIP keywords can be added to the System Initialization Member for DRS/VPI:

KEYLPD
TCPIPID
TCPLHOST
TCPPORT
TCPTYPE

The **KEYLPD** keyword specifies the trial/license code for the DRS/TCPIP product. This keyword **MUST** be present to use the DRS/TCPIP product. This key is generated by LRS and is supplied in file 1 of the product distribution cartridge.

The **TCPIPID** keyword is required. If TCPIPID is not specified, the DRS/VPI system will not attempt to connect to the MVS TCP/IP address space, and no connections will be accepted from remote TCP/IP hosts. If using TCPTYPE=IBM310, IBM320, or IBM340, the TCPIPID should match the jobname or started task of the IBM TCP/IP address space. For TCPTYPE=ICS, the TCPIPID should match the 4-character subsystem ID of Interlink's SNS/TCAccess address space. The default subsystem ID for Interlink is ACSS.

TCPLHOST is optional, and is used to specify a specific IP address that is to be used for DRS/TCPIP. This keyword can be used on an OS/390 system with multiple host addresses to ensure that the DRS/TCPIP system always resides at a particular address. If TCPLHOST is not specified, the TCP/IP system will supply a default address when DRS/TCPIP issues the BIND request.

The **TCPPORT** is optional; it specifies the PORT to be used when DRS/TCPIP listens for connections. The default is 515, which is the PORT used for the LPD print server.

It is possible that port 515 has already been reserved for a particular task name in the TCP/IP configuration file. If so, one of the following should be done:

1. Remove the entry for port 515 from the reserved ports list.
2. Change the entry for port 515 in the reserved ports list to specify the name of the DRS/VPI address space.
3. Change the name of the DRS/VPI address space to match the name specified in the reserved ports list entry for port 515.

The **TCPTYPE** keyword is optional; the default is TCPTYPE=IBM340. The TCPTYPE keyword indicates the method by which DRS/TCPIP will connect to the MVS TCP/IP product.

| | |
|-----------------------|--|
| TCPTYPE=IBM310 | For IBM TCP/IP V3R1 or later. |
| TCPTYPE=IBM320 | For IBM TCP/IP V3R2 or later. |
| TCPTYPE=IBM340 | For IBM TCP/IP V3R4 or later. |
| TCPTYPE=ICS | For Interlink Computer Sciences TCP/IP V1.1 or later. |

Some standard DRS/VPI system initialization keywords may be used for DRS/TCPIP processing. For example, the MAXPRTS keyword specifies the maximum number of VTAM and TCP/IP printers that can be activated. The second subfield of the MAXPRTS keyword should never be set to zero if TCP/IP printers are to be activated. In addition, if automatic activation or dynamic definition are required, the AUTOACT keyword will be necessary. The DEFLTMEM keyword should be specified for any parameters required for those printers automatically activated.

For more information on the DRS/VPI system keywords and the values that are allowed, see ["System Initialization Member"](#) on page 3.13.

Building TCP/IP Print Queue Definitions

The following keywords are used only for DRS/TCPIP print queues:

- TCPLIMIT=** Specifies the maximum size, in number of bytes, of any print file that this print queue will accept. Any requests to deliver a print file larger than this number will be denied.
- TCPMRD=** Specifies the time interval in minutes for DRS/VPI to wait for a TCP/IP request to complete. If the request does not complete within this interval, the connection will be terminated, and the printer will be EDRAINED. The default is 00, which means that DRS/VPI will never terminate the connection due to a time-out.
- TCPOPTS=** A hex representation of special printer options to be in effect for this TCP/IP print queue. The value is specified as eight digits, representing four hex bytes.

If the control file is delivered first, or if the control file can be ignored, no staging is necessary. If staging of the data file is necessary, the following parameters may be specified:

- QBUFSIZE=** Specifies the size of the buffer DRS/TCPIP will use when writing to and reading from the staging dataset.
- QSPACE=** Specifies, via three positional parameters, the amount of DASD space to be allocated to the staging dataset.
- QUNIT=** Specifies the unit type of the device on which the staging dataset is to be allocated.
- QVOLUME=** Specifies the volume on which the staging dataset is to be allocated.

Some standard DRS/VPI keywords may be necessary in order to process print files for TCP/IP print queues; for example:

- COMMTYPE=** The communications type that will be used to accept a connection for this print queue. The default for COMMTYPE is VTAM. For TCP/IP printers using LPR/LPD protocols, COMMTYPE=TCPIP should be specified.
- PRTXLATE=** In order to translate ASCII data to EBCDIC, the PRTXLATE keyword must be specified. The first subfield should be 'Y' to request translation, and the second subfield should specify a table name.

For more information on all the DRS/VPI printer keywords and the values that are allowed, see ["Building the System Initialization Member" on page 3.18](#).

A sample DRS/TCPIP printer definition for a print queue named "LOCAL" may contain the following:

```
* -----*
*   DEFINITION OF PRINT QUEUE FOR LOCAL PRINTER   *
* -----*
CLASS=A,                SYSOUT CLASS = A
COMMTYPE=TCPIP,         TCPIP PROTOCOL
DEST=LOCAL,            JES DESTINATION = LOCAL
PRTXLATE=(Y,DVSSXEBC), TRANSLATE ASCII TO EBCDIC
TCPLIMIT=99999         REFUSE IF LARGER THAN 99,999 BYTES
```

Support for LPQ command

In order to support the LPR/LPD query command (LPQ), it is necessary to enable the DRS/VPI SYSOUT tracking feature. With the tracking feature enabled, DRS/TCPIP will save detailed information about all client print requests and will track the status of the report until it is purged from the JES spool. DRS/TCPIP supports both the long and short LPQ query requests and will respond with a formatted display of all print datasets for the requested print queue.

Below are examples the Short and Long query responses:

```
LPQ -S MVS1 -P VPRT1 -1

LRS PRINT SERVER V1R3.4.000 04-OCT-2001 04:16:24

      QUEUE \\MVS1\VPRT1
JOBID  DETAILS
-----
00000001 STATUS(WAITING) ORG(LPR)
        OWNER(GODDARD)
        HOST(LRS002)
        JOBNAME(EXPENSE.DOC)
        FILENAME(EXPENSE.DOC)
        CLASSIFICATION(Expenses claim)
        LINES(200) PAGES(8) BYTES(120K)
        CREATED(25-SEP 09:43:32) PRINTED(N/A)
        PURGED (N/A) LAST EVENT(N/A)
        JES JOBNAME(DRSMG34) JOBID(STC08443)
        SYSOUT (C=H D=LRST.VPRT1 F=STD) HELD
00000005 STATUS(PRINTED) DEVICE(VPS80.PRT1) SYSTEM(JES2) ORG(LPR)
        OWNER(GODDARD)
        HOST(LRS002)
        JOBNAME(DRS34.DOC)
        FILENAME(DRS34.DOC)
        CLASSIFICATION(N/A)
        LINES(407) PAGES(50) BYTES(226K)
        CREATED(26-SEP 10:41:35) PRINTED(04-OCT 03:38:21)
        PURGED (04-OCT 03:38:21) LAST EVENT(04-OCT 03:38:21)
```

The query request must specify a printer queue name and may optionally specify a userid which will limit the response to datasets created by the specified user.

By default SYSOUT tracking data will be removed 1 hour after the dataset has been purged from the JES spool. If you wish to specify the retention period for tracking data after print completion you can use the TRACK printer keyword. For full details of how to install and configure the DRS/VPI tracking feature, please refer to [“Introduction to DRS/VPI SYSOUT Tracking Feature” on page 3.220](#).

Support for LPRM command

In order to support the LPR/LPD remove command (LPRM), it is necessary to enable the DRS/VPI SYSOUT tracking feature. The LPRM command can then be used to cancel a previously submitted output request using the SYSOUT tracking number to identify a specific spool file.

Below is an example of the TSO LPRM command.

LPRM 00000004 (HOST MVS1 PRINTER VPRT1

Note: The LPRM command can only be used to cancel output requests that are owned by the requesting user.

Support for LRS/Queue Client

The LRS/Queue client is a general-purpose client for the LRS host and LAN based Enterprise Output Management products. This client provides a simple command line interface that enables users on multiple platforms to exploit the features of the LRS product range. LRS/Queue interfaces directly to DRS/TCPIP and provides functions to submit, query, and cancel previously submitted reports. The report submission facility enables users to directly specify the required SYSOUT, DASD, or HFS attributes that will be assigned to the report and can control the translation and processing of the print data. Users can also exploit the functions of the DRS/SmartTag feature that provides a simple interface to pre-define groups of SYSOUT attributes that can then be selected by name. This enables users to select the processing options for a report using a simple name and isolates them from the underlying JES SYSOUT attributes. The LRS/Queue client is available for most operating environments (WIN2K, NT, AIX, HP-UX, SUN, OS/390 USS etc.). For complete details of the LRS/Queue client refer to [“LRS/Queue Client” on page 13.15](#).

Converting the IBM TCPIP LPD Configuration Dataset

DRS V1 R3.4 provides a facility to convert your IBM TCPIP LPD configuration SERVICE definitions into DRS/VPI virtual printer definitions.

Sample JCL to convert your LPD configuration SERVICE definitions is contained in member CONVLPD in dataset LRS.DRS.V1R34.CNTL. That JCL is reproduced here:

```
//JOBNAME JOB (YOUR JOB CARD INFORMATION)
//*
//CONVLPD EXEC PGM=DV34CLPD,REGION=2M,PARM='REPLACE'
//STEPLIB DD DSN=LRS.DRS.V1R34.LOAD,DISP=SHR
//SYSIN DD DSN=TCPIP.LPD.CONFIG,DISP=SHR
//SYSOUT DD SYSOUT=*
//DRSVLIB DD DSN=LRS.DRS.V1R34.CNTL,DISP=SHR
//SYSUDUMP DD SYSOUT=*
//*
//
```

Procedure DD Statements

The SYSIN DD statement identifies your IBM TCPIP LPD configuration dataset.

The SYSOUT DD statement is used to write a log of the results of the procedure. You should review the output written to this file to identify any errors that may occur during the process. For any severe errors, a message is also written to the console. Note that if you choose to direct the output of this file to a disk or tape dataset, rather than the spool, the DCB attributes must be LRECL=128,BLKSIZE=132,RECFM=VB.

The DRSVLIB DD statement identifies your DRS/VPI Version 1 Release 3.3 control library.

Procedure Parameters

The procedure which converts your IBM TCPIP LPD configuration SERVICE definitions supports only keyword parameters. Currently, the only supported keyword parameter is REPLACE, which indicates that the procedure is to replace existing virtual printer definitions in the DRS/VPI control library with the corresponding SERVICE definitions from the LPD configuration dataset. If this parameter is omitted, any existing entries in the DRS/VPI control library will be retained, but new entries will still be created using the definitions from the IBM TCPIP LPD configuration dataset for which there is no matching entry in the DRS/VPI control library.

Messages Issued by the LPD Conversion Program

The following messages can result from using program DV34CLPD to convert IBM TCPIP LPD configuration SERVICE definitions to DRS/VPI virtual printer definition members.

- CLPD920I** DEFINITION action FOR PRINTER printer
- action: Indicates the action taken against the named printer definition (CREATED, REPLACED, or RETAINED).
- printer: Indicates the name of the DRS virtual printer definition.
- Message Meaning:** The LPD configuration conversion program took the action shown in the message for the virtual printer definition shown in the message.
- System Action:** None.
- Required Action:** None.
-
- CLPD924I** count PRINTER DEFINITIONS action
- count: Indicates the number of printer definitions for which the indicated action was taken.
- action: Indicates the action taken against the printer definitions (CREATED, REPLACED, or RETAINED).
- Message Meaning:** The LPD configuration conversion program took the action shown in the message for the number of virtual printer definitions shown in the message.
- System Action:** None.
- Required Action:** None.
-
- CLPD960W** EXEC STATEMENT PARAMETER parm IS NOT RECOGNIZED
- parm: Indicates the JCL EXEC statement parameter that is not recognized by the LPD configuration conversion program.
- Message Meaning:** A JCL EXEC statement parameter was specified that is not recognized by the LPD configuration conversion program.
- System Action:** The conversion processing continues, ignoring the unrecognized parameter.
- Required Action:** None.

| | |
|-----------------|---|
| CLPD970W | MEMBER member IS IN USE AND HAS BEEN RETAINED |
| | member: Indicates the DRS control library member name that is in use. |
| | Message Meaning: The DRS control library member shown in the message is in use by another job or user. Most likely, the member is being edited by an ISPF/PDF user. |
| | System Action: The conversion processing continues with the next LPD service definition, while retaining the DRS virtual printer definition for the member shown in the message. |
| | Required Action: Rerun the LPD configuration conversion program when the member shown in the message is accessible. |
| | |
| CLPD980E | OPEN FAILED FOR FILE ddname |
| | ddname: The JCL DDNAME of the file for which the OPEN failed. |
| | Message Meaning: The LPD configuration conversion program attempted to OPEN the file shown in the message, but the attempt failed. |
| | System Action: The conversion processing terminates. |
| | Required Action: Correct the LPD configuration conversion process JCL. |
| | |
| CLPD974E | SERVICE NAME ssss IS NOT CONVERTIBLE |
| | sss: The LPD configuration file service name. |
| | Message Meaning: The LPD configuration conversion program encountered a service definition with a name that is not in the form of a valid partitioned dataset member name. As a result, the conversion program was unable to convert the named service definition. |
| | System Action: The conversion processing continues with the next LPD service definition. |
| | Required Action: None. |

CLPD982E STOW FAILED FOR MEMBER member, RETCODE=X'retcode',
RSNCODE=X'rsncode'

member: The DRS control library member for which the STOW request failed.

retcode: The STOW return code.

rsncode: The STOW reason code.

Message Meaning: The LPD configuration conversion program attempted to update the DRS control library directory to reflect the changes made to the member shown in the message, but the attempt failed with the return code and reason code shown in the message.

System Action: The conversion processing continues with the next LPD service definition, while retaining the DRS virtual printer definition for the member shown in the message (if it previously existed).

Required Action: Contact DRS technical support.

CLPD984E RDJFCB FAILED FOR FILE ddname, RETCODE=X'retcode'

ddname: The JCL DDNAME of the file for which the RDJFCB failed.

retcode: The RDJFCB return code.

Message Meaning: The LPD configuration conversion program attempted to read the Job File Control Block for the file shown in the message, but the attempt failed.

System Action: The conversion processing terminates.

Required Action: Contact DRS technical support.

CLPD988E DRSVLIB ALLOCATION IS INVALID—desc

desc: The description of the allocation attributes that are inconsistent with those of a valid DRS control library.

Message Meaning: The dataset allocated to the JCL DDNAME DRSVLIB is not a valid DRS control library, or is incorrectly specified.

System Action: The conversion processing terminates.

Required Action: Correct the LPD configuration conversion process JCL.

Adding TCP/IP Printers to DRS/VPI Activation List

If you are using the Printer Inclusion List to automatically activate DRS/VPI printer definitions, you should add the member names of the DRS/TCPIP printers to that list. For more information, see [“Building the Printer Activation Inclusion List” on page 3.60](#).

Installing DRS/VPI User Exit 9 for TCP/IP

DRS/VPI User Exit 9 is an optional user exit that will be called only for DRS/TCPIP print queues. The exit allows modification of the LPR/LPD control file received from the remote TCP/IP host, which may change the processing of that file by DRS/TCPIP. In addition, the print file can be rejected at several points by DRS/VPI User Exit 9, based on the sender's host name or address, based on the user name or other information in the control file, or based upon the print queue name requested.

If the print file is rejected by DRS/VPI User Exit 9, a negative acknowledgement is sent to the remote host with "USER EXIT REFUSED PRINT FILE" as the text.

All control records received from the remote host are placed in a control line workarea which is passed to User Exit 9. The macro used to map the control line workarea is shipped in LRS.V1R12.MACLIB on the distribution cartridge as #LRTCCNT.

The prefix of the control lines area contains information about all the control records, such as total length of the control block, the number of control lines available, the number of control lines used, and a copy count. The prefix area should not be modified.

The control records follow the prefix. Each record has a field to indicate the length of the data used in that entry and status flags to indicate if the control record is the filter record or if the control record can be bypassed by setting the bypass flag.

Each control record has a 'type' field followed by up to 256 bytes of additional data. The last byte of the data must be the ASCII new line (X'0A'). If the data in the control record is changed, the length of the data must be updated to include the 'type' field, the data, and the new line character.

The valid types of print filters are documented in the #LRTCCNT macro. If multiple filter records are received from the remote host, the data file names must be the same. The copy count is set based on the number of filters and is stored in the prefix to the control line workarea. The copy count will be used to set the number of copies to be requested when the print data is placed on the JES spool.

When the exit returns to DRS/VPI, the control records will be scanned. Any records which contain errors will be flagged and bypassed. If the records meet the minimum requirements, they will be used for any processing that DRS will do with the print data file. For example, by changing the filter from a normal print filter to one that would be treated as a 'binary' filter, translation could be avoided. In addition, a banner page could be eliminated by bypassing the "L" control record.

For more information about implementing DRS/VPI User Exit 9, see ["DRS/VPI User Exits" on page 9.1.](#)

LRS/Queue Client

LRS/Queue is a general-purpose client that enables users on multiple platforms to exploit the features of the DRS/OutputManager range of products. The LRS/Queue client is available for most execution platforms and provides a simple command line interface to the following functions:

- Output submission
- Queue Query
- Print Query
- Print cancellation

The LRS/Queue client has been designed to provide a common interface to both the LRS host and LAN based output management solutions. This document will only describe the command in relation to the DRS/TCPIP product.

It is possible to use the LRS/Queue client to submit a print request to DRS/TCPIP with complete control over the SYSOUT attributes and then monitor and control the output using the Query and cancel functions. The client can also be used to route output to a DASD dataset or a Hierarchical File System (HFS) file.

Controlling Report Attributes

The LRS/Queue client provides an enormous amount of flexibility in controlling the SYSOUT attributes that are assigned to reports. All SYSOUT attributes can be directly specified via the LRSQ command and by default. These attributes will be combined with the values defined in the DRS printer definition (LRS/Queue attributes will override the printer defined values). The **/Queue** keyword identifies the target DRS printer and it is recommended to always specify this option as it establishes the basic attributes for the destination device (i.e Class, Dest, Form, etc.). This also reduces the number of attributes that need to be specified, via the LRSQ command, as you only need to specify attributes that are unique to this print request. If you do not wish to use the values defined in the DRS printer definition, the **/DRSMerge** keyword can be used indicate that you only want to use attributes that have been explicitly specified via the LRSQ command.

As an alternative method of controlling SYSOUT attributes, you can also use the SmartTag keywords (STPrinter and STOutref). The SmartTag feature enables you to centrally administer predefined groups of report attributes that users can select by name. This has the benefit of isolating remote users from the underlying JES attributes used to control their reports. The SmartTag SYSOUT attributes are defined and centrally administered using a simple ISPF user interface. (See [“DRS/STI Administration” on page 17.1](#) for details.)

Controlling Report Translation & Formatting

The LRS/Queue client enables users to control the data translation and formatting of print requests submitted to DRS. By default, all print files will be translated from EBCDIC to ASCII and will be assigned RECFM=V. If the input file contains text with formfeed characters and you wish to preserve the page breaks, specifying /CC=C will cause LRS/Queue to generate ASA carriage control characters (RECFM=VA). The EBCDIC to ASCII translation is performed using an internal translation table that can be modified using the /tr_AA:EE keyword (where AA = ASCII hex value, EE = EBCDIC hex value). For details of the default translation table, refer to [page 13.39](#).

For input datasets which contain printer formatted or binary data (PCL, Postscript etc.), the /BINARY=Y keyword can be used to bypass all translation and formatting. Files containing AFPDS data that needs to be reblocked into variable length records should specify the /AFPDS=Y keyword. DRS will then use the record length contained in every AFPDS structure field to reblock the data before writing to the output dataset.

LRSQ Command Examples:

LRSQ /Server=1.2.3.4 /Port=515 /File=test.txt /class=A /Dest=printer1

The above example will submit a text file called 'test.txt' and will assign the output a class of 'A' and a destination of 'PRINTER1'. In this example, a DRS printer name has not been explicitly specified via the /Queue keyword, and DRS will attempt to dynamically define a printer to receive this request. To process the request, the automatic activation option must be enabled (AUTOACT=(Y,Y)) in the system initialization options (DRSSTART) and the default printer member (DEFLTMEM) must specify COMMTYPE=TCPIP.

Note: This will change the default communication type for all DRS printers to TCP/IP, and it will be necessary to ensure that any DRS/VPI SNA printers explicitly specify COMMTYPE=VTAM.

LRSQ /Server=MVSA /Port:515 /File=test.txt /Queue=PRINTER1

This example will submit a text file called 'test.txt' and will select DRS printer definition 'PRINTER1'. As no SYSOUT attributes have been specified, the values defined in the DRS printer definition will be used.

Note: Attributes specified via the LRSQ command will override the values defined in the DRS printer definition.

LRSQ /Server=MVSB /Port:5000 /file:pcl.dat /Queue=PRINTER2 /class=T /Binary=Y

The above example will submit a file called 'pcl.dat' which contains ASCII PCL data. The /Binary keyword indicates that this file should be transferred to DRS without translation, and the /Class keyword indicates that the SYSOUT attributes should be taken from the DRS printer definition with the exception of the SYSOUT class (T).

Note: To successfully print this file using VPS, the VPS printer definition must specify TRNCLASS=T to indicate that output on class T should be delivered to the device without translation.

LRSQ /Server=SYSA /Port:1234 /file:test.txt /Queue:STIQ1 /STPrinter=PR1 /STOutref=LAND

The above example demonstrates the use of the DRS/Smart Tag interface (DRS/STI). The /STPrinter keyword is used to identify the Smart Tag printer name that will be used to set the SYSOUT Class, Dest, Form & Writer values. The /STOutref keyword is used to select a pre-defined set of extended SYSOUT attributes. In this example the Smart Tag output option 'LAND' could be used to specify an AFP FORMDEF and PAGEDEF combination that will cause the output to print in landscape. By defining standard sets of output attributes, users can control the way their output prints using simple names and without the requirement to understand the JES SYSOUT attributes.

Note: For full details of how to install and configure the Smart Tag (DRS/STI) interface please refer to ["DRS/STI Installation" on page 16.1.](#)

DRS Printer Definition

The LRSQ command can be used with any DRS printer definition that specifies COMMTYPE=TCPIP. A single DRS printer definition can be used for any TCP/IP connection type supported by DRS/TCPIP.

LRS/Queue Installation

The LRS/Queue client is available for most execution platforms and is distributed on CD.

Because the installation process for each supported platform is slightly different, please refer to the README file supplied with each version for details of the installation process. The installation procedure will extract the LRS/Queue executables to a user specified directory.

LRSQ Keywords

All LRSQ command keywords must begin with a '/' character and are delimited with '=' or ':' to separate the keyword from the assigned value. Any value that contains embedded spaces must be enclosed in double quotes.

General Syntax:

LRSQ /S:host /P:port {operational keywords} {SYSOUT Attributes & Extended Attributes}
{DASD Attributes}
{Smart Tag Attributes}
{HFS File attributes}
{Query or Cancel request}

Required Keywords

| Name | Alias | Description |
|---------|-------|---|
| /Server | /S | Specifies the IP address or host name of the machine executing DRS/TCPIP |
| /Port | /P | Specify the TCP/IP port number which is being used by DRS/TCPIP for connection requests. (TCPPOPT System Keyword) |

Operational Keywords

| Name | Alias | Description |
|------------|-------|--|
| /? | None | Display help information. |
| /AFPDS | None | Specifies whether the input file contains AFPDS data that should be reblocked into variable length records by DRS. Valid Values: Y/N Default: N |
| /AltServer | /AS | Alternate IP address or host name of a machine executing DRS/TCPIP. If LRSQueue cannot connect to DRS/TCPIP that is listening on the IP address or host name specified by the /Server keyword, it will try to connect to this alternate IP address or host name. |
| /AltPort | /AP | Specify an alternate TCP/IP port number which is being used by DRS/TCPIP for connection requests. If LRSQueue cannot connect to DRS/TCPIP that is listening on the port number specified by the /Port keyword, it will try to connect to this alternate port number. |
| /Binary | /Bin | Specifies that the input file contains binary data which should not be translated. Valid Values: Y/N Default: N |
| /Compress | /cmp | Specifies whether the data should be compressed for transmission across the network. Valid Values: Y/N Default: Y |

| Name | Alias | Description |
|-------------------|-------|--|
| /DRSMerge | /DMRG | <p>Specifies whether the output attributes specified should be merged with the attributes defined in the receiving DRS printer definition. By default, the DRS printer attributes will be merged with the values received from the LRSQ command. The LRSQ keywords will override the values defined in the DRS printer member.</p> <p>Valid Values: Y/N</p> <p>Default: Y</p> |
| /Encrypt | /enc | <p>Indicates whether the print data should be encrypted for transmission to the destination. (DRS V1 R3.4 fix level 90 with DRS Secure, VPSX V1 R1.0 fix level 10, or AnyQueue 1.2.50 with AnyQueue Secure.)</p> <p>Valid Values: Y/N</p> <p>Default: N</p> |
| /File | None | <p>Specifies the input print file name.</p> |
| /Logfile | /Log | <p>Specifies the name of a file that should receive all messages from the LRSQ execution.</p> <p>Default: None.</p> |
| /ParmFile | /pfl | <p>Specifies the name of a text file that contains additional LRSQ commands.</p> <p>When coding LRSQ keywords in a parameter file, the keyword syntax is exactly the same, but only one keyword can be specified per line.</p> <p>Default: None.</p> <p>LRSQueue will look for a default parmfile called LRSQDFLT in the directory that LRSQueue is executing from. If it is found then any keywords in the default parmfile will be processed first but they can be overridden by supplying the same keyword on the command line. The name and location of the default parmfile can be overridden by specifying an environmental variable of LRSQDFLT=<full path to parmfile>.</p> |
| /Queue | /Que | <p>Specifies the name of the DRS printer definition that should be used to process this request. If this keyword is not specified, DRS will attempt to dynamically create a printer definition if the auto activation feature is enabled (AUTOACT=(Y,Y)). To use automatic definition, the DRS default printer member (DEFLTMEM) must specify COMMTYPE=TCPIP.</p> |
| /Removelff | /rlff | <p>If the input file has ASA carriage control or LRSQueue is creating ASA carriage control from ANSI carriage control (/CC=C) and the last byte of the data is an ASA form feed then by setting /Removelff=Y this last form feed will not be sent.</p> <p>Valid value: Y/N</p> <p>Default: N</p> |

| Name | Alias | Description |
|-------------------|-------|---|
| /TabSize | None | <p>If file being processed is Text this is the number of spaces to insert when a TAB character is encountered. If this is set to 0 then the TAB character is passed on to the destination.</p> <p>When used in conjunction with /TabStop=Y this number indicates the number of spaces between each tab stop.</p> <p>Valid Values: 0-255</p> <p>Default: 0</p> |
| /TabStop | None | <p>If set to 'Y', and the file being processed is Text, LRSQueue will calculate the number of spaces to add when a TAB character is encountered to get to the next tab stop. The location of the tab stops is determined by the /TabSize keyword.</p> <p>Valid Values: N/Y</p> <p>Default: N</p> |
| /Translate | /tr | <p>Specifies whether the input file should be translated from ASCII to EBCDIC.</p> |
| /tr_AA:EE | None | <p>This keyword allows you to change the default translate table for a specific character value.</p> <p>AA - Specifies the hex value of the input character.</p> <p>EE - Specifies the hex value of the output character.</p> <p>Example: /tr_41:C1 Will translate X'41' to X'C1'</p> |
| /Type | None | <p>Specifies the LRSQ request type:</p> <p>Q = Output to SYSOUT dataset</p> <p>F = Output to DASD file</p> <p>H = Output to HFS file</p> <p>S = Output to SYSOUT using SmartTag attributes</p> <p>Default: Q</p> |

Query & Cancel Requests

| Name | Alias | Description |
|----------------|-------|--|
| /Query | None | <p>This keyword is used to query the status of a previously submitted print request or to query the entire output queue for a specified printer. To query the status of a specific print request, the Query keyword must specify a DRS report tracking token. This consists of the DRS printer name and the unique eight byte tracking number assigned to the report (e.g.: PRINTER:00000123).</p> <p>The tracking number is returned by the submit request or can be displayed by querying the entire output queue. To display the output queue, the Query keyword must specify the DRS printer name.</p> |
| /Cancel | /Can | <p>This keyword is used to cancel a previously submitted print request. The Cancel keyword must specify a DRS report tracking token. This consists of the DRS printer name and the unique eight byte tracking number assigned to the report (e.g.: PRINTER:00000123). The tracking number is returned by the submit request or can be displayed by querying the output queue.</p> |

Basic SYSOUT Attributes

| Name | Alias | Description |
|----------|-------|---|
| /CC | None | Specifies whether the output dataset has ASA, Machine, or No carriage control. The special value 'C' indicates that the output dataset has ASA carriage control and that LRS/Queue should create the carriage control characters from the input ASCII data. Valid Values: A, M, C, or N Default: N |
| /Class | /c | Specifies the SYSOUT class of the dataset. The value is one character, and if it is specified, it must be alphanumeric or an asterisk. When an asterisk is specified, the MSGCLASS of the DRS started task is used. If CLASS is not specified, the dataset will receive the MSGCLASS associated with the DRS started task. |
| /Copies | /cpy | Copy count. Valid Values: 1 to 255 Default: 1 |
| /DDName | /ddn | An eight-byte character value identifying a DDNAME to be used when DRS allocates the report. If it is not specified, DRS will assign a DDNAME. |
| /Dest | /d | The destination to which the dataset should be routed. If this keyword is not specified, a destination of LOCAL is assumed. The destination must be alphanumeric or national characters and begin with an alpha character. From 1 to 8 characters can be specified. |
| /FCB | None | Specifies the FCB image to be used to print the dataset. The FCB is optional. If no FCB is specified, the JES default will be used. If FCB is specified, it must be alphanumeric or national characters. From 1 to 4 characters can be specified. |
| /Form | /f | Specifies the form name for the dataset. If form name is specified, it must be alphanumeric or national characters. From 1 to 8 characters can be specified. |
| /Hold | /hld | Specifies whether or not the dataset should be in "HOLD" status. Valid Values: Y/N. |
| /Jobname | /j | Specifies the jobname that DRS will use to create this SYSOUT dataset on the spool. The value must contain alphanumeric or national characters, and the first character must be alphabetic or national. From 1 to 8 characters can be specified. This value is only used if the DRS printer definition specifies JOBNAME=&LRSQJOB. |
| /Outref | /orf | Specifies the name of the OUTPUT JCL statement to be associated with this dataset. The OUTPUT statement must be defined in the DRS started task JCL. |
| /UCS | None | Specifies the UCS image to be used to print the dataset. If no UCS is specified, the JES default will be used. If UCS is specified, it must be alphanumeric characters. From 1 to 4 characters can be specified. |
| /Writer | /w | Specifies the special writer name for the dataset. Value must be alphanumeric or national characters. From 1 to 8 characters can be specified. |

Extended SYSOUT Attributes

| Name | Alias | Description |
|--------------------|--------|--|
| /Address1-4 | /ad1-4 | Four 1-60 byte values specifying the address to be printed on output separator pages. |
| /Building | /bld | A 1-60 byte value specifying the building to be printed on output separator pages. |
| /Burst | /bst | A 1-byte value that directs output to a stacker on a 3800 Printing Subsystem. Y = burster-trimmer-stacker N = continuous forms stacker |
| /Chars1-4 | /ca1-4 | Four 1-4 byte values specifying the names of character arrangement tables to be used when printing on a 3800. |
| /Ckptline | /ckl | Specifies the checkpoint value in lines. Valid Values: 1-99999 |
| /Ckptpage | /ckp | Specifies the checkpoint value in pages. Valid Values: 1-99999 |
| /Chptsec | /cks | Specifies the checkpoint value in seconds. Valid Values: 1-99999 |
| /CmodTrc | /cmtr | Copy Modification TRC. A 1-byte value specifying the table name in the CHARS parameter (0 for first, 1 for second, 2 for third, etc.). |
| /colormap | | A 1-8 byte value specifying the AFP resource for the print file which contains color translation information. |
| /CompactTbl | /ctb | A 1-8 byte value specifying the name of a compaction table for JES to use when sending the SYSOUT dataset to an SNA remote terminal. |
| /ComSetup | /csu | A 1-8 byte value specifying the AFP resource for the print file that contains setup information. |
| /Control | /Cntl | A 1-8 byte field specifying the type of spacing to be applied to the SYSOUT dataset. Valid Values: SINGLE DOUBLE TRIPLE PROGRAM |
| /Copyg1-8 | /cg1-8 | Eight numeric values specifying copy groups. |
| /CopyMod | /cpm | A 1-4 byte value specifying a copy modification module name that tells JES how to print the SYSOUT dataset on a 3800 Printing subsystem. |

| Name | Alias | Description |
|-----------|-------|--|
| /Dataack | /dck | An 1-8 byte value specifying whether or not print-positioning and invalid-character data-check errors are to be blocked or unblocked for printers accessed through the functional subsystem Print Services Facility (PSF) or VPS/IPDS. Valid Values: BLOCK UNBLOCK BLKCHAR BLKPOS |
| /Dept | None | A 1-60 byte value specifying the department to be printed on output separator pages. |
| /DpageLbl | /dpl | Specifies whether or not the system should print the security label on each page of printed output. Valid Values: Y/N. |
| /Duplex | /dpx | Specifies whether printing is to be done on both sides of the sheet. Valid Values: NO NORMAL TUMBLE |
| /Flash | /fla | A 1-4 byte value specifying the forms overlay to be used in printing the SYSOUT dataset on a 3800 Printing Subsystem. |
| /Flashcnt | /flhc | Specifies the number of copies on which the forms overlay is to be printed. Valid Values: 0 through 255. |
| /Formdef | /fmd | A 1-6 byte value specifying the name of a FORMDEF member in an AFP library. |
| /Formlen | /fln | A 1-10 byte value specifying the numeric length and unit type that will be used to change the physical paper length without reconfiguring the printer. Valid Values: nn.nnnUU where: n is a digit 0-9 UU represents one of the following units: IN (inches) or CM (centimeters). |
| /Groupid | /gid | A 1-8 byte value specifying the name of an output group to which this dataset belongs. |
| /Index | /idx | A numeric value specifying the left margin on a 3211 printer with the indexing feature. Valid Values: 1 through 31. |
| /Intray | /itr | A numeric value specifying the paper source when printing AFP files. Valid Values: 1 - 255. |
| /Linect | /lct | A numeric value specifying the maximum number of lines JES2 is to print on each output page. Valid Values: 0 through 255. |

| Name | Alias | Description |
|--------------|--------|--|
| /Lindex | /lidx | A numeric value specifying the right margin on a 3211 printer with the indexing feature. Valid Values: 1 through 31. |
| /Longdest | /ld | A 1-127 byte value specifying the destination for the SYSOUT dataset. The longer destination field is intended for a TCP/IP address in the format "IP:xxxxxxx" or "node.IP:xxxxxxx". This keyword and the /Dest keyword are mutually exclusive. |
| /Mailbcc | /mbcc | Specifies 1-32 email addresses that will receive blind copies of this document. Note: This parameter is only valid when sending documents to a VPSX printer defined for email delivery. Valid Values: 1-32 email addresses separated by a semi-colon. Default: None. |
| /Mailcc | /mcc | Specifies 1-32 email addresses that will receive copies of this document. Note: This parameter is only valid when sending documents to a VPSX printer defined for email delivery. Valid Values: 1-32 email addresses separated by a semi-colon. Default: None |
| /Mailcharset | /mcset | Specifies the character set that should be used by email clients when displaying text in the body of an email. Note: This parameter is only valid when sending documents to a VPSX printer defined for email delivery. Valid Values: 1-40 byte character set name. Default: ISO-8859-1 (Default charset will be taken from VPSX printer definition.) |
| /Mailfile | /mfile | Specifies a value that will be used as the attachment file name. Note: This parameter is only valid when sending documents to a VPSX printer defined for email delivery. Valid Values: 1-60 byte file name. Default: None. (Default file name will be taken from VPSX printer definition.) |
| /Mailfrom | /mfrom | Specifies an email address that should be used as the email sender's address for this document. Note: This parameter is only valid when sending documents to a VPSX printer defined for email delivery. Valid Values: 1-60 byte email address. Default: None. (Default sender will be taken from VPSX printer definition.) |

| Name | Alias | Description |
|------------|--------|---|
| /Mailreply | /mrply | <p>Specifies an email address that should be used as the email reply-to address for this document.</p> <p>Note: This parameter is only valid when sending documents to a VPSX printer defined for email delivery.</p> <p>Valid Values: 1-60 byte email address.</p> <p>Default: None. (Default reply-to will be taken from VPSX printer definition.)</p> |
| /Mailto | /mto | <p>Specifies 1-32 email addresses that will be used as the primary recipient for this document.</p> <p>Note: This parameter is only valid when sending documents to a VPSX printer defined for email delivery.</p> <p>Valid Values: 1-32 email addresses separated by a semi-colon.</p> <p>Default: None. (Default recipient will be taken from VPSX printer definition.)</p> |
| /Notlevel | /nlevl | <p>Specifies the event notification level requested for this document. Email event notification is requested via the /notmail keyword and can be requested for any printer type. Status events are categorized into 5 event levels with higher levels including all lower level events.</p> <p>Notification levels:</p> <ul style="list-style-type: none"> 1 - Errors requiring operator action (i.e., load paper, paper jam). 2 - Error not requiring operator action. 3 - Print completion. 4 - Status changes (i.e., document held, released, etc.). 5 - All status events. <p>Valid Values: 1-5</p> <p>Default: 1 (Errors requiring operator action.)</p> |
| /Notmail | /nmail | <p>Specifies an email address to receive job status information as VPSX is processing a document. The level of notification received is specified via the /notlevel keyword and defaults to events requiring operator action. Email job status notification can be requested for all VPSX printer types as long as the notification feature has been configured by the system administrator.</p> <p>Valid Values: 1-60 byte email address.</p> <p>Default: None.</p> |
| /Name | None | <p>A 1-60 byte value specifying the preferred name to be printed on output separator pages.</p> |
| /Notify1-4 | /nt1-4 | <p>Four 17-byte values specifying the 1 to 4 users to be notified when a job completes.</p> |

| Name | Alias | Description |
|-----------|-------|---|
| /OffsetXB | /oxb | <p>A 1-13 byte value specifying the offset in the x direction from the page origin for the back side of each page of output.</p> <p>Valid Values: mmm.nnnUU where: m is a digit from 0 - 9 n is a digit from 0 - 9 UU represents one of the following units: IN (inches) CM (centimeters) MM (millimeters) PELS POINTS</p> |
| /OffsetXF | /oxf | <p>A 1-13 byte value specifying the offset in the x direction from the page origin for the front side of each page of output.</p> <p>Valid Values: mmm.nnnUU where: m is a digit from 0 - 9 n is a digit from 0 - 9 UU represents one of the following units: IN (inches) CM (centimeters) MM (millimeters) PELS POINTS</p> |
| /OffsetYB | /oyb | <p>A 1-13 byte value specifying the offset in the y direction from the page origin for the back side of each page of output.</p> <p>Valid Values: mmm.nnnUU where: m is a digit from 0 - 9 n is a digit from 0 - 9 UU represents one of the following units: IN (inches) CM (centimeters) MM (millimeters) PELS POINTS</p> |
| /OffsetYF | /oyf | <p>A 1-13 byte value specifying the offset in the y direction from the page origin for the front side of each page of output.</p> <p>Valid Values: mmm.nnnUU where: m is a digit from 0 - 9 n is a digit from 0 - 9 UU represents one of the following units: IN (inches) CM (centimeters) MM (millimeters) PELS POINTS</p> |

| Name | Alias | Description |
|------------|-------|---|
| /Outbin | /obn | A numeric value specifying the printer output bin identifier to be used for the SYSOUT dataset. |
| /Outdisp | /odp | Specifies the output disposition when the job ends normally. Valid Values: Write, Hold, Keep, Leave, Purge |
| /Outdispab | /odpa | Specifies the output disposition when the job ends abnormally. Valid Values: Write, Hold, Keep, Leave, Purge |
| /Overlayb | /ovb | A 1-8 byte value specifying that the named medium overlay is to be placed on the back side of each sheet to be printed. |
| /Overlayf | /ovf | A 1-8 byte value specifying that the named medium overlay is to be placed on the front side of each sheet to be printed. |
| /Ovfl | None | Specifies whether or not JES3 should test for page overflow on an output printer (JES3 only). |
| /Owner | None | A 1-8 byte value specifying the originating owner of the SYSOUT dataset. DRS fix 076 is needed to process this keyword. |
| /Pagedef | /pgd | A 1-6 byte value specifying the name of a PAGEDEF member in an AFP library. |
| /Pimsg | /pim | Specifies whether or not a functional subsystem should print its messages in the output listing. Valid Values: Y or N. |
| /PIMsgcnt | /pimc | Numeric value specifying the number of errors to cause printing of PIMSG to be terminated. Valid Values: 0 through 999. |
| /Prmode | /prm | Specifies the process mode required to print the dataset. Valid Values: LINE PAGE any valid installation-defined process mode. |
| /PrtError | /pte | Specifies how a SYSOUT dataset that has had printing terminated by a functional subsystem is to be released by JES. Valid Values: DEFAULT HOLD QUIT |
| /PrtOptns | /pto | A 1-16 value specifying the named entity that contains additional print options for an IP-destined dataset that is being sent by a functional subsystem. |
| /PrtQueue | /ptq | A 1-127 byte value specifying the print queue name used when printing the IP-destined dataset. |
| /Prty | None | Numeric value specifying the initial priority at which the SYSOUT dataset enters the output queue. Value Values: 0 through 255. |
| /Retainf | /rtf | Specifying how long to retain an IP-destined dataset after a failed transmission. Valid Values: <hhhh>:<mm>:<ss> or FOREVER |

| Name | Alias | Description |
|-------------------|--------------|--|
| /Retains | /rts | Specifying how long to retain an IP-destined dataset after a successful transmission. Valid Values: <hhhh>:<mm>:<ss> or FOREVER |
| /Retryl | /rtl | A numeric value specifying the number of attempts an FSS will try for transmission of an IP-destined dataset. Valid Values: 0 -32767. |
| /Retryt | /rtt | A numeric value specifying how much time a functional subsystem will wait between retries of transmission attempts of a dataset. |
| /Room | None | A 1-60 byte value specifying the room identification to be printed on output separator pages. |
| /Sysarea | /sya | Specifies whether or not the system should reserve an area for the security label on each page of printed output. Valid Values: Y or N. |
| /Threshld | /thld | Use the THRESHLD parameter to specify the maximum size for the SYSOUT dataset. JES3 calculates the SYSOUT dataset size as the number of records multiplied by the number of copies requested. When this size exceeds the THRESHLD value, JES3 creates a new unit of work, on a dataset boundary, and queues it for printing. Consequently, different printers may print copies of the SYSOUT dataset simultaneously. |
| /Title | /ttl | A 1-60 byte value specifying the title to be printed on JES banner pages. |
| /Trc | None | Specifies whether or not the SYSOUT dataset has a TRC character in the second character of each record. |
| /Udata1-16 | /ud1-16 | Sixteen 1-60 byte character values containing USERDATA. |
| /Ulib1-8 | /ul1-8 | Eight 1-44 byte character fields containing the dataset name of a USERLIB. |

DASD Attributes

| Name | Alias | Description |
|-------------|-------|--|
| /AvgRecSize | /ars | <p>Specifies the average record length, in bytes, of the data. Using the average record length, the system computes the block size and the number of tracks to allocate.</p> <p>Valid Values: In the range of 1 to 65535.</p> <p>This field is not used by DRS unless DRS actually creates the print file dataset. SMS must be active for this field to be effective.</p> |
| /AvgRecUnit | /aru | <p>Specifies the average record unit of allocation of a DASD print file.</p> <p>Valid values: “U” (UNITS) “K” (THOUSANDS) “M” (MILLIONS)</p> <p>This field is not used by DRS unless DRS actually creates the print file dataset. SMS must be active for this field to be effective.</p> |
| /Blksize | /bsz | <p>Specifies the block size of this report. For fixed format reports, the minimum is the record length and the maximum is 32,760. (However, block size must be a multiple of record length for fixed format reports). For variable format reports, the minimum is the record length plus 4, and the maximum is 32,760. For undefined format, the minimum is 1 and the maximum is 32,760.</p> |
| /DataClass | /dcl | <p>A 1-8 byte character value which supplies the SMS data class of a DASD print file. This field is not used by DRS unless DRS actually creates the print file dataset. SMS must be active for this field to be effective.</p> |
| /DSN | None | <p>A 1-44 byte character value which supplies the dataset name of a DASD print file.</p> |
| /DsnType | /dtp | <p>A 1-byte character value that supplies the dataset type of a DASD print file.</p> <p>Valid Values: “L” (LIBRARY or PDSE) “P” (PDS)</p> <p>This field is not used by DRS unless DRS actually creates the print file dataset.</p> |
| /ExpDate | /edt | <p>A 7-byte character field that supplies the Julian expiration date of a DASD print file. The format of the field is “yyyddd”, where “yyyy” is the 4-digit year of the expiration date and “ddd” is the 3-digit Julian day of the expiration date.</p> <p>This field is not used by DRS unless DRS actually creates the print file dataset.</p> |

| Name | Alias | Description |
|-------------------|-------|--|
| /Lrecl | /lrc | A numeric value specifying the record length of records in this report. This length must include the carriage control byte, if carriage control is specified as "A" or "M". (This field is ignored for a record format of "U"). For fixed format reports, the minimum record length is 1 and the maximum record length is 32,760. For variable format reports, the minimum record length is 4 (the size of the four-byte RDW) for a null record without carriage control or 5 (the sum of the four-byte RDW and one byte of carriage control) for a null line with carriage control. The maximum record length is 32,756 for variable format reports. |
| /Member | /mbr | A 1-8 byte character value which supplies the member name of a PDS to be created by DRS. |
| /Mgmtclass | /mcl | An 1-8 byte character field which supplies the SMS management class of a DASD print file. This field is not used by DRS unless DRS actually creates the print file dataset. SMS must be active for this field to be effective. |
| /Recfm | /rfm | Specifies the record format of the report. Valid Values: "F" for fixed format. "V" for variable format. "U" for undefined format. |
| /RelUnused | /rus | Specifies whether unused space should be released from a DASD print file when the file is unallocated. Valid Values: Y or N. This field is not used by DRS unless DRS actually creates the print file dataset. The default, if not specified, is "N". |
| /RetPeriod | /rpd | Supplies the retention period of a DASD print file. Valid Values: In the range of 0 to 9999, inclusive. This field is not used by DRS unless DRS actually creates the print file dataset. |
| /SecDisp | /sdsp | Supplies the normal disposition of a DASD print file. Valid Values: "C" (CATLG) "U" (UNCATLG) "K" (KEEP) "D" (DELETE) The default, if not specified, is "K". |
| /SpaceBlk | /sdb | Supplies the number of directory blocks to be used for allocation of a DASD print file that is a PDS with a disposition of "NEW". |
| /SpacePrim | /spr | Supplies the amount for the primary allocation of a DASD print file. |
| /SpaceSec | /sse | Supplies the amount for the secondary allocation of a DASD print file |

| Name | Alias | Description |
|-------------------|--------------|--|
| /SpaceType | /stp | Supplies the allocation type for a DASD print file. Valid Values: “B” (blocks) “C” (cylinders) “T” (tracks) |
| /Storclass | /scl | A 1-8 byte character field that supplies the SMS storage class of a DASD print file. This field is not used by DRS unless DRS actually creates the print file dataset. SMS must be active for this field to be effective. |
| /UnitCount | /uct | Specifies the number of device units to be used for a DASD print file. |
| /Unitname | /unm | A 1-8 byte character value that supplies the unit type upon which a DASD print file should be allocated. |
| /VolCount | /vct | Specifies the volume count for volumes on which a DASD print file is to be allocated. |
| /VolName | /vnm | A 1-6 byte character value that supplies the volume on which a DASD print file should be allocated. |

Note: Creating DASD files using the LRSQ command requires USEROPTS=08 in the DRS/VPI System Initialization member.

SmartTag Attributes

| Name | Alias | Description |
|-------------------|-------|--|
| /StOutRef | /sor | Specifies the 1-8 character SmartTag output attributes definition to use when allocating the SYSOUT dataset. |
| /StPrinter | /spn | Specifies the 1-8 character SmartTag printer attributes definition to use when allocating the SYSOUT dataset. If this value is not specified, the attributes defined in the DRS printer member will be used. |
| /StUser | /sur | Specifies the 1-8 character SmartTag userid. This attribute can be used as the Jobname value if JOBNAME=&STIUID is specified in the DRS printer member. |

HFS File Attributes

| Name | Alias | Description |
|--|-------------------------|--|
| /Path | None | Specifies the fully qualified name of the output HFS file. |
| /FileData | /FDAT | Specifies whether the HFS file is a text or binary file. If text is specified, DRS will append a new line sequence to the end of each record. Valid Values: T or B (Text or Binary) Default: B |
| /HFSType | /HTYP | Specifies the HFS file type. Valid Values: 'HFS' and 'FIFO'. Default: HFS |
| /HFSNDisp | /HND | Specifies the file disposition for normal completion. Valid Values: KEEP or DELETE Default: KEEP |
| /HFSADisp | /HAD | Specifies the file disposition for abnormal completion. Valid Values: KEEP or DELETE Default: KEEP |
| /ReadUser /WriteUser /ExecUser | /RUSR /WUSR /EUSR | Specifies the Read, Write and Execute authority for the user that created the file. Valid Values: Y/N Default: /ReadUser=Y /WriteUser=Y /ExecUser=N |
| /ReadGroup /WriteGroup /ExecGroup | /RGRP /WGRP /EGRP | Specifies the Read, Write and Execute authority for the group of the creating user. Valid Values: Y/N Default: /ReadGroup=Y /WriteGroup=N /ExecGroup=N |
| /ReadOther /WriteOther /ExecOther | /ROTH /WOTH /EOTH | Specifies the Read, Write and Execute authority for other users. Valid Values: Y/N Default: /ReadOther=Y /WriteOther=N /ExecOther=N |
| /Oappend | /OAPP | Specifies that MVS sets the file offset to the end of the file before each write, so that data is written at the end of the file. Valid Values: Y/N Default: N |

| Name | Alias | Description |
|---------|-------|--|
| /OCreat | /OCRE | <p>Specifies that:</p> <ol style="list-style-type: none"> 1. If the file does not exist, the system is to create it. If a directory specified in the pathname does not exist, one is not created, and the new file is not created. 2. If the file already exists and OEXCL was not specified, the system allows the program to use the existing file. 3. If the file already exists and OEXCL was specified, the system fails the allocation. <p>Valid Values: Y/N Default: N</p> |
| /OEXCL | /OEXC | <p>Specifies that:</p> <ol style="list-style-type: none"> 1. If the file does not exist, the system is to create it. 2. If the file already exists, the system fails the allocation. <p>The system ignores OEXCL if OCREAT is not also specified.</p> <p>Valid Values: Y/N Default: N</p> |
| /ONocty | /ONOC | <p>Specifies that if the PATH parameter identifies a terminal device, opening of the file does not make the terminal device the controlling terminal for the process.</p> <p>Valid Values: Y/N Default: N</p> |
| /OSync | /OSYN | <p>Specifies that the system is to move data from buffer storage to permanent storage before returning control from a callable service that performs a write.</p> <p>Valid Values: Y/N Default: N</p> |
| /Otrunc | /OTRU | <p>Specifies that the system is to truncate the file length to zero if all the following are true:</p> <ol style="list-style-type: none"> 1. The file specified on the PATH parameter exists. 2. The file is a regular file. 3. The file successfully opened with ORDWR or O_WRONLY. <p>The system does not change the mode and owner. OTRUNC has no effect on FIFO special files or character special files.</p> <p>Valid Values: Y/N Default: N</p> |

| Name | Alias | Description |
|------------|-------|--|
| /ONonBlock | /ONON | <p>Specifies the following, depending on the type of file:</p> <p>For a FIFO special file:</p> <ul style="list-style-type: none"> • With ONONBLOCK specified and ORDONLY access: An open() function for reading-only returns without delay. • With ONONBLOCK not specified and ORDONLY access: An open() function for reading-only blocks (waits) until a process opens the file for writing. • With ONONBLOCK specified and OWRONLY access: An open() function for writing-only returns an error if no process currently has the file open for reading. • With ONONBLOCK not specified and OWRONLY access: An open() function for writing-only blocks (waits) until a process opens the file for reading. <p>For a character special file that supports non-blocking open:</p> <ul style="list-style-type: none"> • If ONONBLOCK is specified: An open() function returns without blocking (waiting) until the device is ready or available. Device response depends on the type of device. • If ONONBLOCK is not specified: An open() function blocks (waits) until the device is ready or available. <p>Valid Values: Y/N</p> <p>Default: N</p> |

Note: Creating HFS files using the LRSQ command requires USEROPTS=04 in the DRS/VPI System Initialization member.

Translation Table

The table below is the default ASCII to EBCDIC translation table used by the LRSQ command. This table can be modified using the /tr_AA:EE keyword (where AA = ASCII hex value, EE = EBCDIC hex value).

| | -0 | -1 | -2 | -3 | -4 | -5 | -6 | -7 | -8 | -9 | -A | -B | -C | -D | -E | -F |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 0- | 00 | 01 | 02 | 03 | 37 | 2D | 2E | 2F | 16 | 05 | 25 | 0B | 0C | 0D | 0E | 0F |
| 1- | 10 | 11 | 12 | 13 | B6 | B5 | 32 | 26 | 18 | 19 | 3F | 27 | 1C | 1D | 1E | 1F |
| 2- | 40 | 5A | 7F | 7B | 5B | 6C | 50 | 7D | 4D | 5D | 5C | 4E | 6B | 60 | 4B | 61 |
| 3- | F0 | F1 | F2 | F3 | F4 | F5 | F6 | F7 | F8 | F9 | 7A | 5E | 4C | 7E | 6E | 6F |
| 4- | 7C | C1 | C2 | C3 | C4 | C5 | C6 | C7 | C8 | C9 | D1 | D2 | D3 | D4 | D5 | D6 |
| 5- | D7 | D8 | D9 | E2 | E3 | E4 | E5 | E6 | E7 | E8 | E9 | BA | E0 | BB | B0 | 6D |
| 6- | 79 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 91 | 92 | 93 | 94 | 95 | 96 |
| 7- | 97 | 98 | 99 | A2 | A3 | A4 | A5 | A6 | A7 | A8 | A9 | C0 | 4F | D0 | A1 | 07 |
| 8- | 68 | DC | 51 | 42 | 43 | 44 | 47 | 48 | 52 | 53 | 54 | 57 | 56 | 58 | 63 | 67 |
| 9- | 71 | 9C | 9E | CB | CC | CD | DB | DD | DF | EC | FC | 4A | B1 | B2 | 3E | B4 |
| A- | 45 | 55 | CE | DE | 49 | 69 | 9A | 9B | AB | 9F | 5F | B8 | B7 | AA | 8A | 8B |
| B- | 3C | 3D | 62 | 6A | 64 | 65 | 66 | 20 | 21 | 22 | 70 | 23 | 72 | 73 | 74 | BE |
| C- | 76 | 77 | 78 | 80 | 24 | 15 | 8C | 8D | 8E | FF | 06 | 17 | 28 | 29 | 9D | 2A |
| D- | 2B | 2C | 09 | 0A | AC | AD | AE | AF | 1B | 30 | 31 | FA | 1A | 33 | 34 | 35 |
| E- | 36 | 59 | 08 | 38 | BC | 39 | A0 | BF | CA | 3A | FE | 3B | 04 | CF | DA | 14 |
| F- | EE | 8F | 46 | 75 | FD | EB | E1 | ED | 90 | EF | B3 | FB | B9 | EA | BD | 41 |

LRS/Windows Port Monitor

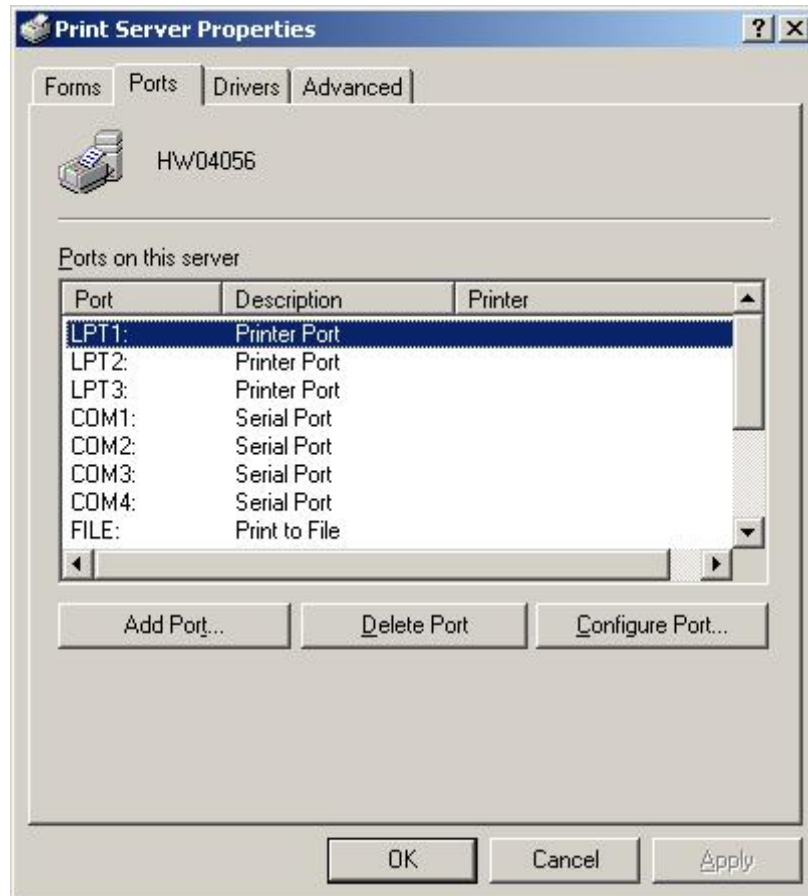
Overview

The port monitor provides a virtual network port enabling Windows clients (Windows 2000 or XP) to send any kind of application data through AnyQueue[®] or DRS/TCPIP. Users simply print their files to a configured virtual printer. The port monitor makes it very easy to route PC-based business documents into the Enterprise Output Server. The port monitor supports LRS/Queue keywords to extend file automation as necessary. It allows you to manage PC document output and provide a centralized place for online viewing, distribution, and printing. It also allows you to capture these documents using LAN-based AnyQueue or mainframe-based DRS/TCPIP solutions.

Adding a New Port

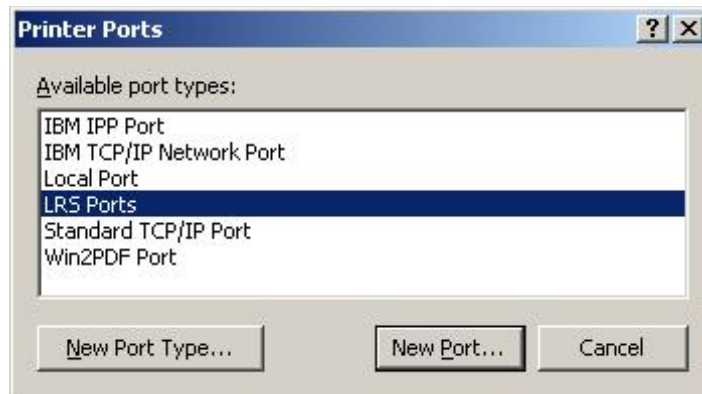
To add an “LRS Port”:

1. Install the LRS/Window Port Monitor using the **LRSQINST.EXE** InstallShield program.
2. Open the printers folder and select **File > Server Properties**.
3. Select the **Ports** tab on the **Print Server Properties** dialog.

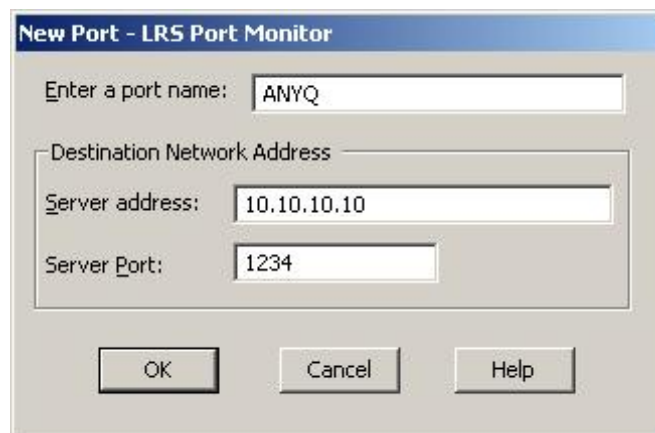


4. Select **Add Port...**

-
5. Select **LRS Ports** from the list of available port types.
 6. Select **New Port...**



7. In the **New Port – LRS Port Monitor** dialog, name the port a unique port name for this machine.
8. Enter the TCP/IP Server address and Server Port that the destination (ANYQ or DRS/TCPIP) is listening on and select **OK**. (Note: **:LRSQueue** will automatically be added to the name of the port.)



See [“Configuration” on page 13.43](#) for more information.

Configuration

The LRS/Windows Port Monitor can be configured with:

- the simple configuration dialog that displays only a few of the LRS/Queue keywords,
- or the advanced configuration dialog that lists all available LRS/Queue keywords.

Simple configuration dialog:

Configure Port - LRSANYQ :LRSQueue 10.10.10.10:1234

Data Type: (i.e. PDF, PCL, AFP, TXT, etc.)
(Blank will be handled as text.)

Queue: (DRS printer definition or AnyQueue Route Assignment)

Class: Length: 1 Values: Alphanumeric

Destination: Length: 8 Values: Valid JES Syntax

Form: Length: 8 Values: Valid JES Syntax

Writer: Length: 8 Values: Valid JES Syntax

Compress Data for transmission

Prompt for attributes during print

Unattended Port

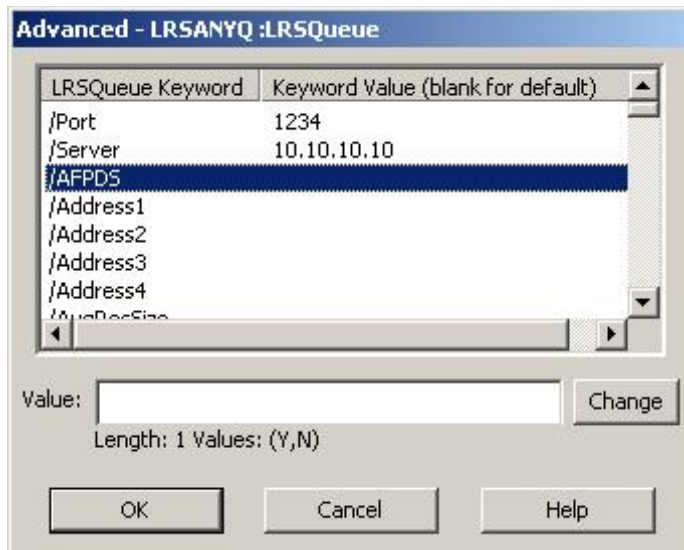
Advanced

OK Cancel Help

Version 0.0.000 Beta 1

- Data Type:** Enter the 3 byte type of data that the print driver will be sending to this port. (e.g. if an HP PCL print driver is printing to this port then enter **PCL**).
- Queue:** This should be the DRS printer definition or AnyQueue Route Assignment name.
- Class, Destination, Form, Writer:** JES attributes that are put on the job if DRS/TCPIP put the data on the JES Spool or the attributes used by AnyQueue for route selection.
- Compress Data for transmission:** The data will be compressed before it is transmitted to DRS/TCPIP or AnyQueue.
- Prompt for attributes during print:** This configuration dialog will be displayed before each print job so the user can change the settings for that job.
- Unattended Port:** Allows multiple users to share a single virtual printer configuration without requiring local owner intervention.

Advanced configuration dialog:



The advance configuration dialog lists all available LRS/Queue keywords that can be configured. The keywords that are set to a value will show up at the top of the list; the remaining keywords are in alphabetical order. To set a keyword, select the keyword then enter its value in the value field and select **Change**. After all the keywords have been changed to their desired values select **OK**. Please refer to the DRS or AnyQueue manuals for a complete description of all the keywords.

Dynamic Variables

Dynamic variables are special variable names that will automatically be replaced with information from the windows print job. To use these variables set any keyword value to one of these special values:

- +DOCUMENTNAME – Windows print job document name.
- +OWNERNAME – Windows print job owner name.
- +NOTIFYNAME – Windows print job notify name.



Section 14

DRS/TCPIP Problem Determination

DRS/VPI provides facilities to aid in problem determination; these are described in [“DRS/VPI Problem Determination” on page 11.1](#). In addition, the messages issued by DRS/API and DRS/VPI are described in [“Messages and Codes” on page 36.1](#). The possible meanings of the message text, along with suggested actions appear with the messages.

DRS/VPI will issue message DRSV380I when DRS/TCPIP connects to the MVS TCP/IP address space. The message includes the local host name for the MVS system and the PORT that DRS/TCPIP will use to listen for connections.

If the MVS system is terminated for any reason, an error message will be issued to indicate that the TCP/IP connections have been lost. To determine if the DRS system is connected to TCP/IP, a system display command can be issued:

```
F DRSVPI,DIS,SYSTEM
```

The results of the display will include message DRSV947R, which will include the current status of the connection, followed by the local host name, the TCPIPID specified, the PORT number, and the TCPTYPE.

In order to re-connect to the MVS TCP/IP address space and wait for new connections, the following command can be issued:

```
F DRSVPI,SSET,TCPIP=E
```

To display the connection information for any print queue, issue the following command:

```
F DRSVPI,DIS,prtrid,TCPIP
```

DRSV995R and DRSV996R will indicate the current status of the TCP/IP connection, as well as the values of the TCP/IP keywords specified for the print queue.

All the DRS/VPI trace and snap dump facilities are available for the DRS/TCPIP devices. GTF tracing allows capturing all commands and data sent and received from TCP/IP. For more information on these and other DRS/VPI diagnostic facilities, see [“DRS/VPI Problem Determination” on page 11.1](#).



Section 15

Introduction To DRS/STI

The DRS Smart Tag Interface (hereafter referred to as DRS/STI) is a new feature of the DRS/VPI that allows print output destined to a single virtual printer to be placed on the JES spool with different attributes. The attributes that may be changed for each print output include not only the JES class, destination, form, and writer, but also all of the AFP attributes (orientation, etc.).

The DRS/STI provides a means for print output to be routed to multiple physical printers with different AFP attributes, without requiring a separate virtual printer definition for each combination of physical printer and AFP attributes in use at your installation.

The DRS/STI will improve the usability of DRS/VPI and simplify an enterprise's overall printing environment. More specifically, the DRS/STI will provide the following benefits:

- Greatly reduce the number of DRS/VPI virtual printer definitions.
- Greatly reduce the maintenance required to support DRS/VPI virtual printers in a typical CICS or IMS environment.
- Simplify the installation and maintenance of the DRS/VPI.
- Provide all legacy and third-party applications with a simple interface to the VPS print distribution system from an online environment.
- Facilitate the distribution of online print output to other media, such as fax and electronic mail.

In the CICS transaction processing environment, the DRS/STI provides a common interface that allows the CICS terminal user to select a specific DRS/STI printer entry and/or DRS/STI output reference entry for use in assigning the attributes to the print output.

The LRS/Queue client, which is available for most environments, provides direct support for the DRS/STI feature. This enables remote users to select output options via simple names and isolates non-MVS hosts from the underlying JES attributes required to control their output. For full details of the LRS/Queue client please refer to [“LRS/Queue Client” on page 13.15](#).



Section 16

DRS/STI Installation

Installation Procedure

1. **Read the entire installation procedure.**
2. **Restore the DRS distribution libraries** (see [“Restoring the DRS Distribution Libraries”](#) on page 20.6).
3. **Define the DRS/STI Rules Dataset** (see [“Defining the DRS/STI Rules Dataset”](#) on page 16.2).
4. **Complete the ISPF definition requirements** (see [“ISPF Definition Requirements”](#) on page 16.6).
5. **Complete the CICS definition requirements** (optional) (see [“CICS Definition Requirements”](#) on page 16.9).
6. **Refer to [“Updating the CICS Tables”](#) on page 20.15, and follow the procedures for installation of DRS/STI in a CICS environment.** (optional)
7. **Modify the DRS/VPI Job Control Language (JCL) to include the DD statement for the DRS/STI rules dataset** (see [“Defining DRS/VPI Job Control Language”](#) on page 3.10).
8. **Modify the DRS/VPI System Initialization member to include the KEYSTI parameter** (see [“Building the System Initialization Member”](#) on page 3.18).
9. **Populate the DRS/STI rules dataset** (see [“Populating the DRS/STI Rules Dataset”](#) on page 16.10).
10. **Establish backup procedures for the DRS/STI rules dataset** (see [“Backing Up the DRS/STI Rules Dataset”](#) on page 16.17).
11. **Establish reorganization procedures for the DRS/STI rules dataset** (see [“Reorganizing the DRS/STI Rules Dataset”](#) on page 16.18).
12. **DRS/STI installation is now complete.**

Defining the DRS/STI Rules Dataset

The DRS/STI rules dataset is a variable-length record VSAM KSDS that is updated by DRS/STI and by the installation's DRS system administrator. The dataset contains the following types of entries:

- Vendor entries which define the software vendors for the application software installed at your installation. The vendor entries are created and maintained by the DRS system administrator, but are optional. By defining them, along with the application and profile entries, you may define default printer and output references to be used if a specific printer and/or output reference is not requested.
- Application entries which define the application software installed at your installation. The application entries are created and maintained by the DRS system administrator, but are optional. By defining them, along with the vendor and profile entries, you may define default printer and output references to be used if a specific printer and/or output reference is not requested.
- Profile entries which allow you to define a specific combination of printer and output reference. The profile entries are created and maintained by the DRS system administrator, but are optional. By defining them, along with the vendor and application entries, you may define default printer and output references to be used if a specific printer and/or output reference is not requested.
- Printer type entries which define the attributes of each printer type (PRINTER, FAX, EMAIL, etc.). A base set of printer type entries is created when the DRS/STI rules dataset is defined. Other entries will be created and maintained by the DRS system administrator, as required by the application software installed at your installation.
- Printer entries which define the attributes of each printer. These include the CLASS, DEST, FORM, and WRITER with which the output directed to the printer will be placed on the JES spool. The printer entries are created and maintained by the DRS system administrator and are required.
- Included with DRS V1 R3.4 is a program that will populate the DRS/STI rules dataset with printer entries using your VPS V1 R8.0 printer definitions. For more information, see [“Populating the DRS/STI Rules Dataset” on page 16.10](#).
- Output reference entries which define the AFP attributes of the output to be placed on the JES spool. The output reference entries are created and maintained by the DRS system administrator and are optional.
- Included with DRS V1 R3.4 is a program that will populate the DRS/STI rules dataset with output reference entries using your DRS V1 R3.4 control library output reference definitions. For more information, see [“Populating the DRS/STI Rules Dataset” on page 16.10](#).
- User entries which define the preferred printers and output references for your installation's users. The user entries are created and maintained by the DRS/STI, and can also be added by your DRS/STI administrator.

Sample JCL to define the DRS/STI rules dataset is contained in member DEFRULES in dataset LRS.DRS.V1R34.CNTL. That JCL is reproduced here:

```
//JOBNAME JOB (YOUR JOB CARD INFORMATION)
//*
//DEFINE EXEC PGM=IDCAMS,REGION=1M
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
  DEFINE CLUSTER(
    NAME(LRS.DRS.V1R34.RULES)
    VOLUMES(XXXXXX)
    INDEXED
    KEYS(48 0)
    RECORDSIZE(96 4086)
    CYLINDERS(5 1)
    SHAREOPTIONS(4 3)
  )
  DATA(
    NAME(LRS.DRS.V1R34.RULES.DATA)
    CONTROLINTERVALSIZE(4096)
  )
  INDEX(
    NAME(LRS.DRS.V1R34.RULES.INDEX)
    CONTROLINTERVALSIZE(3584)
  )
/*
//*
//LOAD EXEC PGM=DS34LOAD,REGION=2M,COND=(0,LT)
//STEPLIB DD DSN=LRS.DRS.V1R34.LOAD,DISP=SHR
//SYSOUT DD SYSOUT=*
//DRSRULES DD DSN=DRS.V1R34.RULES,DISP=SHR
//SYSUDUMP DD SYSOUT=*
//*
//
```

Allocation Guidelines

- You must specify a valid volume serial for the Access Method Services VOLUMES keyword of the DEFINE CLUSTER statement.
- The direct access space required for the DRS/STI rules dataset depends primarily on the number of entries (vendors, printers, etc.) defined in the dataset. On the average, the dataset requires approximately 1 cylinder on a 3380 device for each 500 entries defined.
- The direct access space must be allocated in cylinders.
- You may optionally modify the cluster, data, and index component names.
- All other keywords not mentioned above should be coded exactly as shown.

Smart Tag Control Area

The print data stream written to the virtual printer must be prefixed with the smart tag control area. This is a 128-byte buffer prefix that identifies the print output vendor, application, and profile; and may directly identify the printer and output statement to use in spooling the data stream.

Following is the assembly language DSECT of the smart tag control area. This DSECT is supplied as member DRVSSTCA in file LRS.DRS.V1R34.MACLIB.

```
*-----*
*
*      DYNAMIC REPORT SYSTEM - VERSION 1 RELEASE 3.4
*
*      (C) COPYRIGHT 2002 LEVI, RAY & SHOUP, INC.
*      ALL RIGHTS RESERVED.
*      CONFIDENTIAL INFORMATION.
*-----*
*
*      S M A R T   T A G   C O N T R O L   A R E A
*-----*
STCADSCT DSECT
STCAPRFX DC    CL08 '$LRSDRS$'      CONTROL BLOCK PREFIX.
STCAVERS DC    CL01 '0'             CONTROL BLOCK VERSION ID.
          DC    CL03 ' '            RESERVED - ALIGNMENT.
STCAVNDN DC    CL08 ' '            VENDOR NAME.
STCAAPLN DC    CL08 ' '            APPLICATION NAME.
STCAPRFN DC    CL16 ' '            PROFILE NAME.
STCAPRTN DC    CL08 ' '            PRINTER NAME.
STCAOUTN DC    CL08 ' '            OUTPUT STATEMENT REFERENCE.
STCAUID  DC    CL08 ' '            CREATOR USERID.
          DC    CL52 ' '            RESERVED - EXPANSION.
STCASUFX DC    CL08 '$LRSDRS$'      CONTROL BLOCK SUFFIX.
STCADSLN EQU   *-STCADSCT          LENGTH OF DSECT.
MEND
```

The smart tag control area consists of the following data elements:

- STCAPRFX is an 8-byte control area prefix that must contain the literal constant '\$LRSDRS\$'. This control area prefix is used to identify the data as a smart tag control area.
- STCAVERS is a 1-byte control area version indicator. This data element should be set to character '0' (X'F0'), which is currently the only supported version of the control area.
- STCAVNDN is the 8-byte vendor identifier. This data element is used in conjunction with the application identifier and profile identifier to determine the printer and output statement to use in spooling the data stream, if the printer and/or output statement were not explicitly provided.
- STCAAPLN is the 8-byte application identifier. This data element is used in conjunction with the vendor identifier and profile identifier to determine the printer and output statement to use in spooling the data stream, if the printer and/or output statement were not explicitly provided.
- STCAPRFN is the 16-byte profile identifier. This data element is used in conjunction with the vendor identifier and application identifier to determine the printer and output statement to use in spooling the data stream, if the printer and/or output statement were not explicitly provided.
- STCAPRTN is the 8-byte printer identifier to use in spooling the data stream.
- STCAOUTN is an 8-byte output statement identifier to use in spooling the data stream.
- STCAUID is an 8-byte userid of the user that created the output data stream. This data element is not currently used by the smart tag interface. It should, however, be provided by the application building the data stream whenever possible.
- STCASUFN is an 8-byte control area suffix that must contain the literal constant '\$LRSDRS\$'. This control area suffix is used to identify the data as a smart tag control area.

Note that all reserved areas of the smart tag control area should be initialized to spaces (X'40').

The data elements of the smart tag control area are used to determine the printer and output statement to use in spooling the print data stream. If the printer identifier and output statement identifier are explicitly provided in the smart tag control area, then the attributes of the printer and output statement provided are determined from the smart tag rules dataset and used to spool the data stream.

If either the printer identifier or output statement identifier is not provided in the smart tag control area, and the vendor identifier and application identifier are provided, then an attempt is made to determine the default printer and/or output statement. The default printer and/or output statement is obtained from the smart tag rules dataset profile entry, using the profile identifier provided in the smart tag control area. If a profile identifier was not provided, the default profile identifier (if any) defined in the smart tag rules dataset application entry is used.

ISPF Definition Requirements

Included with the DRS/STI is an ISPF application that allows the DRS system administrator to maintain the entries in the DRS/STI rules dataset. Using this application, the DRS system administrator maintains the definitions for the DRS/STI printers and output references, and may optionally maintain definitions for the other entries in the DRS/STI rules dataset.

The ISPF administration application is initiated via a TSO/E CLIST and must be initiated from within a valid ISPF environment. The PROC statement of the TSO/E CLIST may require some modification, depending upon the dataset names chosen at your installation for the DRS control library, load library, and DRS/STI rules dataset. That PROC statement is reproduced here:

```
PROC 0 DSSTCLIB(LRS.DRS.V1R34.CNTL) DSSTLLIB(LRS.DRS.V1R34.LOAD) +  
      DSSTRLIB(LRS.DRS.V1R34.RULES)
```

The keyword parameters named DSSTCLIB, DSSTLLIB, and DSSTRLIB should be the dataset names of your DRS control library, load library, and DRS/STI rules dataset, respectively. If the names of these datasets at your installation are different from those listed above, you must modify the keyword parameter values in the TSO/E CLIST PROC statement.

Once the TSO/E CLIST has been customized, you may initiate the DRS/STI administration application using the TSO/E EXEC command from within ISPF. For example, type the following from the COMMAND line of any ISPF panel:

```
TSO EXEC `LRS.DRS.V1R34.CNTL(DS34STRT)`
```

You may add the DRS/STI Administration option to the ISR@PRIM panel, or if you prefer, an ISPF submenu. When doing so, you may use any unique combination of letters and numbers for the DRS/STI Administration menu selection characters. The remainder of this section assumes that you have chosen SA as the menu selection characters. A sample ISR@PRIM panel is shown below.

```

% - - - - - ISPF/PDF PRIMARY OPTION MENU - - - - -
%OPTION  ==>_ZCMD
%
%                                +USERID   - &ZUSER
% 0 +ISPF PARMS - Specify terminal and user parameters +TIME     - &ZTIME
% 1 +BROWSE     - Display source data or output listings+TERMINAL - &ZTERM
% 2 +EDIT       - Create or change source data         +PF KEYS  - &ZKEYS
% 3 +UTILITIES  - Perform utility functions
% 4 +FOREGROUND - Invoke language processors in foreground
% 5 +BATCH      - Submit job for language processing
% 6 +COMMAND    - Enter TSO command or CLIST
% 7 +DIALOG TEST - Perform dialog testing
% 8 +LM UTILITIES- Perform library administrator utility functions
% 9 +IBM PRODUCTS- Additional IBM program development products
% C +CHANGES   - Display summary of changes for this release
% T +TUTORIAL   - Display information about ISPF/PDF
% SA +SMARTTAG  - DRS Smart Tag Interface Administration
% X +EXIT       - Terminate ISPF using log and list defaults
%
+Enter%END+command to terminate ISPF.
%
)INIT
  .HELP = ISR0003
  &ZPRIM = YES          /* ALWAYS A PRIMARY OPTION MENU */
  &ZHTOP = ISR0003     /* TUTORIAL TABLE OF CONTENTS */
  &ZHINDEX = ISR91000 /* TUTORIAL INDEX - 1ST PAGE */
  VPUT (ZHTOP,ZHINDEX) PROFILE
)PROC
&ZQ = &Z
IF (&ZCMD = ' ')
  &ZQ = TRUNC(&ZCMD, '.')
IF (&ZQ = ' ')
  .MSG = ISRU000
&ZSEL = TRANS( &ZQ
               0, 'PANEL(ISPOPTA)'
               1, 'PGM(ISRBRO) PARM(ISRBRO01)'
               2, 'PGM(ISREDIT) PARM(P,ISREDM01)'
               3, 'PANEL(ISRUTIL)'
               4, 'PANEL(ISRFPA)'
               5, 'PGM(ISRJBL) PARM(ISRJPA) NOCHECK'
               6, 'PGM(ISRPTC)'
               7, 'PGM(ISRYXDR) NOCHECK'
               8, 'PANEL(ISRLPRIM)'
               9, 'PANEL(ISRDIIS)'
               C, 'PGM(ISPTUTOR) PARM(ISR00005)'
               T, 'PGM(ISPTUTOR) PARM(ISR00000)'
               SA, 'CMD(EX ' 'LRS.DRS.V1R34.CNTL(DS34STRT)') NOCHECK MODE(FSCR)'
               ' ' ' '
               X, 'EXIT'
               *, '?' )
&ZTRAIL = .TRAIL
)END

```

The statement used to initiate the DRS/STI Administration application is:

```
SA, 'CMD(EX ` `LRS.DRS.V1R34.CNTL(DS34STRT)') NOCHECK MODE(FSCR)'
```

Change SA to the letters or numbers you have chosen, if applicable, and change LRS.DRS.V1R34.CNTL to the name of your DRS control library.

You must also code the following statement on the ISPF panel you choose, and place it after the &ZSEL variable:

```
&ZTRAIL = .TRAIL
```

Note that you must exit and reenter ISPF for the newly added options to be usable.

CICS Definition Requirements

In the CICS transaction processing environment, the DRS/STI provides a common interface that allows the CICS terminal user to select a specific DRS/STI printer entry and/or DRS/STI output reference entry for use in assigning the attributes to the print output. This interface requires that certain table entries be added to your CICS system.

Refer to [“Updating the CICS Tables” on page 20.15](#) for more information about this process.

Populating the DRS/STI Rules Dataset

DRS V1 R3.4 provides a facility to populate the DRS/STI rules dataset with printer and output reference entries using your VPS V1 R8.0 printer definitions and your DRS V1 R3.4 output reference definitions.

Sample JCL to populate the DRS/STI rules dataset is contained in member POPRULES in dataset LRS.DRS.V1R34.CNTL. That JCL is reproduced here:

```
//JOBNAME JOB (YOUR JOB CARD INFORMATION)
//*
//LOAD EXEC PGM=DS34LOAD,REGION=2M,PARM=' , ,REPLACE'
//STEPLIB DD DSN=LRS.DRS.V1R34.LOAD,DISP=SHR
//SYSOUT DD SYSOUT=*
//VPSLIB DD DSN=LRS.VPS.R80.CNTL,DISP=SHR
//DRSVLIB DD DSN=LRS.DRS.V1R34.CNTL,DISP=SHR
//DRSRULES DD DSN=LRS.DRS.V1R34.RULES,DISP=SHR
//SYSUDUMP DD SYSOUT=*
//*
//
```

Procedure DD Statements

The SYSOUT DD statement is used to write a log of the results of the procedure. You should review the output written to this file to identify any errors that may occur during the process. For any severe errors, a message is also written to the console. Note that if you choose to direct the output of this file to a disk or tape dataset, rather than the spool, the DCB attributes must be LRECL=128,BLKSIZE=132,RECFM=VB.

If your installation does not have VPS V1 R8.0 installed, or chooses not to create/update DRS/STI printer entries using the VPS printer definitions, you may omit the VPSLIB DD statement from the JCL provided. Similarly, if your installation chooses not to create/update DRS/STI output reference entries using the DRS output reference definitions, you may omit the DRSVLIB DD statement from the JCL provided.

Procedure Parameters

The procedure which populates the DRS/STI rules dataset supports both positional and keyword parameters. The first two parameters specified in the JCL EXEC statement PARM= keyword are positional parameters and all remaining parameters are keyword parameters. Note that if the positional parameters are not specified, at least 2 commas must precede the keyword parameters.

The first positional parameter is the member name in the VPS R7.0 control library that contains the VPS system initialization parameters. If this parameter is omitted, a member name of VPSSTART is assumed.

The second positional parameter is the member name in the DRS V1 R3.4 control library that contains the DRS VPI system initialization parameters. If this parameter is omitted, a member name of DRSSTART is assumed.

Currently, the only supported keyword parameter is REPLACE, which indicates that the procedure is to replace existing printer and/or output reference entries in the DRS/STI rules dataset with the corresponding definitions from the VPS and DRS control libraries. If this parameter is omitted, any existing entries in the DRS/STI rules dataset will be retained, but new entries will still be created using the definitions from the VPS and DRS control libraries for which there is no matching entry in the DRS/STI rules dataset.

Messages

The following messages can result from using program DS34LOAD to populate the DRS/STI rules dataset.

- DSST010E** type REQUEST FAILED FOR FILE DSSTRLIB, RC=X'retcode'
type: The file access request type.
retcode: The file access request return code.
Message Meaning: The rules file access request shown in the message failed with the return code shown in the message.
System Action: Processing terminates.
Required Action: Ensure that the DRS/STI rules dataset name is properly defined in the CLIST. If unable to resolve the problem, notify DRS technical support.
- DSST020E** type REQUEST FAILED FOR FILE DSSTRLIB, RETCODE=X'rc',
ERRCODE=X'ec', INFCODE=X'ic'
type: The file allocation request type.
rc: Dynamic allocation return code.
ec: Dynamic allocation error code.
ic: Dynamic allocation info code.
Message Meaning: The rules file dynamic allocation request shown in the message failed with the error feedback information shown in the message.
System Action: Processing terminates.
Required Action: Ensure that the DRS/STI rules dataset name is properly defined in the CLIST. If unable to resolve the problem, notify DRS technical support.
- DSST900I** INITIALIZING DRS PRINT RULES DATASET
Message Meaning: The DRS/STI rules dataset has been opened in VSAM load mode and is being loaded with the initial control data.
System Action: None.
Required Action: None.

| | |
|-----------------|--|
| DSST904I | ddname STATEMENT NOT PRESENT—PRINT RULES type DATA BYPASSED |
| | ddname: The JCL DDNAME of the file which is not present. This will be either VPSLIB or DRSVLIB. |
| | type: The type of print rules data for which processing was bypassed. This will be either PRINTER or OUTPUT. |
| | Message Meaning: The DD statement shown in the message is not present in the job control language. As a result, processing for the print rules data type shown in the message will be bypassed. |
| | System Action: None. |
| | Required Action: None. |
| | |
| DSST908I | UPDATING PRINT RULES type DATA USING SYSTEM INITIALIZATION MEMBER member |
| | type: The type of print rules data for which processing is being performed. This will be either PRINTER or OUTPUT. |
| | member: The name of the VPS or DRS system initialization member used to determine the printer and output statement definitions to process. |
| | Message Meaning: Processing for the print rules data type shown in the message is beginning using the system initialization member shown in the message. |
| | System Action: None. |
| | Required Action: None. |
| | |
| DSST920I | PRINT RULES action FOR PRINTER printer |
| | action: Indicates the action taken against the named printer definition (CREATED, REPLACED, or RETAINED). |
| | printer: Indicates the name of the print rules printer definition. |
| | Message Meaning: Print rules processing took the action shown in the message for the printer shown definition in the message. |
| | System Action: None. |
| | Required Action: None. |

| | |
|-----------------|---|
| DSST924I | <p>PRINT RULES action FOR OUTPUT STATEMENT outref</p> <p>action: Indicates the action taken against the named output definition (CREATED, REPLACED, or RETAINED).</p> <p>printer: Indicates the name of the print rules output definition.</p> <p>Message Meaning: Print rules processing took the action shown in the message for the output definition shown in the message.</p> <p>System Action: None.</p> <p>Required Action: None.</p> |
| DSST960W | <p>EXEC STATEMENT PARAMETER parm IS NOT RECOGNIZED</p> <p>parm: Indicates the JCL EXEC statement parameter that is not recognized.</p> <p>Message Meaning: A JCL EXEC statement parameter was specified that is not recognized.</p> <p>System Action: Processing continues, ignoring the unrecognized parameter.</p> <p>Required Action: None.</p> |
| DSST970E | <p>SYNTAX ERROR IN STMT stmt OF MEMBER member—desc</p> <p>stmt: Indicates the statement number of the VPS or DRS control library member that contains the syntax error.</p> <p>member: Indicates the VPS or DRS control library member name that contains the syntax error.</p> <p>desc: The description of the syntax error.</p> <p>Message Meaning: A syntax error was identified in the VPS or DRS control library member shown in the message.</p> <p>System Action: If the syntax error was identified in the system initialization member or the inclusion/exclusion list member, processing terminates. Otherwise, processing continues with the next printer or output statement definition.</p> <p>Required Action: Correct the syntax error and retry the process.</p> |

| | |
|-----------------|---|
| DSST972E | <p>SYNTAX ERROR IN KEYWORD keyword OF MEMBER member—desc</p> <p>keyword: Indicates the keyword statement of the VPS or DRS control library member that contains the syntax error.</p> <p>member: Indicates the VPS or DRS control library member name that contains the syntax error.</p> <p>desc: The description of the syntax error.</p> <p>Message Meaning: A syntax error was identified in the VPS or DRS control library member shown in the message.</p> <p>System Action: If the syntax error was identified in the system initialization member or the inclusion/exclusion list member, processing terminates. Otherwise, processing continues with the next printer or output statement definition.</p> <p>Required Action: Correct the syntax error and retry the process.</p> |
| DSST976E | <p>MEMBER member IS NOT A VALID PRINTER DEFINITION</p> <p>member: Indicates the VPS control library member name.</p> <p>Message Meaning: The member name shown in the message was identified by the member inclusion or exclusion list as a VPS printer definition. However, the member does contain any statement specifying the printer CLASS, DEST, FORM, or WRITER.</p> <p>System Action: Processing continues with the next printer definition.</p> <p>Required Action: None.</p> |
| DSST978E | <p>MLISTMEM/XLISTMEM NOT SPECIFIED IN SYSTEM INITIALIZATION MEMBER member</p> <p>member: Indicates the VPS or DRS control library system initialization member name.</p> <p>Message Meaning: The system initialization member shown in the message does not specify either a member inclusion list (MLISTMEM) or a member exclusion list (XLISTMEM).</p> <p>System Action: Processing terminates.</p> <p>Required Action: Correct the system initialization member and retry the process.</p> |

| | |
|-----------------|---|
| DSST980E | <p>OPEN FAILED FOR FILE ddname</p> <p>ddname: The JCL DDNAME of the file for which the OPEN failed.</p> <p>Message Meaning: The attempt to OPEN the file shown in the message failed.</p> <p>System Action: Processing terminates.</p> <p>Required Action: Correct the JCL and retry the process.</p> |
| DSST984E | <p>request REQUEST FAILED FOR FILE DRSRULES, RETCODE=X'retcode'</p> <p>request: The file access request type.</p> <p>retcode: The file access request return code.</p> <p>Message Meaning: The print rules file access request shown in the message failed with the return code shown in the message.</p> <p>System Action: Processing terminates.</p> <p>Required Action: Ensure that the DRS/STI print rules dataset is properly defined in the job control language. If unable to resolve the problem, notify DRS technical support.</p> |
| DSST988E | <p>FIND FOR LIBRARY MEMBER member FAILED, RETCODE=X'retcode', RETCODE=X'retcode', RSNCODE=X'rsncode'</p> <p>member: The VPS or DRS control library member for which the FIND request failed.</p> <p>retcode: The FIND return code.</p> <p>rsncode: The FIND reason code.</p> <p>Message Meaning: The attempt to locate the VPS or DRS control library member shown in the message failed with the return code and reason code shown in the message.</p> <p>System Action: If the locate failure occurred while processing the system initialization member or the inclusion/exclusion list member, processing terminates. Otherwise, processing continues with the next printer or output statement definition.</p> <p>Required Action: Correct the VPS or DRS control library definitions and retry the process.</p> |

Backing Up the DRS/STI Rules Dataset

It is recommended that the DRS/STI rules dataset usage be monitored by site DASD administration personnel and put on a regular backup schedule.

To back up the DRS/STI rules dataset, use a standard Access Method Services REPRO to copy the DRS/STI rules dataset to a sequential file. The sequential file should have the following DCB attributes:

```
RECFM=VB
LRECL=4090
BLKSIZE=4094 (or greater)
```

Sample JCL to back up the DRS/STI rules dataset is contained in member BKPRULES in dataset LRS.DRS.V1R34.CNTL. That JCL is reproduced here:

```
//JOBNAME JOB (YOUR JOB CARD INFORMATION)
//*
//BACKUP EXEC PGM=IDCAMS,REGION=1M
//BKPRULES DD DSN=LRS.DRS.V1R34.BACKUP.RULES,DISP=(NEW,CATLG,DELETE),
// UNIT=3380,VOL=SER=XXXXXX,SPACE=(CYL,(5,1),RLSE),
// DCB=(LRECL=4090,BLKSIZE=23476,RECFM=VB)
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
REPRO INDATASET(DRS.V1R34.RULES)
OUTFILE(BKPRULES)
/*
//
//
```

Using the sample JCL provided, you must specify a valid unit and volume serial for your installation. In addition, the block size and space allocation parameters should be reviewed to ensure that they are appropriate for the unit chosen and the current allocations of the DRS/STI rules dataset.

To restore the data to the DRS/STI rules dataset, again use Access Method Services with the REUSE option on the REPRO statement.

Reorganizing the DRS/STI Rules Dataset

It is recommended that the DRS/STI rules dataset usage be monitored by site DASD administration personnel and put on a regular reorganization schedule.

To reorganize the DRS/STI rules dataset, use the Access Method Services IMPORT and EXPORT commands.

Sample JCL to reorganize the DRS/STI rules dataset is contained in member REORULES in dataset LRS.DRS.V1R34.CNTL. That JCL is reproduced here:

```
//JOBNAME JOB (YOUR JOB CARD INFORMATION)
//*
//EXPORT EXEC PGM=IDCAMS,REGION=1M
//EXPRULES DD DSN=LRS.DRS.V1R34.EXPORTED.RULES,DISP=(NEW,CATLG,DELETE),
//          UNIT=3380,VOL=SER=XXXXXX,SPACE=(CYL,(5,1),RLSE),
//          DCB=BLKSIZE=23476
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
    EXPORT LRS.DRS.V1R34.RULES -
           OUTFILE(EXPRULES) -
           TEMPORARY
/*
//*
//IMPORT EXEC PGM=IDCAMS,REGION=1M,COND=(0,LT)
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
    IMPORT INDATASET(LRS.DRS.V1R34.EXPORTED.RULES) -
           OUTDATASET(LRS.DRS.V1R34.RULES)
/*
//*
//
```

Using the sample JCL provided, you must specify a valid unit and volume serial for your installation. In addition, the block size and space allocation parameters should be reviewed to ensure that they are appropriate for the unit chosen and the current allocations of the DRS/STI rules dataset.

Section 17

DRS/STI Administration

The DRS/STI Administration processing consists of a series of ISPF panels that are used to maintain data in a VSAM dataset. The data is entered by an administrator and is used by the DRS/VPI address space to place data on the spool. The panels use standard ISPF PF key conventions.

The administrator can use these panels to create and maintain the following record types in the DRS/STI rules dataset.

- Vendor** This record is the root of a hierarchy of records that allows a default profile to be associated with a vendor within application. The vendor name is unique within the dataset.
- Application** This record forms the next level in the hierarchy below the vendor. It describes the application and indicates the printer types this application can access from the STI CICS transaction. A default profile name can also be supplied. This profile can be passed in the first STI buffer from a CICS application and will be used by the DRS/VPI to retrieve the printer and its attributes and place the data on the spool. The application record is unique within vendor.
- Profile** This record is the last level in the hierarchy below vendor and application. This record will contain a printer name and optionally an associated output name. The printer and output attributes will be used during allocation of the SYSOUT dataset. The profile name can be passed in the first STI buffer from a CICS application and will be used by the DRS/VPI to retrieve the printer and output attributes. The profile is unique within application.
- Printer** This record describes a printer name and its associated attributes. The administrator supplies the CLASS, DESTINATION, FORM, and/or WRITER, or a program supplied by LRS can create these records, using the VPS control library printer members as input. The printer is unique within the dataset.
- Output** This record describes all the output statement attributes that can be dynamically associated with a SYSOUT dataset. The output name can be supplied by the STI CICS transaction or from the output name field of a profile record. The administrator can supply these values, or a program supplied by LRS can create these records, using the DRS control library output members as input. The output is unique within the dataset.
- Printer Type** This record describes a printer menu item on the STI CICS printer menu and the administration printer menu accessed from Primary Option 2. The type is used to mask the printer list panel to only the selected type.
- User** One or more of these records are used to associate printers and optionally outputs for a user. There will be one record for each printer type the user has created associations for.

The following is a list of the data field names that will appear on the administration panels, with their associated meanings.

| | |
|------------------------|--|
| VENDOR | User-supplied 8-byte name for a vendor. |
| APPLICATION | User-supplied 8-byte name for an application. |
| PROFILE | User-supplied 16-byte name for a profile that associates a printer and output entry. |
| DESCRIPTION | User-supplied 60-byte description of a entry in the rules dataset. (VENDOR, APPLICATION, etc.) |
| ADDRESS | Three user-supplied 60-byte lines that supply a vendor address. |
| CITY | User-supplied 40-byte name of a vendor's city. |
| STATE | User-supplied 2-byte state code for a vendor. |
| ZIP | User-supplied 9-byte field defining a vendor's zip code. |
| COUNTRY CODE | User-supplied 4-byte field defining a vendor's country code. |
| PROVINCE | User-supplied 10-byte field defining a vendor's province, if applicable. |
| CONTACT NAME | User-supplied 40 byte field defining a contact name with a vendor. |
| CONTACT PHONE | User-supplied 10-byte field defining a vendor contact's phone number. |
| DEFAULT PROFILE | User-supplied 16-byte field used to supply a printer name and optionally associate an output description with it. |
| STA | This column on the application maintenance panels indicates whether the printer type entry is enabled for this application. If enabled, this entry will appear as a menu pick on the STI CICS printer type menu. |
| NBR | This column on the application maintenance panels shows the printer code associated with this printer type. |
| TYPE | This column on the application maintenance panels and the printer maintenance panels shows the printer type name associated with this printer type. On the printer type maintenance panels it defines an 8-byte field where the type name can be supplied. |
| PRINTER | User-supplied 8-byte field that names a printer entry in the rules dataset. |
| OUTPUT | User-supplied 8-byte field that names an output entry in the rules dataset. |
| CLASS | User-supplied 1-byte field that defines a class on a printer entry. |
| DESTINATION | User-supplied 8-byte field that defines a destination on a printer entry. |
| FORM | User-supplied 8-byte field that defines a form on a printer entry. |
| WRITER | User-supplied 8-byte field that defines a writer on a printer entry. |
| OUTPUT FIELDS | User supplied values for the various JCL OUTPUT statement keywords. See MVS JCL OUTPUT statement documentation for a full description of the possible values. |
| USERID | User-supplied 8-byte value that defines a user profile record of printer and output associations. |

DRS/STI Administration Primary Menu

The DRS/STI Administration Primary Menu is available through the administration application. This is the first panel displayed when the administration application is started. An option is selected by entering a number or letter representing the option in the OPTION field and pressing the ENTER key.

```
----- DRS/STI Primary Menu -----
OPTION  ===>

  1 Vendor      - Process vendor information
  2 Printer     - Process printer information
  3 Output      - Process output information
  4 Printer Types - Process printer type information
  5 Users       - Process userid information

  X EXIT        - Terminate

Enter END command to terminate.
```

DRS/STI Administration Vendor List

The DRS/STI Administration Vendor List is available by selecting option 1 from the Primary option menu. This scrollable list displays all vendors that have been defined. The list entries can be maintained through the use of the select command from the command line or by entering one of the listed line commands in the select field in front of the desired entry. If a select command is entered from the command line and a name is supplied, but the name does not exist as a vendor entry, the vendor add panel will be displayed. If the name does exist, the vendor update panel will be displayed. The (L)ist line command displays the application list panel, which represents application entries defined for this vendor. The (D)elete line command allows this vendor to be deleted, including any application and profile entries defined for this vendor.

```
-----DRS/STI Vendor List -----
COMMAND ===> - - - - - SCROLL ===> CSR

Line Commands - (D)delete, (L)ist, (S)elect

Vendor      Description
-----
_ IBM       International Business Machines Corporation
_ LRS       Levi, Ray and Shoup Inc.
*****
***** BOTTOM OF DATA *****
```

DRS/STI Administration Vendor Add

The DRS/STI Administration Vendor Add is available by entering the (S)elect command line command from the vendor list panel. This panel allows vendor information to be saved in the rules dataset. All fields on this panel are for informational purposes, except the vendor name, which is required. Entering the END or RETURN command line command will add the vendor entry to the rules dataset. To return to the vendor list without adding the vendor, enter the (CAN)cel command line command.

```
- - - - - DRS/STI Vendor Add- - - - -  
COMMAND ===>  
  
Vendor           : HRVENDOR  
Description      : Human Resources Vendor  
Address          : One Human Resources Way  
                 :  
                 :  
City             :  
State           :  
Zip             :  
Country Code    :  
Province        :  
Contact Name    :  
                Phone :  
Contact Name    :  
                Phone :  
  
Enter CANCEL to terminate.  
Enter END to perform add.
```

DRS/STI Administration Vendor Update

The DRS/STI Administration Vendor Update is available by entering the (S)elect command line command with the name of an existing vendor entry or by keying the (S)elect line command in the select field of an entry on the vendor list panel. This panel allows all the vendor information to be modified except the vendor name. All fields on this panel are for informational purposes, except the vendor name. Entering the END or RETURN command line command will add the vendor entry to the rules dataset. To return to the vendor list without updating the vendor, enter the (CAN)cel command line command.

```
----- DRS/STI Vendor Update -----  
COMMAND ===>  
  
Vendor           : LRS  
Description      : Levi, Ray and Shoup Inc.  
Address          : 2401 West Monroe Street  
                 :  
                 :  
City             : Springfield  
State            : IL  
Zip              : 62704  
Country Code    : USA  
Province        :  
Contact Name    :  
                Phone :  
Contact Name    :  
                Phone :
```

Enter CANCEL to terminate.
Enter END to perform update.

DRS/STI Administration Vendor Delete

The DRS/STI Administration Vendor Delete is available by entering the (D)delete line command in the select field of a vendor list entry and pressing ENTER. This panel displays the current vendor information as confirmation prior to deleting the vendor entry from the rules dataset. If the delete is confirmed by pressing the ENTER key, the vendor entry and any application and profile entries for this vendor will also be deleted. To return to the vendor list without deleting the vendor, enter the END or RETURN command line command.

```
----- DRS/STI Vendor Delete -----  
COMMAND ===>  
  
Vendor           : LRS  
Description      : Levi, Ray and Shoup Inc.  
Address         : 2401 West Monroe Street  
                :  
                :  
City            : Springfield  
State           : IL  
Zip             : 62704  
Country Code    : USA  
Province        :  
Contact Name    :  
                :  
                :  
Contact Name    :  
                :  
                :  
                :  
  
Warning: All application and profile records for this vendor  
will also be deleted.  
  
Press ENTER to confirm delete request.  
Enter END to cancel delete request.
```

DRS/STI Administration Application List

The DRS/STI Administration Application List is available by entering a (L)ist line command in the select field for the desired vendor. This scrollable list displays all applications defined for this vendor. The list entries can be maintained through the use of the (S)elect command from the command line or by entering one of the listed line commands in the select field in front of the desired entry. If a (S)elect command is entered from the command line and a name is supplied, but the name does not exist as an application entry, the application add panel will be displayed. If the name does exist, the application update panel will be displayed. The (L)ist line command displays the profile list panel, which represents predefined associations between printers and outputs. The (D)elele line command allows this application and any profiles defined for this application to be deleted.

```
----- DRS/STI Application List -----
COMMAND ===>                                SCROLL ===> CSR

  Line Commands - (D)elele, (L)ist, (S)elect

  HRVENDOR      Human Resources Vendor

  Appl          Description
  -----
  _ PAYROLL     Payroll Application
  _ PERSONEL    Personnel Application
  *****BOTTOM OF DATA*****
```

DRS/STI Administration Application Add

The DRS/STI Administration Application Add is available by entering the (S)elect command line command from the application list panel. This panel allows application information for a specific vendor to be saved in the rules dataset. The only required field is the application name. The scrollable list represents all the available printer types, and the 'Sta' column represents the enabled or disabled status of each type for this application. If the status is enabled, then this printer type becomes available to CICS users through the STI transaction. The types are enabled or disabled by placing either a 'E' or 'D' in the select field of the desired list entry. Entering the END or RETURN command line command will add the application entry to the rules dataset. To return to the application list without adding the application, enter the (CAN)cel command line command.

```
----- DRS/STI Application Add -----
COMMAND ==>                                SCROLL ==> CSR

Vendor           : HRVENDOR
Description      : HUMAN RESOURCES VENDOR
Application      : NEWAPP
Description      : New Application
Default Profile  :

   Sta  Nbr   Type      Description
   ---  ---  - - - - -  - - - - -
- ENA  1     Printer  - Select From Printer Types
- ENA  2     Fax      - Select From Fax Types
- ENA  3     Email    - Select From Email Types
- ENA  4     Archive  - Select From Archive Types
***** BOTTOM OF DATA*****

Enter CANCEL to terminate. Enter UP command to scroll backward.
Enter END to perform add. Enter DOWN command to scroll forward.
```

Default Profile: Defines a profile entry that identifies a printer and optionally an output that is to be used to place output on the spool if no printer or output information is supplied.

DRS/STI Administration Application Update

The DRS/STI Administration Application Update is available by entering the (S)elect command line command with the name of an existing application entry or by keying the (S)elect line command in the select field of a application list entry on the application list panel. This panel allows all application information except application name to be modified and saved in the rules dataset. Entering the END or RETURN command line command will update the application entry in the rules dataset. To return to the application list without updating the application, enter the (CAN)cel command line command.

```
----- DRS/STI Application Update -----
COMMAND ===>                                SCROLL ===> CSR

Vendor           :   HRVENDOR
Description      :   HUMAN RESOURCES VENDOR
Application      :   PAYROLL
Description      :   Payroll Application
Default Profile  :

   Sta  Nbr   Type      Description
   ---  ---  - - - - -  - - - - -
- ENA   1   Printer  - Select From Printer Types
- ENA   2   Fax      - Select From Fax Types
- ENA   3   Email    - Select From Email Types
- ENA   4   Archive  - Select From Archive Types
***** BOTTOM OF DATA *****

Enter CANCEL to terminate.   Enter UP command to scroll backward.
Enter END to perform update.  Enter DOWN command to scroll forward.
```

Default Profile: Defines a profile entry that identifies a printer and optionally an output that is to be used to place output on the spool if no printer or output information is supplied.

DRS/STI Administration Application Delete

The DRS/STI Administration Application Delete is available by entering the (D)delete line command in the select field of an application list entry and pressing ENTER. This panel displays the current application information as confirmation prior to deleting the application entry from the rules dataset. If the delete is confirmed by pressing the ENTER key, the application entry and any profile entries for this application will also be deleted. To return to the application list without deleting the application entry, enter the END or RETURN command line command.

```
----- DRS/STI Application Delete -----
COMMAND ===>                                SCROLL ===> CSR

Vendor          : HRVENDOR
Description     : HUMAN RESOURCES VENDOR
Application     : PAYROLL
Description     : Payroll Application
Default Profile :

   Sta  Nbr  Type      Description
   ---  ---  ---      - - - - -
- ENA  1   Printer - Select From Printer Types
- ENA  2   Fax     - Select From Fax Types
- ENA  3   Email   - Select From Email Types
- ENA  4   Archive - Select From Archive Types
***** BOTTOM OF DATA *****

Warning: All profile records for this vendor will also be
deleted.

Enter END to terminate.      Enter UP  command to scroll backward.
Press ENTER to perform delete. Enter DOWN command to scroll forward.
```

DRS/STI Administration Profile List

The DRS/STI Administration Profile List is available by entering a (L)ist line command in the select field for the desired application. This scrollable list displays all profiles defined for this application. The list entries can be maintained through the use of the (S)elect command from the command line or by entering one of the listed line commands in the select field in front of the desired entry. If a (S)elect command is entered from the command line, and a name is supplied but the name does not exist as a profile entry, the profile add panel will be displayed. If the name does exist, the profile update panel will be displayed. The (D)eleate line command allows the selected profile to be deleted.

```
----- DRS/STI Profile List -----
COMMAND ===>                                SCROLL ===> CSR

Line Commands - (D)eleate, (S)elect

HRVENDOR      Human Resources Vendor
PAYROLL       Payroll Application

Profile       Description
-----

_ PAYCHECK    Payroll Checks
*****
***** BOTTOM OF DATA *****
```

DRS/STI Administration Profile Add

The DRS/STI Administration Profile Add is available by entering the (S)elect command line command from the profile list panel. This panel allows profile information for a specific vendor/application to be saved in the rules dataset. The profile name and either the printer name or output name is required. The profile represents a predefined printer and output association. The printer name corresponds to an entry maintained by the primary option menu 2 selection, and the output corresponds to an entry maintained by the primary option menu 3 selection. Entering the END or RETURN command line command will add the profile entry to the rules dataset. To return to the profile list without adding the profile, enter the (CAN)cel command line command.

```
----- DRS/STI Profile Add -----  
COMMAND ==>  
  
Vendor      : HRVENDOR  
Description  : Human Resources Vendor  
Application  : PAYROLL  
Description  : Payroll Application  
  
Profile     : BENEFIT  
Description  : Benefit Statement  
  
Printer     : PRT1  
Output      :  
  
Enter CANCEL to terminate.  
Enter END    to perform add.
```

Printer: Identifies a defined printer whose attributes will be used to place a dataset on the JES spool.

Output: Identifies a defined output description that will be used to dynamically define an output statement to be associated with a SYSOUT dataset.

DRS/STI Administration Profile Update

The DRS/STI Administration Profile Update is available by entering the (S)elect command line command with the name of an existing profile entry or by keying the (S)elect line command in the select field of an entry on the profile list panel. This panel allows all profile information except profile name to be modified and saved in the rules dataset. Entering the END or RETURN command line command will update the profile entry in the rules dataset. To return to the profile list without updating the profile, enter the (CAN)cel command line command.

```
----- DRS/STI Profile Update -----  
COMMAND ===>  
  
Vendor      : HRVENDOR  
Description  : Human Resources Vendor  
Application  : PAYROLL  
Description  : Payroll Application  
  
Profile     : BENEFIT  
Description  : Benefit Statement  
  
Printer     : PRT1  
Output      :  
  
Enter CANCEL to terminate.  
Enter END    to perform update.
```

Printer: Identifies a defined printer whose attributes will be used to place a dataset on the JES spool.

Output: Identifies a defined output description that will be SYSOUT to dynamically define an output statement to be associated with a SYSOUT dataset.

DRS/STI Administration Profile Delete

The DRS/STI Administration Profile Delete is available by entering the (D)delete line command in the select field of a profile list entry and pressing ENTER. This panel displays the current profile information as confirmation prior to deleting the profile entry from the rules dataset. The delete is confirmed by pressing the ENTER key. To return to the profile list without deleting the profile, enter the END or RETURN command line command.

```
----- DRS/STI Profile Delete -----  
COMMAND ===>  
  
Vendor      : HRVENDOR  
Description : Human Resources Vendor  
Application : PAYROLL  
Description : Payroll Application  
  
Profile     : BENEFIT  
Description : Benefit Statement  
  
Printer     : PRT1  
Output      :  
  
Press ENTER to confirm delete request.  
Enter END   to cancel delete request.
```

DRS/STI Administration Printer Type Menu

The DRS/STI Administration Printer Type Menu is available by entering option 2 or 5 from the command line on the Primary Option Menu and pressing ENTER. This menu lists the defined printer types and is used to mask the Printer List panel or the Userid List panel to the selected type. A type is selected by keying the number of the type in the command line and pressing ENTER.

```
----- DRS/STI Printer Type Menu -----  
OPTION ==>                                SCROLL => PAGE  
  
1   Printer   -   Select From Printer Types  
2   Fax       -   Select From Fax Types  
3   Email     -   Select From Email Types  
4   Archive   -   Select From Archive Types
```

DRS/STI Administration Printer List

The DRS/STI Administration Printer List is available by entering the desired option number from the command line on the Printer Type Menu and pressing ENTER. This scrollable list displays all the defined printers of the selected type.

When invoked as a result of initially selecting Primary Option 2, these list entries can be maintained through the use of the (S)elect command from the command line, or by entering one of the listed line commands in the select field of the desired entry. If a (S)elect command is entered from the command line, and a name is supplied but the name does not exist as a printer entry, the printer add panel will be displayed. If the name does exist, the printer update panel will be displayed. The (D)elele line command allows the selected printer to be deleted.

When invoked from the Userid Update or Add panels, the (D)elele line command is unavailable, and the (S)elect line command selects the printer entry and places the name under the printer column on the Userid Update or Add panels.

```
----- DRS/STI Printer List -----
COMMAND ===>                                SCROLL ===> PAGE

  Line Commands - (D)elele, (S)elect

  Printer      Description
  -----
_ PCL PCL Printer Description
***** BOTTOM OF DATA *****
```

DRS/STI Administration Printer Add

The DRS/STI Administration Printer Add is available by entering the (S)elect command line command from the printer list panel. This panel allows printer information necessary to allocate a SYSOUT dataset on the JES spool to be defined and saved in the rules dataset. The printer name and at least one of the SYSOUT attributes (Class, Destination, Form, Writer) are required. Entering the END or RETURN command line command will add the printer entry to the rules dataset. To return to the printer list without adding the printer, enter the (CAN)cel command line command.

```
----- DRS/STI Printer Add -----  
COMMAND ===>  
  
Type           : Printer  
Printer        : NEWPRT  
Description    : Printer located in building 3  
  
Class          : A  
Destination   : U100  
Form          :  
Writer        :  
  
Enter CANCEL   to terminate.  
Enter END     to perform add.
```

Class: Defines the SYSOUT class to be assigned to the SYSOUT dataset.

Destination: Defines the destination to be assigned to the SYSOUT dataset.

Form: Defines the form to be assigned to the SYSOUT dataset.

Writer: Defines the writer to be assigned to the SYSOUT dataset.

DRS/STI Administration Printer Update

The DRS/STI Administration Printer Update is available by entering the (S)elect command line command with the name of an existing printer entry or by keying the (S)elect line command in the select field of a printer list entry on the printer list panel. This panel allows all printer information except printer name to be modified and saved in the rules dataset. At least one of the attribute fields (Class, Destination, Form, Writer) is required. Entering the END or RETURN command line command will update the printer entry in the rules dataset. To return to the printer list without updating the printer, enter the (CAN)cel command line command.

```
----- DRS/STI Printer Update -----  
COMMAND ===>  
  
Type          : Printer  
Printer       : NEWPRT  
Description   : Printer located in building 3  
  
Class        : A  
Destination  : U100  
Form         :  
Writer       :  
  
Enter CANCEL  to terminate.  
Enter END     to perform update.
```

Class: Defines the SYSOUT class to be assigned to the SYSOUT dataset.

Destination: Defines the destination to be assigned to the SYSOUT dataset.

Form: Defines the form to be assigned to the SYSOUT dataset.

Writer: Defines the writer to be assigned to the SYSOUT dataset.

DRS/STI Administration Printer Delete

The DRS/STI Administration Printer Delete is available by entering the (D)delete line command in the select field of a printer list entry and pressing ENTER. This panel displays the current printer information as confirmation prior to deleting the printer entry from the rules dataset. The delete is confirmed by pressing the ENTER key. To return to the printer list without deleting the printer, enter the END or RETURN command line command.

```
----- DRS/STI Printer Delete -----  
COMMAND ===>  
  
Type      : Printer  
Printer   : NEWPRT  
Description : Printer located in building 3  
  
Class     : A  
Destination : U100  
Form      :  
Writer    :  
  
Press ENTER to confirm delete request.  
Enter END   to cancel delete request.
```

DRS/STI Administration Output List

The DRS/STI Administration Output List is available by entering option number 3 in the command line of the primary option menu and pressing ENTER. This scrollable list displays all the output definitions. The list entries can be maintained through the use of the (S)elect command from the command line or by entering one of the listed line commands in the select field of the desired entry. If a (S)elect command is entered from the command line and a name is supplied, but the name does not exist as an output entry, the output add panel will be displayed. If the name does exist, the output update panel will be displayed. The (D)elele line command allows the selected output to be deleted.

When invoked from the Userid Update or Add panels, the (D)elele line command is unavailable, and the (S)elect line command selects the output entry and places the name under the output column on the Userid Update or Add panels.

```
----- DRS/STI Output List -----
COMMAND ==>                                SCROLL ==> PAGE

      Line Commands - (D)elele, (S)elect

      Output          Description
      -----
_ OUT1          output 1 description
_ OUT2          output 2 description
***** BOTTOM OF DATA *****
```

DRS/STI Administration Output Add Panel 1

The DRS/STI Administration Output Add Panels are available by entering the (S)elect command line command from the output list panel. These scrollable panels allow output information that can be dynamically created and associated with a SYSOUT dataset to be saved in the rules dataset. The output name is the only required entry. Entering the END or RETURN command line command will add the output entry to the rules dataset. To return to the output list without adding the output, enter the (CAN)cel command line command.

```
-----DRS/STI Output Add -----Screen 1 of 3
COMMAND ===>

Output name  :
Description  :

CHARS       :          CLASS       :
COPIES      :          COPY GROUPS  :
DATAACK     :          DESTINATION  :
FCB         :          FORMDEF      :
FORMS       :          NOTIFY       :
OUTDISP     :          PAGEDEF      :
UCS         :          WRITER       :
BURST       :          CKPTLINE     :  CKPTPAGE      :
CKPTSEC     :          COMPACT      :  CONTROL      :
DPAGELBL   :          FLASH        :  FLASH COUNT  :
GROUP ID    :          INDEX        :  LINDEX       :
LINECT      :          MODIFY        :  OUTBIN       :
PIMSG       :          PIMSG COUNT      :  PRMODE       :
PRTY        :          SYSAREA      :  TRC          :
```

Enter CANCEL to terminate.
Enter END to perform add.

NOTE: See the Output JCL statement for a description of data that can be entered on an output statement.

DRS/STI Administration Output Update Panel 1

The DRS/STI Administration Output Update Panels are available by entering the (S)elect command line command with the name of an existing output entry or by keying the (S)elect line command in the select field of a output list entry on the output list panel. This panel allows all output information except output name to be modified and saved in the rules dataset. This information is then used to dynamically create output statements that can be associated with a SYSOUT dataset on the JES spool. Entering the END or RETURN command line command will update the output entry in the rules dataset. To return to the output list without updating the output, enter the (CAN)cel command line command.

```
-----DRS/STI Output Update ----- Screen 1 of 3
COMMAND ===>

Output name  :
Description  :

CHARS       :          CLASS       :
COPIES      :          COPY GROUPS  :
DATAACK     :          DESTINATION  :
FCB         :          FORMDEF      :
FORMS       :          NOTIFY       :
OUTDISP     :          PAGEDEF      :
UCS         :          WRITER       :
BURST       :          CKPTLINE     :          CKPTPAGE     :
CKPTSEC     :          COMPACT      :          CONTROL     :
DPAGELBL   :          FLASH        :          FLASH COUNT  :
GROUP ID    :          INDEX        :          LINDEX      :
LINECT     :          MODIFY        :          OUTBIN      :
PIMSG      :          PIMSG COUNT    :          PRMODE      :
PRTY       :          SYSAREA     :          TRC        :
```

Enter CANCEL to terminate.
Enter END to perform update.

NOTE: See the Output JCL statement for a description of data that can be entered on an output statement.

DRS/STI Administration Output Update Panel 2

The DRS/STI Administration Output Update Panels are available by entering the (S)elect command line command with the name of an existing output entry or by keying the (S)elect line command in the select field of a output list entry on the output list panel. This panel allows all output information except output name to be modified and saved in the rules dataset. This information is then used to dynamically create output statements that can be associated with a SYSOUT dataset on the JES spool. Entering the END or RETURN command line command will update the output entry in the rules dataset. To return to the output list without updating the output, enter the (CAN)cel command line command.

```
-----DRS/STI Output Update -----Screen 2 of 3
COMMAND ===>

Output name      :
NAME             :
TITLE            :
ADDRESS          :
                 :
                 :
                 :
DEPARTMENT       :
BUILDING         :
ROOM             :
USERLIB          :
                 :
                 :
                 :
                 :
                 :
                 :
                 :
                 :
                 :
Enter CANCEL     to terminate.
Enter END        to perform update.
```

NOTE: See the Output JCL statement for a description of data that can be entered on an output statement.

DRS/STI Administration Output Delete Panel 1

The DRS/STI Administration Output Delete Panels are available by entering the (D)elele line command in the select field of an output list entry and pressing ENTER. This series of panels displays the current output information as confirmation prior to deleting the output entry from the rules dataset. The delete is confirmed by pressing the ENTER key. To return to the output list without deleting the output, enter the END or RETURN command line command.

```
-----DRS/STI Output Delete -----Screen 1 of 3
COMMAND ===>

Output name  :
Description  :

CHARS       :          CLASS       :
COPIES      :          COPY GROUPS  :
DATAACK     :          DESTINATION  :
FCB         :          FORMDEF      :
FORMS       :          NOTIFY       :
OUTDISP     :          PAGEDEF      :
UCS         :          WRITER        :
BURST       :          CKPTLINE      :          CKPTPAGE      :
CKPTSEC     :          COMPACT          :          CONTROL      :
DPAGELBL   :          FLASH           :          FLASH COUNT  :
GROUP ID    :          INDEX           :          LINDEX       :
LINECT     :          MODIFY          :          OUTBIN       :
PIMSG      :          PIMSG COUNT      :          PRMODE      :
PRTY       :          SYSAREA         :          TRC         :
```

Press ENTER to confirm delete request.
Enter END to cancel delete request.

DRS/STI Administration Delete Panel 2

The DRS/STI Administration Output Delete Panels are available by entering the (D)delete line command in the select field of an output list entry and pressing ENTER. This series of panels displays the current output information as confirmation prior to deleting the output entry from the rules dataset. The delete is confirmed by pressing the ENTER key. To return to the output list without deleting the output, enter the END or RETURN command line command.

```
-----DRS/STI Output Delete -----Screen 2 of 3
COMMAND ===>

Output name  :
NAME         :
TITLE        :
ADDRESS      :
             :
             :
             :
DEPARTMENT   :
BUILDING     :
ROOM         :
USERLIB      :
             :
             :
             :
             :
             :
             :
             :
Press ENTER  to confirm delete request
Enter END    to cancel delete request.
```

DRS/STI Administration Output Delete Panel 3

The DRS/STI Administration Output Delete Panels are available by entering the (D)delete line command in the select field of an output list entry and pressing ENTER. This series of panels displays the current output information as confirmation prior to deleting the output entry from the rules dataset. The delete is confirmed by pressing the ENTER key. To return to the output list without deleting the output, enter the END or RETURN command line command.

```
-----DRS/STI Output Delete -----Screen 3 of 3
COMMAND ===>

Output name :
USERDATA   :
           :
           :
           :
           :
           :
           :
           :
           :
           :
           :
           :
           :
           :
           :

Press ENTER      to confirm delete request.
Enter END       to cancel delete request.
```

DRS/STI Administration Printer Type List

The DRS/STI Administration Printer Type List is available by entering option number 4 in the command line of the primary option menu and pressing ENTER. This scrollable list displays all the defined printer types. The list entries can be maintained through the use of the (S)elect command from the command line or by entering one of the listed line commands in the select field in front of the desired entry. If a (S)elect command is entered from the command line and a name is supplied, but the name does not exist as a printer type entry, the printer type add panel will be displayed. If the name does exist, the printer type update panel will be displayed. The (D)eleate line command allows the selected printer type to be deleted.

```
----- DRS/STI Printer Type List -----
COMMAND ===>                                SCROLL ===> PAGE

Line Commands - (D)eleate, (S)elect

  Nbr   Type           Description
  ---   -
_  1    Printer - Select From Printer Types
_  2    Fax          - Select From Fax Types
_  3    Email        - Select From Email Types
_  4    Archive      - Select From Archive Types
***** BOTTOM OF DATA *****
```

DRS/STI Administration Printer Type Add

The DRS/STI Administration Printer Type Add panel is available by entering the (S)elect command line command from the Printer Type List panel. This panel allows a printer type menu entry to be created and saved in the rules dataset. This type will then appear on the printer type menu and will allow the printer list to be masked to that type. All fields are required. Entering the END or RETURN command line command will add the printer type entry to the rules dataset. To return to the printer type list without adding the printer type, enter the (CAN)cel command line command.

```
-----DRS/STI Printer Type Add -----
COMMAND ===>

Number      : 5
Type        : Newtype
Description : - New type of printer

Enter CANCEL to terminate.
Enter END    to perform add.
```

- Number:** Defines the printer type number as it appears in the printer type entries.
- Type:** Defines the printer type name as it will appear on the printer list screen as the printer name column heading.
- Description:** Defines the menu text for the printer type menu.

DRS/STI Administration Printer Type Update

The DRS/STI Administration Printer Type Update is available by entering the (S)elect command line command with the name of an existing Printer type entry or by keying the (S)elect line command in the select field of a printer type list entry on the printer type list panel. This panel allows printer type information except the type number to be modified and saved in the rules dataset. This modified information is then available from the administration printer selection menu and the CICS printer selection menu if the application is enabled for this printer type. Entering the END or RETURN command line command will update the printer type in the rules dataset. To return to the printer type list without updating the printer type, enter the (CAN)cel command line command.

```
----- DRS/STI Printer Type Update -----  
COMMAND ===>  
  
      Number      : 5  
      Type        : Newtype  
      Description  : - New type of printer  
  
Enter CANCEL to terminate.  
Enter END      to perform update.
```

- Number:** Defines the printer type number as it appears in the printer type entries.
- Type:** Defines the printer type name as it will appear on the printer list screen as the printer name column heading.
- Description:** Defines the menu text for the printer type menu.

DRS/STI Administration Printer Type Delete

The DRS/STI Administration Printer Type Delete is available by entering the (D)delete line command in the select field of a printer type list entry and pressing ENTER. This panel displays the current printer type information as confirmation prior to deleting the printer type entry from the rules dataset. The delete is confirmed by pressing the ENTER key. To return to the printer type list without deleting the printer type, enter the END or RETURN command line command.

```
----- DRS/STI Printer Type Delete -----  
COMMAND ===>  
  
Number      : 5  
Type        : Newtype  
Description : - New type of printer  
  
Enter END   to terminate.  
Press ENTER to perform delete.
```

DRS/STI Administration Userid List

The DRS/STI Administration Userid List is available by selecting option 5 from the primary option menu and then selecting an option from the Printer type menu. This scrollable list displays all userids that have been defined for the specified printer type. This list is maintained through the use of the (S)elect command from the command line or by entering one of the listed line commands in the select field in front of the desired entry. If a select command is entered from the command line, and a name is supplied, but the name does not exist as a userid record, the userid add panel will be displayed. If the name does exist, the userid update panel will be displayed. The (D)eleate line command will display the userid delete panel in order to confirm the userid prior to deletion.

```
----- DRS/STI Userid List -----  
COMMAND ==>                                SCROLL ==> CSR  
  
Line Commands - (D)eleate, (S)elect  
  
Userid  
-----  
_ LRS00  
_ LRS01  
***** BOTTOM OF DATA *****
```

Section 18

DRS/STI Under CICS

The CICS transaction interface is a series of screens that allows a user to select a printer and, optionally, an output description, to associate with the current print request. The user can create printer and output associations unique to his user ID, and these combinations are saved in a profile for later use. Printers are categorized into types, such as normal printers types and fax types, that mask the user profile list screen to these types. The user profile list contains 16 entries where printer and output associations can be created. After creating one or more entries in the list, an entry can be selected in order to supply attributes for the current print request.

The STI screens run as a CICS started transaction that passes a commarea. This commarea is described by a DSECT (DSSTSTI) that is supplied in file LRS.DRS.V1R34.MACLIB. The calling transaction should supply information in the commarea, including a return transaction ID, and then start the STI transaction, passing the commarea followed by a normal return to CICS. The STI transaction takes control of the terminal until the user chooses a printer to use for this request or returns without making a selection.

After the user has made a selection, the STI transaction will start the transaction passed in the commarea. The original updated commarea will be returned to the transaction and can be obtained using a CICS RETRIEVE command. The commarea will contain return codes that indicate the action taken by the user or any errors that may have occurred. The caller of the STI transaction should supply a vendor and application name, which is used to access an application record. The application record is used to tailor the initial printer menu to the types allowed by the application. The user name should also be supplied, and is used as a key for accessing the user's profiled associations for this printer type.

Space is also provided in the commarea for two control blocks that can be used with the DRS call interface. The control blocks are a DRIB (DRSDRIB) and a DROB (DRSDROB) which represent a printer and output description. These areas can be passed into the DRS call interface to allocate a SYSOUT dataset and, optionally, associate a dynamic output description with it. The calling transaction could then invoke DRS/API, using PUT requests to place data in the SYSOUT dataset that was allocated. Alternatively, if DRS virtual printers are being used, the transaction can pass the printer and output name in the first buffer of a CICS SEND request in a special format that can be recognized by the DRS/VPI address space. The format of this buffer is described in [“Smart Tag Control Area” on page 16.4](#). The data can then be used to dynamically alter the SYSOUT characteristics for this virtual printer for this report. This method allows a few virtual printers to create reports for many VPS printers.

Screen Descriptions

This section describes each of the DRS/STI CICS screens. These screens can be invoked from another CICS application to allow end users to dynamically select printers for this application's reporting.

DRS/STI CICS Printer Menu

The DRS/STI CICS Printer Menu provides the user the ability to mask printer selections to a specific type of printer. These types can be application vendor or installation defined. The types that appear on this menu are the same types that the administrator enables on either the application add or application update administrator panels. One of the types can be selected by either keying the (S)elect line command in the select field in front of the entry or by pressing enter with the cursor positioned in the select field of the entry.

```
                                DRS/STI Printer Menu
                                Profile:  LRS000
                                Termid:   A000
_  1  Printer  -  Select From Printer Types
_  2  Fax      -  Select From Fax Types
_  3  Email   -  Select From Email Types
_  4  Archive -  Select From Archive Types

PF1 = Help  PF3 = Terminate
```

DRS/STI CICS System Printer List

The DRS/STI CICS System Printer List is available by positioning the cursor on one of the sixteen entries on the User Profile List screen and pressing the PF5 key. This scrollable list displays all the defined printers for the selected type. The list can be positioned by pressing the PF7 key to scroll UP and pressing the PF8 key to scroll DOWN. The list can also be positioned by keying a partial or complete printer name in the entry field under the printer type heading and pressing ENTER. After locating an entry it can be selected by keying a (S)elect line command in the entry field in front of the desired entry. The selected entry will be returned to the User Profile List screen and will be placed in the entry at the cursor position under the printer type heading. To return without selecting an entry, press the PF3 key, which will erase the entry on the User Profile List at the cursor position.

| DRS/STI System Printer List | |
|-----------------------------|-------------------------------|
| Printer | DESCRIPTION |
| | Profile: LRS000 |
| | Termid: A000 |
| _ NEWPRT | Printer located in building 6 |
| _ PCL | PCL Printer Description |

PF1 = Help PF3 = Return

DRS/STI CICS System Output List

The DRS/STI CICS System Output List is available by positioning the cursor on one of the sixteen entries on the User Profile List screen and pressing the PF6 key. This scrollable list displays all the defined outputs. The list can be positioned by pressing the PF7 key to scroll UP and pressing the PF8 key to scroll DOWN. The list can also be positioned by keying a partial or complete output name in the entry field under the output heading and pressing ENTER. After locating an entry it can be selected by keying a (S)elect line command in the entry field in front of the desired entry. The selected entry will be returned to the User Profile List screen and will be placed in the entry at the cursor position under the output heading. To return without selecting an entry, press the PF3 key, which will erase the output name from the entry on the User Profile List at the cursor position.

| DRS/STI System Output List | | |
|----------------------------|----------------------|---------------------------------|
| Output | Description | Profile: LRS000 Termid: A000 |
| _OUT1 | Output 1 description | |
| _OUT2 | Output 2 description | |

PF1 = Help PF3 = Return

DRS/STI Transaction Interface

This table describes the interface control block an application will provide in order to invoke the DRS/STI CICS transaction interface. The DSECT describing the control block is defined in the DRS maclib as member DSSTSTI. The following table describes the fields the application should supply and the fields that can be returned.

| Label | Data Type | Description |
|----------|-----------|---|
| STIRETRN | DC A(0) | Return code |
| | | 0 = Request successful |
| | | 4 = No printer selected |
| | | 8 = DRS error |
| | | 12 = VSAM error |
| | | 16 = CICS error |
| STIREASN | DC A(0) | Reason code |
| | | For return code 8 = DRRRC (DRS return code) |
| | | For return code 12 = VSAM Feedback codes |
| STITRNID | CL4' ' | Supplied CICS transaction ID to start on return from the DRS/STI transaction |
| STIVENDR | CL8' ' | Supplied vendor name |
| STIAPPLN | CL8' ' | Supplied application name |
| STIPROFN | CL16' ' | Supplied profile |
| STIPRNTR | CL8' ' | Returned printer name |
| STIOUTPN | CL8' ' | Returned output name (optional) |
| STIPRNTT | AL2(0) | Returned printer type code |
| STIRLDDN | CL8' ' | Supplied DDNAME for DRS rules dataset |
| STIUSRID | CL8' ' | Supplied name for this user |
| STIVNDWK | XL256'00' | Area for vendor use |
| STICCMN | XL256'00' | Area for LRS use |
| STIDRIBL | AL2(0) | Actual length of returned DRIB |
| STIDROBL | AL2(0) | Actual length of returned DROB |
| STIDRIB | XL512 | Area containing attributes for selected printer |
| STIDROB | XL4096 | Area containing output attributes for selected printer if associated with an output description |

Notes:

- The area defined with label STIVNDWK is an area for the vendor to use to save any information needed in order to restore his environment upon return from the DRS/STI transaction.
- The area reserved at label STIDROB will be initialized by the DRS/STI transaction if the selected printer was associated with an output description. The area STIDROBL will be zeros if the DROB was not returned.

DRS/STI Transaction Invocation

As described earlier the DRS/STI interface runs as a started CICS transaction. The application calling the interface does not perform the CICS START command, but performs a CICS LINK command passing a commarea and length. The called module (DSSTSTI) then searches the defined CICS transactions for a program by the same name and if found starts the corresponding transaction. The interface will then return to the caller who must perform a return to CICS allowing the started transaction to take control of the terminal. The following is an example of the link command for starting the DRS/STI transaction:

```
EXEC CICS LINK PROGRAM('DSSTSTI') X
          COMMAREA(STIAREA) X
          LENGTH(=AL2(STIDLEN))
```

Before invoking the link the caller should have supplied a transaction id that can be started in order to return the resulting selection to the caller. After the return transaction is started it should perform a CICS RETRIEVE command in order to obtain the commarea from the DRS/STI transaction. The following is an example of the command:

```
EXEC CICS RETRIEVE SET(R1) LENGTH(STILENG)
```

Messages

| | |
|-------------------------|---|
| DSSC005E | TRANSACTION INVOCATION ERROR – COMMAREA LENGTH INVALID |
| Message Meaning: | The commarea length is invalid. |
| System Action: | Processing terminates. |
| Required Action: | Correct the programming error and retry the process. |
| DSSC010E | TRANSACTION INVOCATION ERROR – MUST BE LINKED TO FROM A PROGRAM PASSING A COMMEAREA |
| Message Meaning: | A transaction invocation error has occurred as indicated in the message. |
| System Action: | Processing terminates. |
| Required Action: | Correct the programming error and retry the process. |

Section 19

Introduction to DRS/API

The Dynamic Report System Application Programming Interface (DRS/API) allows programs to invoke DRS to create reports dynamically. The programs which call the DRS/API may be running in a CICS or non-CICS environment. The reports are available for printing immediately; it is not necessary to shut down the CICS or non-CICS system to obtain the report.

The DRS/API was referred to in earlier releases as the DRS “CALL” interface. Any programs written to invoke DRS in earlier releases should function equally well with DRS Version 1 Release 3.4.

The reports that are created using the DRS/API can be standard SYSOUT datasets on the JES spool or DASD print files. They can be fixed, variable, or undefined format, blocked or unblocked. They can have ASA, machine or no carriage control. If they are SYSOUT files, they can have standard JES dataset attributes, such as destination, writer name, form name, FCB, UCS, class, hold/no hold, and number of copies. They can refer to OUTPUT statements for parameters that would appear on the OUTPUT JCL statement, such as PAGEDEF, FORMDEF, CHARS, BUILDING, ADDRESS, etc.

If the report is placed on the JES spool, any system which obtains output from the JES spool can access the report. For example, the report could be printed by JES, VPS or PSF or it could be acquired by a report distribution and archival product. Because OUTPUT statement information can be associated with the print data, PAGEDEF, FORMDEF, CHARS, etc., could be used for special formatting.

With DRS/API, requests are made by passing parameters to the DRS/API interface module. A single “call” to DRS/API can initiate a report, add lines to a report, or terminate a report. There is also a call which can be used to inquire about active reports, a call to issue commands, and, for MVS/ESA users, a call to dynamically define OUTPUT JCL statements.

The two modes of DRS/API execution are CICS mode and non-CICS mode. Both modes of processing use the same parameters. The differences between the two modes are the format of the linkage to DRS/API and the internal processing.

In CICS mode, a program control link is made to the DRS/API CICS interface module (DRSSINTC). In non-CICS mode, a program CALL statement is used to call the DRS/API non-CICS interface module (DRSSINTB).

More than one CICS transaction can participate in the creation of a report. For example, one transaction could initiate the report. Then any transaction which has access to the report identifier could add lines to or terminate the report.

In an MVS/ESA environment, DRS/API can invoke Dynamic Output, which allows the application to dynamically add or delete an OUTPUT JCL statement. This allows the application to vary the SYSOUT processing options at execution time.



Section 20

DRS/API Installation

Introduction

This section gives you the information you need to install DRS/API on your system. The details of this installation procedure are listed in [“Installation Steps” on page 20.4](#). Before you do the actual installation, you may want to read [“New Features in this Release” on page 20.2](#) and [“Migrating to DRS V1 R3.4 from an Earlier DRS Release” on page 20.3](#). These topics will be of interest to both the first-time user of DRS/API and to the user of prior DRS releases.

New Features in this Release

If you have been using DRS/API Version 1 Release 3.2, or 3.3 at your installation, you will find Version 1 Release 3.4 will support all of the functions you are accustomed to. This release also gives you these new features.

- **HFS support**

DRS can now create HFS files in addition to DASD and SYSOUT files.

- **JOBNAME modification**

DRS V1 R3.3 introduced the capability of specifying a **JOBNAME** to be associated with **SYSOUT** files that was different than the name of the **DRS/VPI** job or started task. Using the **JOBNAME** keyword requires that **DRS** modules be loaded from an authorized library.

Migrating to DRS V1 R3.4 from an Earlier DRS Release

The DRS interface modules supplied to you on the distribution cartridge have aliases which are identical to the names of these modules in all prior releases of DRS. For example, the CICS interface module for DRS Version 1 Release 3.4 is named DRSSINTC, with an alias of DRS1INTC. The non-CICS interface module for DRS Version 1 Release 3.4 is named DRSSINTB, with an alias of DRS1INTB. This means that you can move the Version 1 Release 3.4 versions of the DRS modules into the appropriate load module libraries and run your existing programs which call “DRS1INTC” or “DRS1INTB” without changes, so long as those programs do not have the DRS interface modules link-edited with them.

If you linked the DRS interface modules with your programs that called DRS, you will need to relink those programs, so they can pick up the new version of the DRS interface modules. (You may want to refer to [“General Information about DRS Calls” on page 21.2](#) to see how to avoid having to go through this re-link procedure every time you get a new version of the DRS interface modules).

If you have an existing program which uses the query function of DRS, and you are migrating to DRS V1 R3.4 from DRS R1.0 or DRS R2.0, you will need to assemble/compile and link the program, using the new DRS libraries. Some fields are in different positions in the query block in Version 1 Release 3.4 of DRS, and some new fields have been added to the query block. Picking up the new description of the query block from the Version 1 Release 3.4 version of the DRS macro library at assembly/compile time will generate the correct code for the query call.

If you use DRS in CICS, and you were previously running DRS R1.0, you **MUST** replace PLT entry DRS1SHUT with DRSSSHTC. Both programs perform the same function. The difference is that DRS1SHUT is a CICS macro level program and DRSSSHTC is a CICS command level program. The macro level version will not work with DRS Version 1 Release 3.4. This change was made because IBM has dropped support of the CICS macro level interface. An SA03 abend will occur at CICS termination if you are not using DRSSSHTC and all DRS subtasks have not been detached.

If you use DRS in a non-CICS TP monitor environment, the version of module DRSSSHTB distributed with prior DRS releases will still function with DRS Version 1 Release 3.4. You can, however, replace it with the version supplied with DRS Version 1 Release 3.4, just to keep all load modules at the same level.

The DRS parameter options module now allows specification of the number of support subtasks to be used for applications running under CICS to be different from the number of support subtasks to be used for applications that execute in non-CICS environments. This allows the same DRS parameter options module to be used in multiple environments. SPTTCBS= in the parameter options module should be replaced with TCBCICS for CICS applications and TCBBTCH for non-CICS applications.

DRS/API now requires the presence of a load module (DRSSKEY) which contains the DRS/API product key. [“Installing the DRSSKEY Module” on page 20.13](#) describes how this module can be installed and updated.

Installation Steps

The steps required to install Version 1 Release 3.4 of DRS/API are:

1. **Read the entire installation procedure.**
2. **Restore the DRS distribution libraries** (see [“Restoring the DRS Distribution Libraries”](#) on page 20.6).
3. **Customize the DRS System Options** (see [“Customizing the DRS System Options”](#) on page 20.9).
4. **Assemble and linkedit the DRS System Options into a STEPLIB or LINKLIST library** (see [“Customizing the DRS System Options”](#) on page 20.9).
5. **Assemble and linkedit any DRS user exit which you choose to use at your site into a STEPLIB or LINKLIST library.** All user exits are optional. Information on assembling and linking these modules is given in [“DRS/API User Exits”](#) on page 22.1).
6. **Install the DRSSKEY module** (see [“Installing the DRSSKEY Module”](#) on page 20.13).
7. **Copy the following modules from LRS.DRS.V1R34.LOAD into a STEPLIB or LINKLIST library:**
 - DRS1INTB (alias of DRSSINTB)
 - DRSSATCH
 - DRSSCPL
 - DRSSDTCH
 - DRSSEXIT
 - DRSSGTRC
 - DRSSHFS
 - DRSSINTB
 - DRSSKEY
 - DRSSLMOD
 - DRSSLOCM
 - DRSSLOG
 - DRSSMAIN
 - DRSSMSGH
 - DRSSPOST
 - DRSSQRQE
 - DRSSQSM
 - DRSSRB99
 - DRSSSHTB
 - DRSSSINF
 - DRSSSTRCE
 - DRSSTTBL
 - DRSSVSIO
 - DRSSVSM
 - DRSSVSST

-
8. **Update the CICS tables to define the DRS/API programs and transactions.** (Only necessary if executing DRS within CICS. See [“Updating the CICS Tables”](#) on page 20.15).
 9. **Copy the following modules from LRS.DRS.V1R34.LOAD into one of the CICS DFHRPL libraries** (only necessary if executing DRS within CICS):
 - DMSTSTI (for DRS/STI only)
 - DRSSINTC
 - DRS1INTC (alias of DRSSINTC)
 - DRSSSHTC
 - DRS1SHUT (alias of DRSSSHTC)
 - DSSTSTI (for DRS/STI only)
 10. **DRS/API installation is now complete.**

The remainder of this section provides the information required to perform the above steps.

Restoring the DRS Distribution Libraries

| DRS is distributed on a 3480 or 3490 cartridge in IEBCOPY unloaded format with the following attributes:

- Standard labels
- VOL=SER=VPSR80, if distributed with VPS R8.0

The DRS files are:

| FILE SEQUENCE NUMBER (with VPS R8.0) | DSNAME | CONTENTS |
|--|----------------------|---|
| #5 | LRS.V1R12.LOAD | Load libraries for common product interfaces. |
| #26 | LRS.DRS.V1R34.ASM | Source for sample exits and sample programs |
| #27 | LRS.DRS.V1R34.MACLIB | Mapping macros |
| #28 | LRS.DRS.V1R34.CNTL | Sample JCL |
| #29 | LRS.DRS.V1R34.LOAD | DRS load modules for user exits |

Sample JCL to restore the files on the distribution cartridge is supplied in file 1, which is named "LRS.PRODUCT.JCL". (This is a sequential file of 80-byte records. You may wish to use IEBGENER to restore it to a sequential file or to a member of a PDS).

The portion of that JCL which pertains to VPS is reproduced here.

```
//JOBNAME JOB ACCT,PROGRAMMER,TIME=25,REGION=1024K
//*
//ALLOC PROC PREFIX=, ** HIGH LEVEL QUALIFIER
// VOLSER=XXXXXX, ** DISK VOLUME SERIAL
// ASM=27920, ** ASM BLKSIZE <== Any multiple of 80
// MACLIB=27920, ** MACLIB BLKSIZE <== Same as SYS1.MACLIB
// CNTL=27904, ** CNTL BLKSIZE <== Any multiple of 80
// LOAD=4096 ** LOAD BLKSIZE <== Any valid value for the
// device type
//ALLOC EXEC PGM=IEFB14
//*
//DISTASM DD DSN=&PREFIX..LRS.DRS.V1R34.ASM,
// DISP=(,CATLG),UNIT=SYSALLDA,VOL=SER=&VOLSER,
// DCB=(BLKSIZE=&ASM,LRECL=80,RECFM=FB),
// SPACE=(&ASM,(140,35,25),RLSE)
//*
//DISTMAC DD DSN=&PREFIX..LRS.DRS.V1R34.MACLIB,
// DISP=(,CATLG),UNIT=SYSALLDA,VOL=SER=&VOLSER,
// DCB=(BLKSIZE=&MACLIB,LRECL=80,RECFM=FB),
// SPACE=(&MACLIB,(35,5,25),RLSE)
//*
//DISTCNTL DD DSN=&PREFIX..LRS.DRS.V1R34.CNTL,
// DISP=(,CATLG),UNIT=SYSALLDA,VOL=SER=&VOLSER,
// DCB=(BLKSIZE=&CNTL,LRECL=128,RECFM=FB),
// SPACE=(&CNTL,(35,5,50),RLSE)
//*
//DISTLOAD DD DSN=&PREFIX..LRS.DRS.V1R34.LOAD,
// DISP=(,CATLG),UNIT=SYSALLDA,VOL=SER=&VOLSER,
// DCB=(BLKSIZE=&LOAD,RECFM=U),
// SPACE=(&LOAD,(450,25,50),RLSE)
//*
//DISTLRS DD DSN=&&PREFIX..LRS.V1R12.LOAD,
// DISP=(,CATLG),UNIT=SYSALLDA,VOL=SER=&VOLSER,
// DCB=(BLKSIZE=&LOAD,RECFM=U),
// SPACE=(&LOAD,(400,80,50),RLSE)
// PEND
//*
//RESTORE PROC PREFIX=, ** HIGH LEVEL QUALIFIER
// TAPE=CART ** TAPE UNIT NAME
//
//RESTORE EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//
//TAPEASM DD DSN=LRS.DRS.V1R34.ASM,DISP=OLD,
// VOL=(,RETAIN,SER=VPSxxx),LABEL=(nnn,SL),UNIT=&TAPE
//DISTASM DD DSN=&PREFIX..LRS.DRS.V1R34.ASM,DISP=OLD
//*
```

Continued on next page.

```

//TAPEMAC DD DSN=LRS.DRS.V1R34.MACLIB,DISP=OLD,
//
//          VOL=(,RETAIN,SER=VPSxxx),LABEL=(nnn,SL),UNIT=&TAPE
//DISTMAC DD DSN=&PREFIX..LRS.DRS.V1R34.MACLIB,DISP=OLD
//*
//TAPECNTL DD DSN=LRS.DRS.V1R34.CNTL,DISP=OLD,
//
//          VOL=(,RETAIN,SER=VPSxxx),LABEL=(nnn,SL),UNIT=&TAPE
//DISTICNTL DD DSN=&PREFIX..LRS.DRS.V1R34.CNTL,DISP=OLD
//*
//TAPELOAD DD DSN=LRS.DRS.V1R34.LOAD,DISP=OLD,
//
//          VOL=(,RETAIN,SER=VPSxxx),LABEL=(nnn,SL),UNIT=&TAPE
//DISTLOAD DD DSN=&PREFIX..LRS.DRS.V1R34.LOAD,DISP=OLD
//*
//TAPELNT DD DSN=LRS.V1R12.LOAD,DISP=SHR,
//
//          VOL=(,RETAIN,SER=VPSR80),LABEL=(005,SL),UNIT=&TAPE
//DISTLNT DD DSN=&&PREFIX.LRS.V1R12.LOAD,DISP=SHR
//*
//          PEND
//*
//ALLOC EXEC ALLOC
//*
//RESTORE EXEC RESTORE
//SYSIN DD *
COPY INDD=((TAPEASM,R)),OUTDD=DISTASM
COPY INDD=((TAPEMAC,R)),OUTDD=DISTMAC
COPY INDD=((TAPECNTL,R)),OUTDD=DISTICNTL
COPY INDD=((TAPELOAD,R)),OUTDD=DISTLOAD
COPY INDD=((TAPELNT,R)),OUTDD=DISTLNT
/*

```

Note: In the TAPEASM, TAPEMAC, TAPECNTL and TAPELOAD DD statements, the volume serial number and the file sequence number will vary. Please refer to the previous page for the correct VOL SER and file number.

Customizing the DRS System Options

DRS looks for a DRS System Options module named DRSSOPTS. This module specifies values to be used for certain DRS system parameters. You generate the DRS System Options module during DRS installation by performing the following two steps:

1. Modify member DRSSOPTS in library LRS.DRS.V1R34.ASM, specifying the values you want to use for each of the System Options parameters. This member consists of the \$DRSOPTS macro, with default values specified. You can change any of the parameter values to any valid value.
2. Create the load module named DRSSOPTS by assembling and linking your modified version of DRSSOPTS. Sample JCL to assemble and link the DRS System Options is contained in member OPTSASML in dataset LRS.DRS.V1R34.CNTL. That JCL is reproduced here:

```
//JOBNAME JOB (YOUR JOB CARD INFORMATION)
//ASMH EXEC PGM=IEV90,PARM='OBJECT,NODECK,RENT,XREF(SHORT)'
//SYSLIB DD DSN=SYS1.MACLIB,DISP=SHR
// DD DSN=SYS1.AMODGEN,DISP=SHR
// DD DSN=LRS.DRS.V1R34.MACLIB,DISP=SHR
// DD DSN=LRS.DRS.V1R34.ASM,DISP=SHR
//SYSUT1 DD UNIT=VIO,SPACE=(CYL,(5,2))
//SYSUT2 DD UNIT=VIO,SPACE=(CYL,(5,2))
//SYSUT3 DD UNIT=VIO,SPACE=(CYL,(5,2))
//SYSPUNCH DD DUMMY
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=LRS.DRS.V1R34.ASM(DRSSOPTS),DISP=SHR
//SYSLIN DD DSN=&&OBJ,DISP=(,PASS),SPACE=(TRK,(6,3)),
// UNIT=VIO,DCB=BLKSIZE=1600
//*
//LKED EXEC PGM=IEWL,PARM='XREF,LET,LIST,RENT,REUS,REFR,MAP,AC=0',
// COND=(5,LT,ASMH)
//SYSPRINT DD SYSOUT=*
//SYSUT1 DD UNIT=VIO,SPACE=(CYL,(1,1))
//SYSLOAD DD DSN=LRS.DRS.V1R34.LOAD(DRSSOPTS),DISP=SHR
//SYSLIN DD DSN=&&OBJ,DISP=(OLD,DELETE,DELETE)
/*
```

If DRS is unable to locate the DRSSOPTS module, the default values will be used.

You can share one DRSSOPTS module for DRS in both CICS and non-CICS mode, or you can use a separate DRSSOPTS module for each environment.

The \$DRSOPTS macro is coded as follows:

```

name      module name.  Must begin in column 1.

b         One or more blanks must precede $DRSOPTS

$DRSOPTS
  {,GTFFID=}
  {,LOG=}
  {,LOGDD=}
  {,LOGCLAS=}
  {,LOGDEST=}
  {,LOGFORM=}
  {,LOGWTR=}
  {,LOGFCB=}
  {,LOGUCS=}
  {,LOGHOLD=}
  {,SNACLAS=}
  {,SNADEST=}
  {,SNAFORM=}
  {,SNAWTR=}
  {,SNAFCB=}
  {,SNAUCS=}
  {,SNAHOLD=}
  {,STATS=}
  {,SYSLOG=}
  {,TCBBTCH=}
  {,TCBCICS=}
  {,TRPAGES=}
  {,TRTYPES=}

```

Brackets, {}, are used to enclose optional parameters, which may or may not be specified. If a parameter is not coded, the default for that parameter will be used.

The parameters of the \$DRSOPTS macro are explained below:

- GTFFID=** Specifies the format appendage that is to be invoked by the edit function of PRDMP. Valid values range from 1-80. Default is 20.
- LOG=** Specifies whether or not DRS logging is to be activated. Valid values are YES and NO. Default is NO. Note that a value of YES should be used only when executing DRS in an environment which allows execution of program DRSSHTC or DRSSHTB at shutdown.
- LOGDD=** Specifies the DDNAME to be used for the DRS log dataset. Valid values consist of any valid DDNAME. Default is DRSLOG.
- LOGCLAS=** Specifies the SYSOUT class of the DRS log dataset. Valid values consist of A-Z and 0-9. Default is A.
- LOGDEST=** Specifies the destination of the DRS log dataset. Valid values consist of any valid JES destination. Default is LOCAL.
- LOGFORM=** Specifies the form name of the DRS log dataset. Valid values consist of any valid form name. If this keyword is not specified, then form name will not be used when allocating the DRS log dataset.
- LOGWTR=** Specifies the writer name of the DRS log dataset. Valid values consist of any valid writer name. If this keyword is not specified, then writer name will not be used when allocating the DRS log dataset.
- LOGFCB=** Specifies the FCB name of the DRS log dataset. Valid values consist of any valid FCB name. If this keyword is not specified, then FCB name will not be used when allocating the DRS log dataset.

| | |
|-----------------|--|
| LOGUCS= | Specifies the UCS name of the DRS log dataset. Valid values consist of any valid UCS name. If this keyword is not specified, then UCS name will not be used when allocating the DRS log dataset. |
| LOGHOLD= | Specifies whether or not the DRS log dataset will be held. Valid values consist of YES and NO. Default is YES. |
| SNACLAS= | Specifies the SYSOUT class of the DRS snap dataset. Valid values consist of A-Z and 0-9. Default is A. |
| SNADEST= | Specifies the destination of the DRS snap dataset. Valid values consist of any valid JES destination. Default is LOCAL. |
| SNAFORM= | Specifies the form name of the DRS snap dataset. Valid values consist of any valid form name. If this keyword is not specified, then form name will not be used when allocating the DRS snap dataset. |
| SNAWTR= | Specifies the writer name of the DRS snap dataset. Valid values consist of any valid writer name. If this keyword is not specified, then writer name will not be used when allocating the DRS snap dataset. |
| SNAFCB= | Specifies the FCB name of the DRS snap dataset. Valid values consist of any valid FCB name. If this keyword is not specified, then FCB name will not be used when allocating the DRS snap dataset. |
| SNAUCS= | Specifies the UCS name of the DRS snap dataset. Valid values consist of any valid UCS name. If this keyword is not specified, then UCS name will not be used when allocating the DRS snap dataset. |
| SNAHOLD= | Specifies whether or not the DRS snap dataset will be held. Valid values consist of YES and NO. Default is YES. |
| STATS= | Specifies whether or not DRS statistics gathering is enabled. Valid values consist of YES and NO. Default is NO. (A value of NO decreases the amount of CPU time used by DRS). |
| SYSLOG= | Specifies if DRS will write its messages to SYSLOG. Valid values consist of YES and NO. Default is NO. |
| TCBBTCH= | Specifies the number of support subtasks that DRS will OS attach to process the DRS requests in a non-CICS environment. Valid values range from 0-64. Default is 0. Note that a value other than 0 should only be used when executing DRS in an environment which allows execution of program DRSSSHTC or DRSSSHTB at shutdown to detach the support subtasks. |
| TCBCICS= | Specifies the number of support subtasks that DRS will OS attach to process the DRS requests in a CICS environment. Valid values range from 0-64. Default is 1. Note that a value other than 0 should only be used when executing DRS in an environment which allows execution of program DRSSSHTC or DRSSSHTB at shutdown to detach the support subtasks. |
| TRPAGES= | Specifies the number of 4K pages that DRS will allocate for its internal trace table. Valid values range from 0-10. Default is 0. (A value of 0 decreases the amount of CPU time used by DRS). |

TRTYPES= Specifies the types of events DRS will trace. Valid values consist of any valid hex value. Default is 00. Following is a description of the trace types:

- 80** = Trace GETMAIN/FREEMAIN requests
- 40** = Trace ENQ/DEQ requests
- 20** = Trace log requests
- 10** = Trace user exits
- 08** = Trace detail (PUT requests)
- 04** = (Not defined)
- 02** = CICS tracing is active
- 01** = GTF tracing is active

Installing the DRSSKEY Module

This release of DRS requires a unique “key” for the DRS application programming interface to function. This key is supplied in a load module named DRSSKEY. This module is loaded during DRS initialization. The key value is unique for each installation.

The DRSSKEY module **MUST** be present if using DRS/API, DRS/Natural, or DRS/SAPR2.

Load module DRSSKEY is supplied in the DRS load module library (LRS.DRS.V1R34.LOAD). You can copy this module to a library that is accessible to DRS. If you are using more than one of the products that require this module, you might want to put the module in a LINKLIST library, so all products have access to the same module.

If you are using a trial version of one of these products, you may be given a new key value to extend the trial period. You will also be given a new key value when you purchase the product. Any time that you receive a distribution cartridge, the DRSSKEY module will be included, and the applicable key value will also be supplied in the first file of the distribution cartridge. This file has a dataset name of LRS.PRODUCT.JCL, and is a sequential file with a record length of 80, a block size of 23440, and a record format of FB. You can use IEBGENER to restore this file to a sequential file or to print it.

If you should receive a new key value over the phone, you can update member DRSSKEY in file LRS.DRS.V1R34.ASM, and assemble and linkedit it to put the new value into effect. Sample JCL to assemble and linkedit the DRSSKEY module is provided as member KEYASML in file LRS.DRS.V1R34.CNTL. Once the DRSSKEY module has been linkedited, it should be copied into a library accessible to the appropriate product.

The DRSSKEY macro is used to generate the DRSSKEY module.

The DRSSKEY macro is written as follows:

| | |
|---------------------|---|
| b | One or more blanks must precede DRSSKEY. |
| DRSSKEY | |
| b | One or more blanks must follow DRSSKEY. |
| ,KEYDRS= | KEYDRS must be specified. |
| {,KEYNAT=} | KEYNAT is optional. |
| {,KEYSAPR2=} | KEYSAPR2 is optional. |

The parameters of the DRSSKEY macro are explained below:

- KEYDRS=** Specifies a 60 character key, as supplied in the first file of the distribution tape, that enables the operation of DRS/API.
- KEYNAT=** Specifies a 60 character key, as supplied in the first file of the distribution tape, that enables the operation of the DRS/Natural product.
- KEYSAPR2=** Specifies a 60 character key, as supplied in the first file of the distribution tape, that enables the operation of DRS/SAPR2.

Updating the CICS Tables

CICS programs that invoke DRS/API, as well as the DRS/STI CICS programs, require that entries be added to the CICS PPT, PLT, and PCT. You can add the entries using RDO, or, for CICS/MVS, you can use macro definitions to add the entries. If you choose to use RDO, sample JCL is supplied as member CICSRDO in file LRS.DRS.V1R34.CNTL. The following RDO or macro definitions are required.

For CICS programs that invoke DRS/API:

Add to the PPT using RDO:

```
DEFINE PROGRAM(DRSSINTC) GROUP(gggg) LANG(ASSEMBLER)
DEFINE PROGRAM(DRS1INTC) GROUP(gggg) LANG(ASSEMBLER)
DEFINE PROGRAM(DRSSSHTC) GROUP(gggg) LANG(ASSEMBLER)
DEFINE PROGRAM(DRS1SHUT) GROUP(gggg) LANG(ASSEMBLER)
```

or, add to the PPT using macro definitions:

```
DFHPPT TYPE=ENTRY,          DRS/CICS INTERFACE      *
      PROGRAM=DRSSINTC,      *
      PGMLANG=ASSEMBLER
DFHPPT TYPE=ENTRY,          DRS/CICS INTERFACE      *
      PROGRAM=DRS1INTC,      (alias of DRSSINTC)    *
      PGMLANG=ASSEMBLER
DFHPPT TYPE=ENTRY,          DRS/CICS SHUTDOWN          *
      PROGRAM=DRSSSHTC,      *
      PGMLANG=ASSEMBLER
DFHPPT TYPE=ENTRY,          DRS/CICS SHUTDOWN          *
      PROGRAM=DRS1SHUT,      (alias of DRSSSHTC)        *
      PGMLANG=ASSEMBLER
```

Add to the PLT (PLTSD) using macro definitions:

```
DFHPLT TYPE=ENTRY,          *
      PROGRAM=DRSSSHTC
```

If you are using RDO and you have created a new group for the DRS programs, you can add the programs to an active CICS system by entering the following CEDA command:

```
INSTALL GROUP(gggg)
```

Alternatively, add group “gggg” to your CICS startup GRPLIST.

Note: If you were using DRS Release 1.0, this PLT entry is a replacement for DRS Release 1.0 program DRS1SHUT. Both programs perform the same function. However, DRS1SHUT is a CICS macro level program, and DRSSSHTC is a CICS command level program. The change was made because IBM will be dropping support of the CICS macro level interface in future releases of CICS. The macro level version of this program will not function with Version 1 Release 3.4 of DRS.

If you are running CICS 3.3 or higher, you should specify EXECKEY(CICS) for programs DRSSINTC and DRSSSHTC.

For DRS/STI CICS programs:

Add to the FCT using RDO:

```
DEFINE FILE DRSRULES GROUP(gggg) DSNAME(LRS.DRS.V1R34.RULES)
DISPOSITION(SHARE)
```

or, add to the FCT using macro definitions:

```
DRSRULES DFHFCT TYPE=DATASET,DATASET=DRSRULES, *
DSNAME=LRS.DRS.V1R34.RULES,DISP=SHR,ACCMETH=VSAM, *
FILSTAT=(ENABLED,CLOSED)
```

Add to the PCT using RDO:

```
DEFINE TRANSACTION(xxxx) GROUP(gggg) PROGRAM(DSSTSTI)
```

or, add to the PCT using macro definitions:

```
DFHPCT TYPE=ENTRY, *
TRANSID=xxxx,...any transaction ID you choose... *
PROGRAM=DSSTSTI
```

Add to the PPT using RDO:

```
DEFINE PROGRAM(DRSSINTC) GROUP(gggg) LANG(ASSEMBLER)
DEFINE PROGRAM(DRSSSHTC) GROUP(gggg) LANG(ASSEMBLER)
DEFINE PROGRAM(DSSTSTI) GROUP(gggg) LANG(ASSEMBLER)
DEFINE MAPSET(DMSTSTI) GROUP(gggg)
```

Note: If DRSSINTC and DRSSSHTC have already been defined for use with CICS programs that call DRS/API, those two definitions will not be required again.

or, add to the PPT using macro definitions:

```
DFHPPT TYPE=ENTRY, DRS/CICS INTERFACE (if not *
PROGRAM=DRSSINTC, already added) *
PGMLANG=ASSEMBLER

DFHPPT TYPE=ENTRY, DRS/CICS SHUTDOWN (if not *
PROGRAM=DRSSSHTC, already added) *
PGMLANG=ASSEMBLER

DFHPPT TYPE=ENTRY, DRS/STI INTERFACE *
PROGRAM=DSSTSTI, *
PGMLANG=ASSEMBLER

DFHPPT TYPE=ENTRY, DRS/STI MAPSET *
PROGRAM=DMSTSTI, *
PGMLANG=ASSEMBLER
```

Add to the PLT (PLTSD) using macro definitions (if not already added for CICS programs that call DRS/API):

```
DFHPLT TYPE=ENTRY, *  
PROGRAM=DRSSHTC
```

If you are using RDO and you have created a new group for the DRS programs, you can add the programs to an active CICS system by entering the following CEDA command:

```
INSTALL GROUP(gggg)
```

Alternatively, add group “gggg” to your CICS startup GRPLIST.

Running DRS in a QOR (Queue Owning Region) so that TS queues are shared across all CICS regions:

Normally, CICS temporary storage queues are local to each CICS system and are automatically deleted at CICS startup unless you specifically define the Queue name as a recoverable resource.

DRS stores information in a TS Queue called DR34xxxx (where xxxx is the CICS system ID) which is deleted at normal CICS termination by program DRSSHTC. But if CICS abends or is terminated abnormally then DRSSHTC doesn't get executed. This normally doesn't cause any problems because CICS will delete the TS queue during startup.

But if you are running with a Queue Owning Region which shares TS queues between multiple CICS regions, then the TS queues are not automatically deleted when the AOR that created them restarts.

To avoid this problem, define our TS queue as a local, non shared, queue. It will then work as before and be purged when CICS restarts.

Add the following definition to the CICS Temporary Storage Table.

```
DFHTST TYPE=LOCAL, *  
DATAID=(DR34) DEFINE DR34XXXX AS A LOCAL TS QUEUE
```

Installing an Updated Version of DRS

If you find that you need a “fix” for some problem or an enhancement to DRS that is not available in the version that you have installed, DRS support will send you a distribution cartridge that contains a version of DRS that includes the fix or enhancement that you need, as well as any other fixes and enhancements created for other DRS users since you received your previous installation cartridge.

The cartridge that you receive will be in the format described in the installation section of this manual. Installation of a new version of DRS Version 1 Release 3.4 should include:

- Replacing existing DRS load modules with the load modules in file LRS.DRS.V1R34.LOAD on the distribution cartridge (most fixes are applied as “zaps” to the load modules).
- Replacing sample user exit program source code and sample DRS program source code with the members in file LRS.DRS.V1R34.ASM on the distribution cartridge (remember, if you have made any modifications to user exits for your installation, you will want to carry those modifications forward into the newest version of the source code).
- Replacing sample JCL for assembling DRS user exits and options with the members in file LRS.DRS.V1R34.CNTL (remember, if you have made any modifications to this sample JCL unique to your installation, you will want to carry those modifications forward into the newest version of the sample JCL).
- Replacing macros used by DRS with the members in file LRS.DRS.V1R34.MACLIB.

If the problem you were experiencing or the enhancement which you requested was related to a DRS User Exit or to the DRS Systems Options module, you should perform the appropriate assemble-and-link job after you have refreshed your libraries from the distribution cartridge.

Section 21

DRS/API Request Calls

Introduction

There are three types of calls used by the application programmer to create a report. They are the **INIT**, **PUT**, and **TERM** calls.

The **INIT** call establishes the attributes of the report. This group of attributes is similar to parameters that you would code in **SYSOUT** JCL statements. There can be from 1 to 1,024 attribute groups specified in an **INIT** control block. One **SYSOUT** or **DASD** dataset is created for each attribute group. By using more than one attribute group, a report can be broadcast to many destinations, classes, writers, etc. Once the **INIT** call is successful, the report is considered active until a **TERM** call is issued. There is no **DRS** limit on the number of reports that can be active concurrently.

The **PUT** call adds lines to the report. From 1 to 32,767 lines of data can be added to a report with a single **PUT** call.

The **TERM** call ends the report. Once the **TERM** call is successful, the report is available for printing from the **JES** spool. The report is no longer considered active in **DRS**.

There are three additional calls which may be useful for certain applications.

The **QURY** call allows inquiry into **DRS**. A **QURY** call can be general (querying all active reports), detail (querying a specific report), or system (querying the status of **DRS**). A **QURY** call can also be used to inquire about dynamically defined **OUTPUT** JCL statements, and can be a general query, returning information about all existing dynamically defined **OUTPUT** JCL statements, or a detail query, returning information about a specific dynamically defined **OUTPUT** JCL statement.

The **CMND** call allows you to issue commands to **DRS**. Commands to **DRS** can request dumps of **DRS** control blocks (**SNAP**), close the **DRS** log dataset (**CLOSELOG**), reset logging and tracing values (**SSET**), instruct **DRS** to reject initiation of new reports (**QUIESCE**), or instruct **DRS** to accept initiation of new reports (**RESTART**).

The **OUTP** call allows you, under **MVS/ESA**, to dynamically add or delete an **OUTPUT** JCL statement. This allows the application to vary the **SYSOUT** characteristics at execution time.

General Information about DRS Calls

A call is made to DRS by linking to an interface module. For CICS programs, the interface module is DRSSINTC. For non-CICS programs, the interface module is DRSSINTB. A parameter list is passed on the call to provide the appropriate control block and data line addresses.

CICS Mode

The calls made to DRS to create a report can be from one or more CICS tasks. A field in the request block known as the REPORT ID identifies the report to which the call applies.

The CICS mode call is made with a CICS program control link. The parameters are passed in the CICS COMMAREA. The DRS Request Block (DRRB) must be first in the COMMAREA. Any other parameters must be passed immediately following the DRRB in the COMMAREA.

Although CICS requires that you specify the length of the COMMAREA for the program control link, DRS ignores this length field.

The CICS user ID and CICS terminal ID associated with the DRS call are retrieved and passed to DRS user exits. The user ID is retrieved via:

```
EXEC CICS ASSIGN(USERID)
```

and the CICS terminal ID is retrieved from the EIB (field EIBTRMID).

Non-CICS Mode

In non-CICS mode, standard linkage is used to call DRS. The parameter list format and control blocks are identical to the CICS mode.

Assembler Coding

There are three techniques available to call DRS from an assembler language program. All three techniques use the same parameters and require that register 13 point to an 18-word save area.

Technique 1 - Use a LOAD macro to load the interface. Save the address of the loaded module. Then use a branch and link to call the module. This technique has the advantage of both good performance (the module is loaded only once) and ease of maintenance (a new version of the interface module would not require any program changes or re-linkeds). **This is the recommended technique.**

Coding for this technique:

TO LOAD THE MODULE:

```
LOAD    EP=DRSSINTB  LOAD MODULE DRSSINTB.
ST      R0,INTBADDR  SAVE ADDRESS IN INTBADDR.
```

ON EACH CALL:

```
LA      R1,PARMLIST  POINT R1 TO PARAMETER LIST.
L       R15,INTBADDR LOAD R15 WITH MODULE ADDRESS.
BALR   R14,R15      BRANCH TO MODULE.
```

```
PARMLIST DC  A(PARM1),X'80',AL3(PARM2)
INTBADDR DS  F
```

Technique 2 - Use a LINK macro. This will cause the interface module to be loaded on the first call. It will then stay in virtual storage. The advantage to this method is that the interface module can be changed easily. However, the disadvantage is the overhead of doing many links.

Coding for this technique:

```
LA      R1,PARMLIST  POINT R1 TO PARAMETER LIST.
LINK    EP=DRSSINTB  LINK TO MODULE.
```

```
PARMLIST DC  A(PARM1),X'80',AL3(PARM2)
```

Technique 3 - Use a CALL macro. This will cause the interface module to be linkedited with the application program. This way is very good from a performance standpoint. However, whenever the interface module changes for a new release, all application programs using DRS would have to be re-linked. This technique is not recommended.

Coding for this technique:

```
LA      R1,PARMLIST  POINT R1 TO PARAMETER LIST.
CALL    DRSSINTB     CALL MODULE.
```

```
PARMLIST DC  A(PARM1),X'80',AL3(PARM2)
```

COBOL Coding

There are two techniques in COBOL to call DRS. The COBOL source code is the same in either case. The difference is in the specification of compiler option DYNAM/NODYNAM. DYNAM is recommended, because it indicates that the interface module should be loaded at execution time. Specifying NODYNAM will cause the interface to be linked with the application program, which means that any program using DRS would have to be re-linked when a new release of the interface module is distributed.

Example of COBOL Coding:

```
.  
.   
WORKING-STORAGE SECTION.  
.   
.   
01 WS-DRRB.  
COPY DRSDRRBC.  
.   
01 WS-DRIB.  
COPY DRSDRIBC.  
.   
.   
PROCEDURE DIVISION.  
.   
.   
CALL 'DRSSINTB' USING WS-DRRB  
                                WS-DRIB.  
.   
.
```

Parameters for DRS Calls

The parameter list for a DRS call consists of one or more DRS control blocks. Every call requires that the REQUEST BLOCK be passed as the first parameter in the parameter list. Other parameters vary by the type of call being requested.

All of the DRS control blocks, as well as the data lines passed to DRS on a PUT call, can be allocated above or below the 16M line.

All parameters passed to DRS are edited prior to use. Parameters can be defined as alpha (A - Z), numeric (0 - 9), alphanumeric (A - Z and 0 - 9), or national (@, \$, and #). Values in character type parameters should be left justified and blank filled. A character type field containing a blank or X'00' in the first byte is considered to be not specified.

Any areas in DRS control blocks which are described as "reserved" or "filler" should be initialized to X'00' (LOW-VALUES in COBOL) to maintain compatibility with future releases.

The individual fields which make up each of the DRS control blocks are described in detail later in this section.

The INIT Call

The INIT call initiates a report. This call requires that two parameters be passed. The first is the REQUEST BLOCK and the second is the INIT BLOCK. The INIT BLOCK may be anywhere in storage. DRS references it, but does not modify it.

(In CICS mode, the REQUEST BLOCK and the INIT BLOCK must exist contiguously in the COMMAREA, with the REQUEST BLOCK first).

The PUT Call

The PUT call adds print lines to a report. This call requires that two parameters be passed. The first is the REQUEST BLOCK and the second is the print line(s) to be added to the report.

If the dataset is fixed format, the second parameter should point directly to the first byte of data (the carriage control byte, if the dataset has carriage control, or the first byte of print data, if it does not have carriage control). If the dataset is variable format, the second parameter should point to the 4-byte Record Descriptor Word (RDW) which precedes the print line. DRS will use the record length in the first 2 bytes of the RDW to determine the length of the line. If the dataset is undefined format, the second parameter should point to a 4-byte field preceding the print line. DRS will use the record length in the first 2 bytes of this field to determine the length of the line (just as it would for variable format datasets), and will remove the 4-byte record length field before it adds the print line to the report.

You can add more than one print line to a report with one PUT call by indicating the number of lines in the DATA LINE COUNT field of the REQUEST BLOCK. The lines to be added must exist contiguously in storage, and the second parameter in the parameter list should point to the first of the print lines to be added. The maximum number of print lines which can be added to a report with one PUT call is 32,767.

(In CICS mode, the REQUEST BLOCK and any print lines being passed on the PUT call must exist contiguously in the COMMAREA, with the REQUEST BLOCK first).

The TERM Call

The TERM call terminates the report. This call requires only that the REQUEST BLOCK be passed. However, you may optionally pass the TERMINATION BLOCK as the second parameter on a TERM call. The TERMINATION BLOCK allows you to change attributes of a dataset or delete a dataset at termination of the report.

(In CICS mode the REQUEST BLOCK and the TERMINATION BLOCK, if supplied, must exist contiguously in the COMMAREA, with the REQUEST BLOCK first).

The QUERY Call

The QUERY (query) call is used to inquire about the status of all of the reports which are active in DRS, about a specific report, or about the DRS system in general. This request requires that the REQUEST BLOCK and the QUERY BLOCK be passed.

(In CICS mode, the REQUEST BLOCK and the QUERY BLOCK must exist contiguously in the COMMAREA, with the REQUEST BLOCK first).

The CMND Call

The CMND (command) call allows commands to be issued to DRS. This call requires that the REQUEST BLOCK and the COMMAND BLOCK be passed.

(In CICS mode, the REQUEST BLOCK and the COMMAND BLOCK must exist contiguously in the COMMAREA, with the REQUEST BLOCK first).

The OUTP Call

The OUTP (dynamic output call) allows users of MVS/ESA to add or delete OUTPUT JCL statements. This call requires that the REQUEST BLOCK and the OUTPUT BLOCK be passed.

(In CICS mode, the REQUEST BLOCK and the OUTPUT BLOCK must exist contiguously in the COMMAREA, with the REQUEST BLOCK first).

DRS Control Blocks

Request Block (DRRB)

The REQUEST BLOCK contains information needed for all types of calls. It identifies the report, the type of call, and the options for the call, and also provides an area for DRS to return information to the caller. The REQUEST BLOCK must contain the characters “DRRB” in the first 4 bytes. If these characters are not found, DRS will abend the task or the program. The REQUEST BLOCK must be in modifiable storage.

The individual fields which make up the REQUEST BLOCK are:

| | |
|--------------------|---|
| ‘DRRB’ | The control block identifier. Assembler name: DRRID COBOL name: DRS-DRRB-ID |
| FUNCTION | The type of call being requested. Valid values are “INIT”, “PUT”, “TERM”, “QURY”, “CMND”, and “OUTP”. Assembler name: DRRFUNC COBOL name: DRS-DRRB-FUNCTION |
| REPORT ID | The identifier of the report. If this field is blank on an INIT call, DRS will assign a report id and will place it in this field, to be used on all subsequent calls for the same report. If you wish to supply a report id, it should be supplied for the INIT call and all subsequent calls for the same report, and must consist of 1 to 8 alphanumeric or national characters, with an alpha character required in the first position. This field does not apply to a QURY or CMND call. Assembler name: DRRRID COBOL name: DRS-DRRB-REPORT-ID |
| OPTIONS | Four option bytes to allow for special requirements. Option field 1 (DRROPT1) may contain “V” to indicate that the call should be validated, but not processed. This allows control block validation without creating a print file. (In a prior release, option field 1 could contain a “C” to indicate that conditional GETMAINs should be performed. This is not required for this release of DRS, but a “C” in the DRROPT1 field is still considered a valid value for compatibility purposes.) Option fields 2, 3 and 4 are currently unused and should contain blanks or binary zeroes (LOW-VALUES in COBOL). Assembler name: DRROPTS COBOL name: DRS-DRRB-OPTIONS |
| RETURN CODE | A four-byte binary field, filled in by DRS, indicating the results of the call. A zero value indicates that the call was successful. A non-zero value indicates that an error occurred. The meanings of non-zero return codes are listed in “DRS/API Return Codes” on page 24.1 . Assembler name: DRRRC COBOL name: DRS-DRRB-RETURN-CODE |

| | |
|-------------------------------------|--|
| OS RETURN CODE | <p>A four-byte binary field, filled in by DRS, containing the operating system return code received by DRS. This is present only for some DRS return codes. The OS return code field format varies with the type of failure.</p> <p>Assembler name: DRRRCS COBOL name: DRS-DRRB-OS-RETURN-CODE</p> |
| ATTR NUMBER IN ERROR | <p>If the DRS return code indicates a failure related to attribute processing, DRS will fill this two-byte binary field with the number (relative to 1) of the attribute group which caused the failure.</p> <p>This field does not apply to a QURY or CMND call.</p> <p>Assembler name: DRRATRE COBOL name: DRS-DRRB-ATTR-IN-ERROR</p> |
| DATA LINE COUNT | <p>On a PUT call, this field indicates to DRS how many lines are being passed to DRS for addition to the report. For compatibility with the prior release, a value of either blanks or binary zeroes will be assumed to represent one line.</p> <p>Assembler name: DRRLINCT COBOL name: DRS-DRRB-DATA-LINE-CNT</p> |
| DRDC ADDRESS | <p>This field contains the address of an area which is initialized by DRS on the first call made and used on subsequent calls.</p> <p>Assembler name: DRRDRDC COBOL name: DRS-DRRB-DRDC-ADDRESS</p> |
| REPORT LINE COUNT | <p>A four-byte binary field where DRS stores a count of lines "PUT" to the report. It is returned by DRS on PUT and TERM calls.</p> <p>Assembler name: DRRLINE COBOL name: DRS-DRRB-REPORT-LINE-CNT</p> |

The macro "DRSDRRB" in file LRS.DRS.V1R34.MACLIB is supplied to generate a DSECT of the REQUEST BLOCK. The copy member "DRSDRRBC" in file LRS.DRS.V1R34.MACLIB is supplied to generate a COBOL description of the REQUEST BLOCK.

INIT Block (DRIB)

The INIT block is used by the caller to describe the attributes of a particular report. The INIT BLOCK can be anywhere in storage. DRS references it, but does not modify it.

The individual fields which make up the INIT BLOCK are:

| | |
|----------------------------|---|
| 'DRIB' | The control block identifier. Assembler name: DRIID COBOL name: DRS-DRIBC-ID or DRS-DRIBX-ID |
| ATTRIBUTE COUNT | A two-byte binary field specifying the number of attribute groups in this DRIB. There can be from 1 to 1,024 attribute groups in one DRIB. Assembler name: DRINATTR COBOL name: DRS-DRIBC-NBR-ATTR-GRPS or DRS-DRIBX-NBR-ATTR-GRPS |
| EXTENSION INDICATOR | An indicator of whether extended attribute groups are specified in this DRIB. Values of "Y" or "N" are valid. Assembler name: DRIXAGRP COBOL name: DRS-DRIBC-EXTENDED-ATTR or DRS-DRIBX-EXTENDED-ATTR |
| DELETION INDICATOR | An indicator of whether incomplete reports described by this DRIB (reports which have not had a TERM call) should be deleted when DRS or the application using DRS terminates. Values of "Y" or "N" are valid. Assembler name: DRIDELT COBOL name: DRS-DRIBC-DELETE-INCMPL or DRS-DRIBX-DELETE-INCMPL |
| LAN ATTRIBUTES | The address of LAN attributes received from DRS/PC. These attributes identify the source of the print file and can be used for creation of separators (banners). Assembler name: DRILANA COBOL name: DRS-DRIBC-LAN-ATTRIBUTE or DRS-DRIBX-LAN-ATTRIBUTE |
| RECORD FORMAT | The record format of the report. Valid values are "F" for fixed format, "V" for variable format, and "U" for undefined format. Assembler name: DRIRFT COBOL name: DRS-DRIBC-RFT or DRS-DRIBX-RFT |
| CARRIAGE CONTROL | The carriage control type of the report. Valid values are "A" for ASA, "M" for machine, or blank (X'40') for no carriage control. Assembler name: DRIRFC COBOL name: DRS-DRIBC-RFC or DRS-DRIBX-RFC |

BLOCKING INDICATOR

A one-byte field indicating if the records in this report should be blocked ("B") or unblocked (blank).

Assembler name: DRIRFB

COBOL name: DRS-DRIBC-RFB or
DRS-DRIBX-RFB

RECORD LENGTH

A two-byte binary field specifying the record length of records in this report. This length must include the carriage control byte, if carriage control is specified as "A" or "M". (This field is ignored for a record format of "U").

For fixed format reports, the minimum record length is 1 and the maximum record length is 32,760. For variable format reports, the minimum record length is 4 (the size of the four-byte RDW) for a null record without carriage control or 5 (the sum of the four-byte RDW and one byte of carriage control) for a null line with carriage control. The maximum record length is 32,756 for variable format reports.

Assembler name: DRILREC

COBOL name: DRS-DRIBC-LRECL or
DRS-DRIBX-LRECL

BLOCK SIZE

A two-byte binary field specifying the block size of this report. For fixed format reports, the minimum is the record length and the maximum is 32,760. (However, block size must be a multiple of record length for fixed format reports). For variable format reports, the minimum is the record length plus 4, and the maximum is 32,760. For undefined format, the minimum is 1 and the maximum is 32,760.

Assembler name: DRIBLKS

COBOL name: DRS-DRIBC-BLKSIZE or
DRS-DRIBX-BLKSIZE

Note: Although blocking is allowed, it is recommended that blocking not be used. Blocking increases the amount of storage used and gains no performance in JES.

The following fields are specified for each individual attribute group.

| | |
|------------------------------|--|
| DESTINATION/ NODE | <p>The destination to which the dataset represented by this attribute group should be routed. If this field is not specified, a destination of LOCAL is assumed. If destination is specified, it must be a destination defined to JES, such as a remote number (Rnnnn), a special local number (Unnnn), or a name specified in a DESTID card in the JES initialization deck. The destination must be alphanumeric or national characters and begin with an alpha character. From 1 to 8 characters can be specified.</p> <p>An alternate meaning for this field is a JES node name. If this field contains a node name, then the extended version of the DRIB must be used, and the SYSOUT USERID field in the extended area must contain the destination.</p> <p>Assembler name: DRIDEST COBOL name: DRS-DRIBC-DEST or DRS-DRIBX-DEST</p> |
| WRITER NAME | <p>Specifies the special writer name for the dataset. This field is optional. If writer name is specified, it must be alphanumeric or national characters. From 1 to 8 characters can be specified.</p> <p>Assembler name: DRIWRTR COBOL name: DRS-DRIBC-WRITER or DRS-DRIBX-WRITER</p> |
| FORM | <p>Specifies the form name for the dataset. The form name is optional. If form name is specified, it must be alphanumeric or national characters. From 1 to 4 characters can be specified.</p> <p>Assembler name: DRIFORM COBOL name: DRS-DRIBC-FORM or DRS-DRIBX-FORM</p> |
| FCB | <p>Specifies the FCB image to be used to print the dataset. The FCB is optional. If no FCB is specified, the JES default will be used. If FCB is specified, it must be alphanumeric or national characters. From 1 to 4 characters can be specified.</p> <p>Assembler name: DRIFCB COBOL name: DRS-DRIBC-FCB or DRS-DRIBX-FCB</p> |
| UCS | <p>Specifies the UCS image to be used to print the dataset. The UCS is optional. If no UCS is specified, the JES default will be used. If UCS is specified, it must be alphanumeric characters. From 1 to 4 characters can be specified.</p> <p>Assembler name: DRIUCS COBOL name: DRS-DRIBC-UCS or DRS-DRIBX-UCS</p> |

| | |
|-------------------|--|
| CLASS | <p>Specifies the SYSOUT class of the dataset. This field is optional. It is one character, and if it is specified, it must be alphanumeric or an asterisk. When an asterisk is specified, the MSGCLASS of the job or started task is used. If CLASS is not specified, the dataset will receive the class specified on a referenced OUTPUT JCL statement, if any. Otherwise, the dataset will receive the MSGCLASS associated with the job or started task.</p> <p>Assembler name: DRICLAS COBOL name: DRS-DRIBC-CLASS or DRS-DRIBX-CLASS</p> |
| HOLD | <p>Specifies whether or not the dataset should be in "HOLD" status. Valid values are "Y" and "N". This field is required.</p> <p>Assembler name: DRIHOLD COBOL name: DRS-DRIBC-HOLD or DRS-DRIBX-HOLD</p> |
| COPY COUNT | <p>A two-byte binary field specifying how many copies of the dataset are requested. Values can range from 1 to 255. This field is required.</p> <p>Assembler name: DRICOPY COBOL name: DRS-DRIBC-COPIES or DRS-DRIBX-COPIES</p> |
| DDNAME | <p>An eight-byte character field identifying a DDNAME to be used when DRS allocates the report. If it is not specified, DRS will assign a DDNAME.</p> <p>Assembler name: DRIDDN COBOL name: DRS-DRIBC-DDNAME or DRS-DRIBX-DDNAME</p> |

The following fields are part of the “extended” DRIB. They are part of the DRIB only if a value of “Y” is specified in the EXTENSION INDICATOR field of the DRIB.

| | |
|------------------------------|---|
| EXTENDED FORM NAME | <p>Specifies a 8-position form name for the dataset. This field is optional. If specified, it will be used instead of the value specified in the 4-position form name field in the non-extended portion of the DRIB. If specified, it must be alphanumeric or national characters. Up to eight characters can be specified. (Some versions of the operating system do not support 8-position form names on dynamically allocated datasets. If you specify an 8-position form name and the operating system which you run does not support it, allocation will fail).</p> <p>Assembler name: DRIFORM COBOL name: DRS-DRIBX-EXTENDED-FORM</p> |
| SYSOUT USERID | <p>For a DRIB where the DESTINATION field contains a node name, this field contains the destination.</p> <p>Assembler name: DRIUSRID COBOL name: DRS-DRIBX-USERID</p> |
| OUTPUT STMT STEPNAME | <p>Specifies the stepname to be used to associate this dataset with an OUTPUT JCL statement (if any).</p> <p>Assembler name: DRIOUTST COBOL name: DRS-DRIBX-OUTPUT-STMT-STEP</p> |
| OUTPUT STMT PROCEDURE | <p>Specifies the name of the procedure step to be used to associate this dataset with an OUTPUT JCL statement (if any).</p> <p>Assembler name: DRIOUTPR COBOL name: DRS-DRIBX-OUTPUT-STMT-PROC</p> |
| OUTPUT STMT NAME | <p>Specifies the name of the OUTPUT JCL statement to be associated with this dataset (if any).</p> <p>Assembler name: DRIOUTNM COBOL name: DRS-DRIBX-OUTPUT-STMT-NAME</p> |
| UCS VERIFICATION | <p>Specifies whether or not UCS verification is requested. Valid values are “Y” or “N”.</p> <p>Assembler name: DRIUCSVR COBOL name: DRS-DRIBX-UCS-VERIF</p> |
| FOLD | <p>Specifies whether or not the chain or train for the universal character set should be loaded in fold mode. (Fold mode is described in “IBM 2821 Control Unit Component Description”). Valid values are “Y” or “N”.</p> <p>Assembler name: DRIFOLD COBOL name: DRS-DRIBX-FOLD</p> |
| BURST | <p>Specifies, for a dataset to be printed on a 3800 Printing Subsystem, whether forms should be sent to the burster-trimmer-stacker to be burst into separate sheets (value of “B”) or whether they should be sent to the continuous form stacker (value of “C”).</p> <p>Assembler name: DRIBURST COBOL name: DRS-DRIBX-BURST</p> |

| | |
|---------------------------------------|---|
| COPY GROUP(S) | <p>Specifies, for a dataset to be printed on a 3800 Printing Subsystem, how many copies of each page are to be printed before the next page is printed. Each of the 8 fields is a 1-byte binary field representing a value from 1 to 255. (The sum of the 8 copy groups cannot exceed 255).</p> <p>Assembler name: DRICOPYG COBOL name: DRS-DRIBX-COPY-GROUPS</p> |
| CHARACTER ARRANGEMENT TABLE(S) | <p>Specifies, for a dataset to be printed on a 3800 Printing Subsystem, the name of a character-arrangement table to be used for printing this dataset. Each of the 4 character arrangement table fields is a 4-byte alphanumeric or national field. For more information on character-arrangement tables, see "3800 Printing Subsystem Programmer's Guide".</p> <p>Assembler name: DRICHARS COBOL name: DRS-DRIBX-3800-CHAR-ARR</p> |
| FLASH | <p>Specifies, for a dataset to be printed on a 3800 Printing Subsystem, the name of the forms overlay to be used in printing this dataset. The name is 1 to 4 alphanumeric or national characters.</p> <p>Assembler name: DRIFLASH COBOL name: DRS-DRIBX-FLASH-OVERLAY</p> |
| COPY MODIFICATION MODULE | <p>Specifies, for a dataset to be printed on a 3800 Printing Subsystem, the name of a copy-modification module that tells JES how to print this SYSOUT dataset. For more information on copy-modification, see "Data Administration: Utilities". The module name is 1 to 4 alphanumeric or national characters.</p> <p>Assembler name: DRICMOD COBOL name: DRS-DRIBX-3800-COPY-MODULE</p> |
| FLASH FORMS OVERLAY COUNT | <p>Specifies, for a dataset to be printed on a 3800 Printing Subsystem, the number of copies on which the forms overlay (specified in the FLASH field) is to be printed. This is a 1-byte binary field representing a count from 0 to 255. (A count of 0 indicates that all copies should be flashed).</p> <p>Assembler name: DRIFLSCT COBOL name: DRS-DRIBX-3800-FLASH-COUNT</p> |
| COPY MODULE TABLE REFERENCE | <p>Specifies, for a dataset to be printed on a 3800 Printing Subsystem, which table name in the character-arrangement table should be used, when a copy-modification module is specified. This is a 1-byte character field where a value of 0 represents the first table name, a value of 1 represents the second table name, etc.</p> <p>Assembler name: DRICMTRC COBOL name: DRS-DRIBX-COPY-MOD-TAB</p> |
| SUBSYSTEM NAME | <p>Specifies the name of the subsystem that is to process the allocation request, when that subsystem is not the default subsystem. If specified, this 4-byte field must begin with an alphabetic or national character. All other characters must be alphanumeric or national.</p> <p>Assembler name: DRISSNM COBOL name: DRS-DRIBX-SUBSYS-NAME</p> |

**SUBSYSTEM
PARAMETERS**

Specifies parameters to be passed to the subsystem specified in the SUBSYSTEM NAME field. There are no restrictions on the format of the contents of this 16-byte field. This field is ignored if it contains either all binary zeroes or all blanks.

Assembler name: DRISSPRM

COBOL name: DRS-DRIBX-SUBSYS-PARM

JOBNAME

Specifies the jobname that DRS will use to create this SYSOUT dataset on the spool. This field is optional. If specified, the value must contain alphanumeric or national characters, and the first character must be alphabetic or national. From 1 to 8 characters can be specified. Additionally, DRS/API modules must be loaded from an authorized library, MVS/SP 4.1.0 or greater must be running and the HBB4410 extensions to MVS must be present in order to specify a value for jobname. CICS application programs that call DRS/API will not be able to use this feature, due to APF authorization restrictions in the CICS environment.

Assembler name: DRIJOBNM

COBOL name: DRS-DRIBX-ASSIGNED-JOBNAME

USER AREA

This field supplies the user with 32 bytes in which to store data unique to this dataset. This user-supplied data is passed to the “Add Lines” exit. (This field could be used for some information to be printed on banner pages created by the “Add Lines” exit). There are no restrictions on the format of this data.

Assembler name: DRIUSER

COBOL name: DRS-DRIBX-USER-BYTES

The following fields are also part of the “extended” DRIB. If the report is to be created as a DASD file rather than a SYSOUT dataset on the JES spool, these labels should be used to supply the attributes of the DASD file.

| | |
|-----------------------------|--|
| MEMBER NAME | An 8-byte character field which supplies the member name of a PDS to be created by DRS. Assembler name: DRIDMEMB COBOL name: DRS-DRIBX-DASD-MEMBER |
| UNIT NAME | An 8-byte character field which supplies the unit type upon which a DASD print file should be allocated. Assembler name: DRIDUNIT COBOL name: DRS-DRIBX-DASD-UNIT |
| INITIAL DISPOSITION | A 1-byte character field which supplies the initial disposition of a DASD print file. Valid values are “N” (NEW), “O” (OLD), “S” (SHR), and “M” (MOD). The default, if not specified, is “N”. Assembler name: DRIDSTAT COBOL name: DRS-DRIBX-DASD-ISTATUS |
| NORMAL DISPOSITION | A 1-byte character field which supplies the normal disposition of a DASD print file. Valid values are “C” (CATLG), “U” (UNCATLG), “K” (KEEP), and “D” (DELETE). The default, if not specified, is “K”. Assembler name: DRIDNDSP COBOL name: DRS-DRIBX-DASD-NORMAL-DISP |
| RETENTION PERIOD IND | A 1-byte character field which indicates whether the retention period has been specified. Valid values are “Y” and “N”. The default, if not specified, is “N”. Assembler name: DRIDRTPS COBOL name: DRS-DRIBX-DASD-RETPS |
| RETENTION PERIOD | A 2-byte binary field which supplies the retention period of a DASD print file. Valid values are in the range of 0 to 9999, inclusive. This field is not used by DRS unless DRS actually creates the print file dataset and the retention period indicator field is set to “Y”. Assembler name: DRIDRTPD COBOL name: DRS-DRIBX-DASD-RETPD |
| AVERAGE RECORD SIZE | A 2-byte binary field which supplies the average record length, in bytes, of the data. Using the average record length, the system computes the block size and the number of tracks to allocate. Valid values are in the range of 1 to 65535. This field is not used by DRS unless DRS actually creates the print file dataset. SMS must be active for this field to be effective. Assembler name: DRIDAVRS COBOL name: DRS-DRIBX-DASD-AVGREC-SIZE |

| | |
|--------------------------------|---|
| AVERAGE RECORD UNIT | <p>A 1-byte character field which supplies the average record unit of allocation of a DASD print file. Valid values are “U” (UNITS), “K” (THOUSANDS), and “M” (MILLIONS). This field is not used by DRS unless DRS actually creates the print file dataset. SMS must be active for this field to be effective.</p> <p>Assembler name: DRIDAVRU COBOL name: DRS-DRIBX-DASD-AVGREC-UNIT</p> |
| VOLUME NAME | <p>A 6-byte character field which supplies the volume on which a DASD print file should be allocated.</p> <p>Assembler name: DRIDVOL COBOL name: DRS-DRIBX-DASD-VOLUME</p> |
| EXPIRATION DATE | <p>A 7-byte character field which supplies the Julian expiration date of a DASD print file. The format of the field is “yyyyddd”, where “yyyy” is the 4-digit year of the expiration date and “ddd” is the 3-digit Julian day of the expiration date. This field is not used by DRS unless DRS actually creates the print file dataset.</p> <p>Assembler name: DRIDEXPD COBOL name: DRS-DRIBX-DASD-EXPDT</p> |
| DATASET TYPE | <p>A 1-byte character field which supplies the dataset type of a DASD print file. Valid values are “L” (LIBRARY or PDSE) and “P” (PDS). This field is not used by DRS unless DRS actually creates the print file dataset.</p> <p>Assembler name: DRIDDSTY COBOL name: DRS-DRIBX-DASD-DSNTYPE</p> |
| RELEASE UNUSED SPACE | <p>A 1-byte character field which indicates whether unused space should be released from a DASD print file when the file is unallocated. Valid values are “Y” and “N”. This field is not used by DRS unless DRS actually creates the print file dataset. The default, if not specified, is “N”.</p> <p>Assembler name: DRIDRLSE COBOL name: DRS-DRIBX-DASD-RLSE</p> |
| DASD INDICATOR FLAG | <p>A 1-byte character field indicating whether or not this report is to be allocated as a DASD file (rather than a SYSOUT file). Valid values are “Y” and “N”.</p> <p>Assembler name: DRIDDASD COBOL name: DRS-DRIBX-DASD-INDICATOR</p> |
| DASD ALLOCATION TYPE | <p>A 1-byte character field which supplies the allocation type for a DASD print file. Valid values are “B” (blocks), “C” (cylinders) and “T” (tracks).</p> <p>Assembler name: DRIDATYP COBOL name: DRS-DRIBX-DASD-ALLOC-TYPE</p> |
| DASD PRIMARY ALLOCATION | <p>A 2-byte binary field which supplies the amount for the primary allocation of a DASD print file.</p> <p>Assembler name: DRIDPRI COBOL name: DRS-DRIBX-DASD-PRI-ALLOC</p> |

**DASD
SECONDARY
ALLOCATION**

A 2-byte binary field which supplies the amount for the secondary allocation of a DASD print file.

Assembler name: DRIDSEC

COBOL name: DRS-DRIBX-DASD-SEC-ALLOC

**DASD
DIRECTORY
BLOCKS**

A 2-byte binary field which supplies the number of directory blocks to be used for allocation of a DASD print file that is a PDS with a disposition of "NEW".

Assembler name: DRIDDIR

COBOL name: DRS-DRIBX-DASD-DIR-BLOCKS

DATASET NAME

A 44-byte character field which supplies the dataset name of a DASD print file.

Assembler name: DRIDDSNM

COBOL name: DRS-DRIBX-DASD-DSNAME

VOLUME COUNT

A 2-byte binary field which supplies the volume count for volumes on which a DASD print file is to be allocated.

Assembler name: DRIDVLCT

COBOL name: DRS-DRIBX-DASD-VOLUME-CNT

UNIT COUNT

A 2-byte binary field which supplies the number of device units to be used for a DASD print file.

Assembler name: DRIDUNCT

COBOL name: DRS-DRIBX-DASD-UNIT-CNT

STORAGE CLASS

An 8-byte character field which supplies the SMS storage class of a DASD print file. This field is not used by DRS unless DRS actually creates the print file dataset. SMS must be active for this field to be effective.

Assembler name: DRIDSTCL

COBOL name: DRS-DRIBX-DASD-STORCLAS

**MANAGEMENT
CLASS**

An 8-byte character field which supplies the SMS management class of a DASD print file. This field is not used by DRS unless DRS actually creates the print file dataset. SMS must be active for this field to be effective.

Assembler name: DRIDMGCL

COBOL name: DRS-DRIBX-DASD-MGMTCLAS

DATA CLASS

An 8-byte character field which supplies the SMS data class of a DASD print file. This field is not used by DRS unless DRS actually creates the print file dataset. SMS must be active for this field to be effective.

Assembler name: DRIDDACL

COBOL name: DRS-DRIBX-DASD-DATACLAS

The macro "DRSDRIB" in file LRS.DRS.V1R34.MACLIB is supplied to generate a DSECT of the INIT BLOCK. The copy member "DRSDRIBC" in file LRS.DRS.V1R34.MACLIB is supplied to generate a COBOL description of the INIT BLOCK without extensions. Member "DRSDRIBX" generates a COBOL description of the INIT BLOCK with extensions.

The following fields are also part of the 'extended' DRIB. If the report is to be created as an HFS file rather than a SYSOUT dataset on the JES spool, these labels should be used to supply the attributes of the HFS file.

| | |
|-------------------------------|---|
| FILE DATA | A 1-byte field which indicates whether the file is binary or text. Valid values are "B" (BINARY) and "T" (TEXT). Assembler name: DRIHFDAT COBOL name: DRS-DRIBX-HFS-FILE-DATA-ORG |
| NORMAL DISPOSITION | A 1-byte field which supplies the normal disposition for the HFS file. Valid values are "D" (DELETE) and "K" (KEEP). Assembler name: DRIHPNDS COBOL name: DRS-DRIBX-HFS-NRML-DISP |
| ABNORMAL DISPOSITION | A 1-byte field which supplies the abnormal disposition for the HFS file. Valid values are "D" (DELETE) and "K" (KEEP). Assembler name: DRIHPNDS COBOL name: DRS-DRIBX-HFS-ABNRML-DISP |
| READ ACCESS FOR USER | A 1-byte field which indicates whether the user should have READ access to the HFS file. Valid values are "Y" and "N". Assembler name: DRIHRUSR COBOL name: DRS-DRIBX-HFS-READ-USER |
| READ ACCESS FOR GROUP | A 1-byte field which indicates whether the user's group should have READ access to the HFS file. Valid values are "Y" and "N". Assembler name: DRIHRGRP COBOL name: DRS-DRIBX-HFS-READ-GROUP |
| READ ACCESS FOR OTHER | A 1-byte field which indicates whether users which are not in the user's group should have READ access to the HFS file. Valid values are "Y" and "N". Assembler name: DRIHROTH COBOL name: DRS-DRIBX-HFS-READ-OTHER |
| WRITE ACCESS FOR USER | A 1-byte field which indicates whether the user should have WRITE access to the HFS file. Valid values are "Y" and "N". Assembler name: DRIHWUSR COBOL name: DRS-DRIBX-HFS-WRITE-USER |
| WRITE ACCESS FOR GROUP | A 1-byte field which indicates whether the user's group should have WRITE access to the HFS file. Valid values are "Y" and "N". Assembler name: DRIHWGRP COBOL name: DRS-DRIBX-HFS-WRITE-GROUP |
| WRITE ACCESS FOR OTHER | A 1-byte field which indicates whether users which are not in the user's group should have access to the HFS file. Valid values are "Y" and "N". Assembler name: DRIHWOTH COBOL name: DRS-DRIBX-HFS-WRITE-OTHER |
| EXEC ACCESS FOR USER | A 1-byte field which indicates whether the user should have EXEC access to the HFS file. Valid values are "Y" and "N". Assembler name: DRIHXUSR COBOL name: DRS-DRIBX-HFS-EXEC-USER |

**EXEC ACCESS
FOR GROUP**

A 1-byte field which indicates whether the user's group should have EXEC access to the HFS file. Valid values are "Y" and "N".

Assembler name: DRIHXGRP

COBOL name: DRS-DRIBX-HFS-EXEC-GROUP

**EXEC ACCESS
FOR OTHER**

A 1-byte field which indicates whether users which are not in the user's group should have EXEC access to the HFS file. Valid values are "Y" and "N".

Assembler name: DRIHXOTH

COBOL name: DRS-DRIBX-HFS-EXEC-OTHER

**PATHOPTS
OAPPEND**

A 1-byte field which indicates whether OAPPEND should be used when accessing the HFS file. Valid values are "Y" and "N".

Assembler name: DRIHPOAP

COBOL name: DRS-DRIBX-HFS-GRP-OAPPEND

**PATHOPTS
OCREAT**

A 1-byte field which indicates whether OCREAT should be used when accessing the HFS file. Valid values are "Y" and "N".

Assembler name: DRIHPOCR

COBOL name: DRS-DRIBX-HFS-GRP-OCREAT

**PATHOPTS
OEXCL**

A 1-byte field which indicates whether OEXCL should be used when accessing the HFS file. Valid values are "Y" and "N".

Assembler name: DRIHPOEX

COBOL name: DRS-DRIBX-HFS-GRP-OEXCL

**PATHOPTS
ONOCPTY**

A 1-byte field which indicates whether ONOCPTY should be used when accessing the HFS file. Valid values are "Y" and "N".

Assembler name: DRIHPONC

COBOL name: DRS-DRIBX-HFS-GRP-ONOCPTY

**PATHOPTS
ONONBLOCK**

A 1-byte field which indicates whether ONONBLOCK should be used when accessing the HFS file. Valid values are "Y" and "N".

Assembler name: DRIHPONB

COBOL name: DRS-DRIBX-HFS-GRP-ONONBLOCK

**PATHOPTS
OSYNC**

A 1-byte field which indicates whether OSYNC should be used when accessing the HFS file. Valid values are "Y" and "N".

Assembler name: DRIHPOSY

COBOL name: DRS-DRIBX-HFS-GRP-OSYNC

**PATHOPTS
OTRUNC**

A 1-byte field which indicates whether OTRUNC should be used when accessing the HFS file. Valid values are "Y" and "N".

Assembler name: DRIHPOTR

COBOL name: DRS-DRIBX-HFS-GRP-OTRUNC

DATASET TYPE

A 1-byte field which supplies the dataset type of the HFS print file. Valid values are 'H' for normal HFS files and 'F' for FIFO/NAMED PIPE files.

Assembler name: DRIHDSTY

COBOL name: DRS-DRIBX-HFS-DSNTYPE

**DASD INDICATOR
FLAG**

A 1-byte field indicating whether or not this report is to be allocated as a disk file (rather than a SYSOUT file). Valid values are “Y” and “N”. All other HFS parameters will be ignored if this field is not set to “Y”.

Assembler name: DRIHDASD

COBOL name: DRS-DRIBX-HFS-DASD-INDICATOR

PATH NAME

A 100-byte field which provides the PATH NAME for the HFS file which will be updated. Valid values include alphabetic, numeric and most punctuation characters. The PATH name should begin with a slash (/).

Assembler name: DRIHPATH

COBOL name: DRS-DRIBX-HFS-PATH-NAME

Termination Block (DRTB)

The TERMINATION block can be used on a TERM call to modify some attributes of a report or to delete a report. If this control block is supplied on a TERM call, DRS uses the information in the control block, but does not modify it.

The individual fields which make up the TERMINATION BLOCK are:

| | |
|------------------------|--|
| 'DRTB' | The control block identifier. Assembler name: DRTID COBOL name: DRS-DRTB-ID |
| ATTRIBUTE COUNT | A two-byte binary field specifying the number of attribute groups in this DRTB. There can be from 1 to 1,024 attribute groups in one DRTB. Assembler name: DRTNATTR COBOL name: DRS-DRTB-NBR-ATTR-GRPS |

The following fields are specified for each individual attribute group which is to be modified.

| | |
|--------------------------------|--|
| ATTRIBUTE INDEX | A two-byte binary field specifying the number of the attribute group which is to be modified by this occurrence. Assembler name: DRTATRIX COBOL name: DRS-DRTB-ATTR-INDX |
| OVERRIDING DISPOSITION | Specifies if this dataset is to be deleted at termination rather than kept on the JES spool for printing. A value of "D" indicates that the dataset should be deleted. Assembler name: DRTDISP COBOL name: DRS-DRTB-DISP |
| OVERRIDING SYSOUT CLASS | Specifies the SYSOUT class of the dataset described by this attribute group, which is to replace the CLASS specified in the DRIB when this report was initiated. It is one character and must be alphanumeric or an asterisk. When an asterisk is specified, the MSGCLASS of the job or started task is assumed. Assembler name: DRTCLASS COBOL name: DRS-DRTB-CLASS |
| OVERRIDING HOLD | Specifies, via a value of "Y", that a dataset which was not marked as "held" in the DRIB should be held. Assembler name: DRTHOLD COBOL name: DRS-DRTB-HOLD |
| OVERRIDING NOHOLD | Specifies, via a value of "Y", that a dataset which was marked as "held" in the DRIB should not be held. Assembler name: DRTNHOLD COBOL name: DRS-DRTB-NHOLD |

**OVERRIDING
DESTINATION**

The alphanumeric or national characters representing the destination to which the dataset represented by this attribute group should be routed, rather than to the DESTINATION specified in the DRIB when this report was initiated. If this field is specified, it must be a destination defined to JES, such as a remote number (Rnnnn), a special local number (Unnnn), or a name specified in a DESTID card in the JES initialization deck. The destination must be alphanumeric or national characters and begin with an alpha character. Up to eight characters may be specified.

Assembler name: DRTDEST

COBOL name: DRS-DRTB-DEST

The macro "DRSDRTB" in file LRS.DRS.V1R34.MACLIB is supplied to generate a DSECT of the TERMINATION BLOCK. The copy member "DRSDRTBC" in file LRS.DRS.V1R34.MACLIB is supplied to generate a COBOL description of the TERMINATION BLOCK.

Query Block (DRQB)

The QUERY block is used on a QURY call to inquire about some facet of DRS. A query can be general (about all of the active reports in DRS), detail (about a specific report), system (about the functioning of DRS), general output statement (about all dynamically defined OUTPUT JCL statements), or detail output statement (about a specific dynamically defined OUTPUT JCL statement).

The individual fields which make up the QUERY BLOCK are:

| | |
|-------------------|--|
| 'DRQB' | The control block identifier. Assembler name: DRQID COBOL name: DRS-DRQBG-ID, DRS-DRQBD-ID, DRS-DRQBS-ID, DRS-DRQBO-ID, or DRS-DRQBL-ID |
| QUERY TYPE | Specifies which type of query is being requested. The possible values are "GENL" for a general query, "DETL" for a detail query, "SYS" for a system query, "OUTG" for a general dynamically defined OUTPUT JCL statement query, or "OUTD" for a detail dynamically defined OUTPUT JCL statement query. Assembler name: DRQTYP COBOL name: DRS-DRQBG-QUERY-TYPE, DRS-DRQBD-QUERY-TYPE, DRS-DRQBS-QUERY-TYPE, DRS-DRQBO-QUERY-TYPE, or DRS-DRQBL-QUERY-TYPE |
| REPORT ID | For a general query (query type of "GENL"), this specifies the "starting point" for returning information about reports. If it is left blank, DRS will return information starting with the first active report. For a detail query (query type of "DETL"), this is the report id of the report to which the query applies. For a general dynamically defined OUTPUT JCL statement query (query type of "OUTG"), this specifies the "starting point" for returning information about dynamically defined OUTPUT JCL statements. If it is left blank, DRS will return information starting with the first dynamically defined OUTPUT JCL statement. For a detail dynamically defined OUTPUT JCL statement query (query type of "OUTD"), this specifies the name of the dynamically defined OUTPUT JCL statement to which the query applies. This field does not apply to a system query. Assembler name: DRQRID or DRQOUTPN COBOL name: DRS-DRQBG-REPORT-ID, DRS-DRQBD-REPORT-ID, DRS-DRQBO-OUTPUT-NAME, or DRS-DRQBL-OUTPUT-NAME |

NUMBER OF SLOTS AVAILABLE

For a general query, a two-byte binary field specifying the number of “slots” available in the DRQB for DRS to return information about active DRS reports.

This field does not apply to a detail query or a system query.

Assembler name: DRQNSLT

COBOL name: DRS-DRQBG-NBR-SLOTS-AVAIL or DRS-DRQGO-NBR-SLOTS-AVAIL

NUMBER OF SLOTS USED

For a general query, DRS fills in this two-byte binary field with a value representing the number of slots that it filled with information about active DRS reports.

This field does not apply to a detail query or a system query.

Assembler name: DRQUSLT

COBOL name: DRS-DRQBG-NBR-SLOTS-USED or DRS-DRQGO-NBR-SLOTS-USED

EXTENSION SIZE

This two-byte binary field is required for all QURY calls. It must specify the size, in bytes, of the extension in the DRQB being used for the call. For a general query, the size must be equal to the size of one slot times the number of slots specified in the NUMBER OF SLOTS AVAILABLE FIELD. For a detail query, the size will be equal to either the size of the “basic” attribute group information, or to the sum of the size of the “basic” attribute group information and the size of the “extended” attribute group information. For a system query, the size must be equal to the size of the system query extension.

Assembler name: DRQESIZ

COBOL name: DRS-DRQBG-EXTENSION-SIZE, DRS-DRQBD-EXTENSION-SIZE, DRS-DRQBS-EXTENSION-SIZE, DRS-DRQBO-EXTENSION-SIZE, or DRS-DRQBL-EXTENSION-SIZE

REQUESTED ATTR

For a detail query, this two-byte binary field must specify the number of the particular attribute group of the report which is being queried.

This field does not apply to a general query or a system query.

Assembler name: DRQATR

COBOL name: DRS-DRQBD-ATTR-GRP-REQUESTED

The remaining fields in the DRQB are filled in by DRS and vary by the type of query requested.

For a general query, the extension consists of one or more “slots”. The following fields exist in each slot.

| | |
|---------------------------|--|
| REPORT ID | An 8-byte character field containing the report id of the report whose information was recorded in this slot by DRS. Assembler name: DRQSRID COBOL name: DRS-DRQBG-RPT-ID |
| CURRENT LINE COUNT | A four-byte binary field containing the number of lines in this report at the time DRS recorded the information in this slot. Assembler name: DRQSLIN COBOL name: DRS-DRQBG-LINE-COUNT |
| LAST REQUEST TIME | A four-byte binary field containing the time stamp of the last DRS call for this report. Assembler name: DRQSTIM COBOL name: DRS-DRQBG-TIME-STAMP |
| NUMBER OF ATTRS | A two-byte binary field containing the number of attribute groups in this report. Assembler name: DRQSNAT COBOL name: DRS-DRQBG-NBR-ATTRS |

For a detail query, the extension consists of either the “basic” attribute group information or both the “basic” attribute group information and the “extended” attribute group information. The description of these fields is identical to that used in the DRIB. Assembler field names start with “DRQ”, and COBOL field names start with “DRS-DRQBS-”.

For a system query, the fields in the extension are:

| | |
|--------------------------|---|
| RELEASE NUMBER | <p>A four-byte character field containing the DRS version and release number (currently “13.4”).</p> <p>Assembler name: DRQSRLSE</p> <p>COBOL name: DRS-DRQBS-RELEASE</p> <p>The first byte of the 4-byte RELEASE NUMBER field is the DRS version number (currently “1”).</p> <p>Assembler name: DRQSVER#</p> <p>COBOL name: DRS-DRQBS-VERSION-NUMBER</p> <p>Bytes 2, 3 and 4 of the 4-byte RELEASE NUMBER field is the DRS release number (currently “3.4”).</p> <p>Assembler name: DRQSREL#</p> <p>COBOL name: DRS-DRQBS-RELEASE-NUMBER</p> |
| FIX LEVEL | <p>A one-byte binary field containing the DRS fix level.</p> <p>Assembler name: DRQSFIX</p> <p>COBOL name: DRS-DRQBS-FIX-LEVEL</p> |
| MAINTENANCE LEVEL | <p>A one-byte character field containing the maintenance level of DRS.</p> <p>Assembler name: DRQSMNT</p> <p>COBOL name: DRS-DRQBS-MAINT-LEVEL</p> |
| PRODUCT STATUS | <p>A one-byte character field containing the DRS product status.</p> <p>“L” = product is licensed; “T” = product is on an unexpired trial; “X” = product is on an expired trial; “I” = product key is invalid.</p> <p>Assembler name: DRQSSTAT</p> <p>COBOL name: DRS-DRQBS-PRODUCT-STATUS</p> |
| CUSTOMER ID | <p>A six-byte character field containing the customer ID.</p> <p>Assembler name: DRQSCUST</p> <p>COBOL name: DRS-DRQBS-CUSTID</p> |
| JOB NAME LENGTH | <p>A one-byte binary field containing the length of the DRS job name.</p> <p>Assembler name: DRQSJOBL</p> <p>COBOL name: DRS-DRQBS-JOBNAME-LENGTH</p> |
| JOB NAME | <p>An eight-byte character field containing the DRS job name.</p> <p>Assembler name: DRQSJOBN</p> <p>COBOL name: DRS-DRQBS-JOBNAME</p> |
| DRS INIT DATE | <p>A four-byte packed field containing the DRS initialization date in 00YYDDSS format.</p> <p>Assembler name: DRQSIDAT</p> <p>COBOL name: DRS-DRQBS-INIT-DATE</p> |

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| DRS INIT TIME | <p>A four-byte field containing the DRS initialization time in HHMMSSSTH format.</p> <p>Assembler name: DRQSITIM</p> <p>COBOL name: DRS-DRQBS-INIT-TIME</p> |
| EXIT WORDS | <p>An eight-byte field containing information passed to user exits.</p> <p>Assembler name: DRQSUSER</p> <p>COBOL name: DRS-DRQBS-USER-WORDS</p> |
| INITIAL SUBTASKS | <p>A four-byte binary field containing the number of subtasks DRS was initially requested to use to process DRS calls.</p> <p>Assembler name: DRQSTCBI</p> <p>COBOL name: DRS-DRQBS-INITIAL-SUBTASKS</p> |
| ACTIVE SUBTASKS | <p>A four-byte binary field containing the number of subtasks DRS is currently using to process DRS calls.</p> <p>Assembler name: DRQSTCBA</p> <p>COBOL name: DRS-DRQBS-ACTIVE-SUBTASKS</p> |
| NUMBER OF ACTIVE REPORTS | <p>A four-byte binary field containing the number of reports currently active to DRS.</p> <p>Assembler name: DRQSARCA</p> <p>COBOL name: DRS-DRQBS-NBR-ACTIVE-REPORTS</p> |
| REPORT ID COUNTER | <p>A four-byte binary field containing the number of reports processed by DRS since initialization.</p> <p>Assembler name: DRQSRID#</p> <p>COBOL name: DRS-DRQBS-REPORT-ID-CNT</p> |
| USER EXIT STATUS | <p>A four-byte binary field where each bit represents a DRS exit. An enabled exit is represented by a bit being on.</p> <p>Assembler name: DRQSXSTA</p> <p>COBOL name: DRS-DRQBS-USER-EXIT-STATUS</p> |
| USER EXIT LENGTHS | <p>Eight four-byte binary fields containing the size of DRS exit modules.</p> <p>Assembler name: DRQSXLEN</p> <p>COBOL name: DRS-DRQBS-USER-EXIT-LENGTHS</p> |
| USER EXIT ADDRESSES | <p>Eight four-byte binary fields containing the entry point addresses of DRS exit modules.</p> <p>Assembler name: DRQSXEPA</p> <p>COBOL name: DRS-DRQBS-USER-EXIT-ADDRESSES</p> |
| DRS STATISTICS | <p>Seven 56-byte areas containing statistics concerning INIT, PUT, TERM, QUERY, SHUT, CMND, and OUTP calls.</p> <p>Assembler name: DRQSINIT, DRQSPUT, DRQSTERM, DRQSQUERY, DRQSSHUT, DRQSCMND, and DRQSOUTP</p> <p>COBOL name: DRS-DRQBS-INIT-CALL, DRS-DRQBS-PUT-CALL, DRS-DRQBS-TERM-CALL, DRS-DRQBS-QUERY-CALL, DRS-DRQBS-SHUT-CALL, DRS-DRQBS-CMND-CALL, DRS-DRQBS-OUTP-CALL</p> |

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| TOTAL DATASETS STARTED | A four-byte binary field containing a count of datasets initialized by DRS. |
| | Assembler name: DRQSDSST |
| | COBOL name: DRS-DRQBS-DS-STARTS |
| TOTAL DATASETS COMPLETED (NORMAL) | A four-byte binary field containing a count of datasets completed normally. |
| | Assembler name: DRQSDSKP |
| | COBOL name: DRS-DRQBS-DS-COMPLT-NORMAL |
| TOTAL DATASETS COMPLETED (DELETE) | A four-byte binary field containing a count of datasets completed with deletion requested at termination. |
| | Assembler name: DRQSDSDL |
| | COBOL name: DRS-DRQBS-DS-COMPLT-DELETE |
| TOTAL LINES WRITTEN | A four-byte binary field containing a count of lines written to all DRS reports. |
| | Assembler name: DRQSTLIN |
| | COBOL name: DRS-DRQBS-DS-TOTAL-LINES |
| TOTAL OUTPUT STATEMENTS ADDED | A four-byte binary field containing a count of OUTPUT JCL statements added via the OUTP call. |
| | Assembler name: DRQSOUTA |
| | COBOL name: DRS-DRQBS-OUTJCL-ADD |
| TOTAL OUTPUT STATEMENTS DELETED | A four-byte binary field containing a count of OUTPUT JCL statements deleted via the OUTP call. |
| | Assembler name: DRQSOUTD |
| | COBOL name: DRS-DRQBS-OUTJCL-DEL |
| TOTAL GETMAINs BELOW | A four-byte binary field containing a count of virtual storage GETMAINs below the 16M line. |
| | Assembler name: DRQSVBGT |
| | COBOL name: DRS-DRQBS-VS-GM-BELOW-CNT |
| TOTAL GETMAIN ERRORS BELOW | A four-byte binary field containing a count of failures of virtual storage GETMAINs below the 16M line. |
| | Assembler name: DRQSVBGE |
| | COBOL name: DRS-DRQBS-VS-GM-BELOW-ERROR |
| TOTAL FREEMAINs BELOW | A four-byte binary field containing a count of virtual storage FREEMAINs below the 16M line. |
| | Assembler name: DRQSVBFR |
| | COBOL name: DRS-DRQBS-VS-FM-BELOW-CNT |

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| NET STORAGE BELOW | <p>A four-byte binary field containing the net amount of storage acquired below the 16M line.</p> <p>Assembler name: DRQSVBNT</p> <p>COBOL name: DRS-DRQBS-NS-BELOW</p> |
| MAX STORAGE BELOW | <p>A four-byte binary field containing the highest amount of storage acquired below the 16M line.</p> <p>Assembler name: DRQSVBMX</p> <p>COBOL name: DRS-DRQBS-MAX-BELOW</p> |
| TOTAL GETMAINS ABOVE | <p>A four-byte binary field containing a count of virtual storage GETMAINS above the 16M line.</p> <p>Assembler name: DRQSVAGT</p> <p>COBOL name: DRS-DRQBS-VS-GM-ABOVE-CNT</p> |
| TOTAL GETMAIN ERRORS ABOVE | <p>A four-byte binary field containing a count of failures of virtual storage GETMAINS above the 16M line.</p> <p>Assembler name: DRQSVAGE</p> <p>COBOL name: DRS-DRQBS-VS-GM-ABOVE-ERROR</p> |
| TOTAL FREEMAINS ABOVE | <p>A four-byte binary field containing a count of virtual storage FREEMAINS above the 16M line.</p> <p>Assembler name: DRQSVAFR</p> <p>COBOL name: DRS-DRQBS-VS-FM-ABOVE-CNT</p> |
| NET STORAGE ABOVE | <p>A four-byte binary field containing the net amount of storage acquired above the 16M line.</p> <p>Assembler name: DRQSVANT</p> <p>COBOL name: DRS-DRQBS-VS-NS-ABOVE</p> |
| MAX STORAGE ABOVE | <p>A four-byte binary field containing the highest amount of storage acquired above the 16M line.</p> <p>Assembler name: DRQSVAMX</p> <p>COBOL name: DRS-DRQBS-VS-MAX-ABOVE</p> |
| LOG OPTIONS | <p>A one-byte binary field specifying the log options in effect in DRS. Bit 0 on indicates that logging is in effect. Bit 1 on indicates that the log dataset should be “held”.</p> <p>Assembler name: DRQSLOPT</p> <p>COBOL name: DRS-DRQBS-LOG-OPTS</p> |
| LOG DDNAME | <p>An eight-byte character field containing the DDNAME of the DRS log dataset.</p> <p>Assembler name: DRQSLDD</p> <p>COBOL name: DRS-DRQBS-LOG-DDNAME</p> |
| LOG CLASS | <p>A one-byte character field containing the SYSOUT class of the DRS log dataset.</p> <p>Assembler name: DRQSLCLS</p> <p>COBOL name: DRS-DRQBS-LOG-CLASS</p> |

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| LOG DESTINATION | An eight-byte character field containing the destination of the DRS log dataset. Assembler name: DRQSLDST COBOL name: DRS-DRQBS-LOG-DEST |
| LOG FORM | An eight-byte character field containing the form name of the DRS log dataset. Assembler name: DRQSLFRM COBOL name: DRS-DRQBS-LOG-FORM |
| LOG WRITER | An eight-byte character field containing the writer name of the DRS log dataset. Assembler name: DRQSLWTR COBOL name: DRS-DRQBS-LOG-WRITER |
| LOG FCB | A four-byte character field containing the FCB name of the DRS log dataset. Assembler name: DRQSLFCB COBOL name: DRS-DRQBS-LOG-FCB |
| LOG UCS | A four-byte character field containing the UCS name of the DRS log dataset. Assembler name: DRQSLUCS COBOL name: DRS-DRQBS-LOG-UCS |
| SNAP OPTIONS | A one-byte binary field specifying the snap options in effect in DRS. Bit 0 on indicates that the snap dataset should be “held”. Assembler name: DRQSSOPT COBOL name: DRS-DRQBS-SNAP-OPTS |
| SNAP CLASS | A one-byte character field containing the SYSOUT class of the DRS snap dataset. Assembler name: DRQSSCLS COBOL name: DRS-DRQBS-SNAP-CLASS |
| SNAP DESTINATION | An eight-byte character field containing the destination of the DRS snap dataset. Assembler name: DRQSSDST COBOL name: DRS-DRQBS-SNAP-DEST |
| SNAP FORM | An eight-byte character field containing the form name of the DRS snap dataset. Assembler name: DRQSSFRM COBOL name: DRS-DRQBS-SNAP-FORM |
| SNAP WRITER | An eight-byte character field containing the writer name of the DRS snap dataset. Assembler name: DRQSSWTR COBOL name: DRS-DRQBS-SNAP-WRITER |
| SNAP FCB | A four-byte character field containing the FCB name of the DRS snap dataset. Assembler name: DRQSSFCB COBOL name: DRS-DRQBS-SNAP-FCB |

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| SNAP UCS | <p>A four-byte character field containing the UCS name of the DRS snap dataset.</p> <p>Assembler name: DRQSSUCS</p> <p>COBOL name: DRS-DRQBS-SNAP-UCS</p> |
| TRACE TYPES | <p>A one-byte binary field containing the bit settings indicating what type of DRS events should be traced.</p> <p>Assembler name: DRQSTTYP</p> <p>COBOL name: DRS-DRQBS-TRACE-OPTS</p> |
| TRACE TABLE SIZE | <p>A two-byte binary field containing the number of 4K pages which should be allocated to the DRS trace table.</p> <p>Assembler name: DRQSTSIZ</p> <p>COBOL name: DRS-DRQBS-TRACE-TBL-SIZE</p> |
| GTF TRACE FID | <p>A two-byte binary field containing the format appendage id to be used in GTF trace entries created by DRS, when TRACE TYPES indicates that DRS trace entries should be recorded in the GTF trace file.</p> <p>Assembler name: DRQSTGTF</p> <p>COBOL name: DRS-DRQBS-TRACE-GTF-ID</p> |
| TRACE TABLE BEGINNING ADDRESS | <p>A four-byte binary field containing the address of the start of the DRS trace table.</p> <p>Assembler name: DRQSTBEG</p> <p>COBOL name: DRS-DRQBS-TRACE-TBL-START</p> |
| TRACE TABLE ENDING ADDRESS | <p>A four-byte binary field containing the address of the end of the DRS trace table.</p> <p>Assembler name: DRQSTEND</p> <p>COBOL name: DRS-DRQBS-TRACE-TBL-END</p> |
| TRACE TABLE CURRENT ADDRESS | <p>A four-byte binary field containing the address of the current entry in the DRS trace table.</p> <p>Assembler name: DRQSTCUR</p> <p>COBOL name: DRS-DRQBS-TRACE-TBL-CURR</p> |

For a general output statement query, the fields in each occurrence of the extension are:

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| OUTPUT STATEMENT NAME | An 8-byte character field containing the name assigned to the output statements. Assembler name: DRQOONAM COBOL name: DRS-DRQBO-OUTPUT-STMT-NAME |
| CREATE DATE | A 4-byte packed field in "0CYYDDDS" format representing the date that the output statement was created. Assembler name: DRQOOC DT COBOL name: DRS-DRQBO-CREATE-DATE |
| CREATE TIME | A 4-byte binary field in "HHMMDDTH" format representing the time that the output statement was created. Assembler name: DRQOOCTM COBOL name: DRS-DRQBO-CREATE-TIME |

For a detail output statement query, the fields in the extension are:

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| OUTPUT STATEMENT NAME | An 8-byte character field containing the name assigned to the output statements. Assembler name: DRQONAME COBOL name: DRS-DRQBL-OUTPUT-STMT-NAME |
| CREATE DATE | A 4-byte packed field in "0CYYDDDS" format representing the date that the output statement was created. Assembler name: DRQOCDAT COBOL name: DRS-DRQBL-CREATE-DATE |
| CREATE TIME | A 4-byte binary field in "HHMMDDTH" format representing the time that the output statement was created. Assembler name: DRQOCTIM COBOL name: DRS-DRQBL-CREATE-TIME |
| ADDRESS | Four 60-byte fields specifying the address to be printed on output separator pages. Assembler name: DRQOADR1, DRQOADR2, DRQOADR3, and DRQOADR4 COBOL name: DRS-DRQBL-ADDR1, DRS-DRQBL-ADDR2, DRS-DRQBL-ADDR3, and DRS-DRQBL-ADDR4 |
| BUILDING | A 60-byte field specifying the building to be printed on output separator pages. Assembler name: DRQOBLDG COBOL name: DRS-DRQBL-BUILDING |
| BURST | A 1-byte field which directs output to a stacker on a 3800 Printing Subsystem. "Y" = burster_trimmer-stacker; "N" = continuous forms stacker. Assembler name: DRQOBURS COBOL name: DRS-DRQBL-BURST |

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| CHARS | <p>Four 4-byte fields specifying the names of character arrangement tables to be used when printing on a 3800.</p> <p>Assembler name: DRQOCHR1, DRQOCHR2, DRQOCHR3, and DRQOCHR4</p> <p>COBOL name: DRS-DRQBL-CHAR1, DRS-DRQBL-CHAR2, DRS-DRQBL-CHAR3, and DRS-DRQBL-CHAR4</p> |
| CKPTLINE | <p>A 2-byte binary field specifying the checkpoint value in lines.</p> <p>Assembler name: DRQOCKLN</p> <p>COBOL name: DRS-DRQBL-CHECKPOINT-LINES</p> |
| CKPTPAGE | <p>A 2-byte binary field specifying the checkpoint value in pages.</p> <p>Assembler name: DRQOCKPG</p> <p>COBOL name: DRS-DRQBL-CHECKPOINT-PAGES</p> |
| CKPTSEC | <p>A 2-byte binary field specifying the checkpoint values in seconds.</p> <p>Assembler name: DRQOCKSC</p> <p>COBOL name: DRS-DRQBL-CHECKPOINT-SECONDS</p> |
| CLASS | <p>A 1-byte field specifying the SYSOUT class.</p> <p>Assembler name: DRQOCLAS</p> <p>COBOL name: DRS-DRQBL-CLASS</p> |
| COLORMAP | <p>An 8-byte field specifying the AFP resource for the print file which contains color translation information.</p> <p>Assembler name: DRQOXCMP</p> <p>COBOL name: DRS-DRQBL-COLOR-MAP</p> |
| COMPACT | <p>An 8-byte field specifying the name of a compaction table for JES to use when sending the SYSOUT dataset to an SNA remote terminal.</p> <p>Assembler name: DRQOCMPT</p> <p>COBOL name: DRS-DRQBL-COMPACTION-TABLE</p> |
| COMSETUP | <p>An 8-byte field specifying the AFP resource for the print file which contains setup information.</p> <p>Assembler name: DRQOXCST</p> <p>COBOL name: DRS-DRQBL-COM-SETUP</p> |
| CONTROL | <p>An 8-byte field specifying the type of spacing to be applied to the SYSOUT dataset. Valid values consist of "SINGLE", "DOUBLE", "TRIPLE", and "PROGRAM".</p> <p>Assembler name: DRQOCNTL</p> <p>COBOL name: DRS-DRQBL-CONTROL</p> |
| COPIES | <p>An 2-byte binary field specifying the number of copies to be printed. Valid values range from 1 to 255.</p> <p>Assembler name: DRQOCOPY</p> <p>COBOL name: DRS-DRQBL-COPIES</p> |
| COPY GROUP(S) | <p>Eight 1-byte binary fields specifying copy groups.</p> <p>Assembler name: DRQOCPY1 through DRQOCPY8</p> <p>COBOL name: DRS-DRQBL-CPYG1 through DRS-DRQBL-CPYG8</p> |

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| DATAACK | <p>An 8-byte field specifying whether or not print-positioning and invalid-character data-check errors are to be blocked or unblocked for printers accessed through the functional subsystem Print Services Facility (PSF). Valid values are “BLOCK”, “UNBLOCK”, “BLKCHAR”, and “BLKPOS”.</p> <p>Assembler name: DRQODATC COBOL name: DRS-DRQBL-DATAACK</p> |
| DEFAULT | <p>A 1-byte field specifying whether or not the OUTPUT statement can be implicitly referenced by SYSOUT DD statements in the same job.</p> <p>Assembler name: DRQODFLT COBOL name: DRS-DRQBL-DEFLT</p> |
| DEPT | <p>A 60-byte field specifying the department to be printed on output separator pages.</p> <p>Assembler name: DRQODEPT COBOL name: DRS-DRQBL-DEPARTMENT</p> |
| DEST | <p>A 17-byte field specifying the destination for the SYSOUT dataset.</p> <p>Assembler name: DRQODEST COBOL name: DRS-DRQBL-DESTINATION</p> |
| DEST (LONG) | <p>A 127-byte field specifying the destination for the SYSOUT dataset. The longer destination field is intended for a TCP/IP address in the format “IP:xxxxxxx” or “node.IP:xxxxxxx”. This field and the 17-byte DEST field are mutually exclusive.</p> <p>Assembler name: DRQOXDSL COBOL name: DRS-DRQBL-DESTINATION-LONG</p> |
| DPAGELBL | <p>A 1-byte field specifying whether or not the system should print the security label on each page of printed output. Valid values are “Y” or “N”.</p> <p>Assembler name: DRQODLBL COBOL name: DRS-DRQBL-DPAGELBL</p> |
| DUPLEX | <p>An 8-byte field specifying whether printing is to be done on both sides of the sheet. Valid values consist of “NO”, “NORMAL” or “TUMBLE”.</p> <p>Assembler name: DRQOXDUP COBOL name: DRS-DRQBL-DUPLEX</p> |
| FCB | <p>A 4-byte field specifying the FCB name.</p> <p>Assembler name: DRQOFCB COBOL name: DRS-DRQBL-FCB</p> |
| FLASH | <p>A 4-byte field specifying the forms overlay to be used in printing the SYSOUT dataset on a 3800 Printing Subsystem.</p> <p>Assembler name: DRQOFLSH COBOL name: DRS-DRQBL-FLASH</p> |
| FLASH COUNT | <p>A 2-byte binary field specifying the number of copies on which the forms overlay is to be printed. Valid values consist of 0 through 255.</p> <p>Assembler name: DRQOFLCT COBOL name: DRS-DRQBL-FLASH-COUNT</p> |

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| FORMDEF | <p>A 6-byte field specifying the name of a FORMDEF member in a PSF library.</p> <p>Assembler name: DRQOFMDF</p> <p>COBOL name: DRS-DRQBL-FORMDEF</p> |
| FORMLEN | <p>A 10-byte field specifying the numeric length and unit type that will be used to change the physical paper length without reconfiguring the printer.</p> <p>Valid values are nn.nnnUU, where n is a digit 0-9, and UU represents one of the following units: IN (inches) or CM (centimeters).</p> <p>Assembler name: DRQOXFLN</p> <p>COBOL name: DRS-DRQBL-FORM-LENGTH</p> |
| FORMS | <p>An 8-byte field specifying the form name to be used for the dataset.</p> <p>Assembler name: DRQOFORM</p> <p>COBOL name: DRS-DRQBL-FORM</p> |
| GROUPID | <p>An 8-byte field specifying the name of an output group to which this dataset belongs.</p> <p>Assembler name: DRQOGRID</p> <p>COBOL name: DRS-DRQBL-GROUP-ID</p> |
| INDEX | <p>A 2-byte binary field specifying the left margin on a 3211 printer with the indexing feature. Valid values are 1 through 31.</p> <p>Assembler name: DRQOINDX</p> <p>COBOL name: DRS-DRQBL-INDEX</p> |
| INTRAY | <p>A 4-byte binary field specifying the paper source when printing AFP files. Valid values are 1- 255.</p> <p>Assembler name: DRQOXNTR</p> <p>COBOL name: DRS-DRQBL-INTRAY</p> |
| LINDEX | <p>A 2-byte binary field specifying the right margin on a 3211 printer with the indexing feature. Valid values are 1 through 31.</p> <p>Assembler name: DRQOLNDX</p> <p>COBOL name: DRS-DRQBL-LINDEX</p> |
| LINECT | <p>A 2-byte binary field specifying the maximum number of lines JES2 is to printer on each output page. Valid values are 0 through 255.</p> <p>Assembler name: DRQOLNCT</p> <p>COBOL name: DRS-DRQBL-LINECT</p> |
| MODIFY | <p>A 4-byte field specifying a copy modification module name that tells JES how to print the SYSOUT dataset on a 3800 Printing Subsystem.</p> <p>Assembler name: DRQOCMOD</p> <p>COBOL name: DRS-DRQBL-COPY-MOD</p> |
| MODIFY TRC | <p>A 1-byte field specifying the table name in the CHARS parameter (0 for first, 1 for second, 2 for third, etc.).</p> <p>Assembler name: DRQOCTRC</p> <p>COBOL name: DRS-DRQBL-COPY-MOD-TRC</p> |

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| NAME | <p>A 60-byte field specifying the preferred name to be printed on output separator pages.</p> <p>Assembler name: DRQONAM</p> <p>COBOL name: DRS-DRQBL-NAME</p> |
| NOTIFY | <p>Four 17-byte fields specifying the 1 to 4 users to be notified when a job completes.</p> <p>Assembler name: DRQONTFY, DRQONTF2, DRQONTF3, DRQONTF4</p> <p>COBOL name: DRS-DRQBL-NOTIFY, DRS-DRQBL-NOTIFY2, DRS-DRQBL-NOTIFY3, DRS-DRQBL-NOTIFY4</p> |
| OFFSETXB | <p>A 13-byte field specifying the offset in the x direction from the page origin for the back side of each page of output.</p> <p>Valid values are mmm.nnnUU, where m is a digit from 0 - 9, n is a digit from 0 - 9 and UU represents one of the following units: IN (inches), CM (centimeters), MM (millimeters), PELS or POINTS</p> <p>Assembler name: DRQOXOXB</p> <p>COBOL name: DRS-DRQBL-BACK-X-OFFSET</p> |
| OFFSETXF | <p>A 13-byte field specifying the offset in the x direction from the page origin for the front side of each page of output.</p> <p>Valid values are mmm.nnnUU, where m is a digit from 0 - 9, n is a digit from 0 - 9 and UU represents one of the following units: IN (inches), CM (centimeters), MM (millimeters), PELS or POINTS</p> <p>Assembler name: DRQOXOXF</p> <p>COBOL name: DRS-DRQBL-FRONT-X-OFFSET</p> |
| OFFSETYB | <p>A 13-byte field specifying the offset in the y direction from the page origin for the back side of each page of output.</p> <p>Valid values are mmm.nnnUU, where m is a digit from 0 - 9, n is a digit from 0 - 9 and UU represents one of the following units: IN (inches), CM (centimeters), MM (millimeters), PELS or POINTS</p> <p>Assembler name: DRQOXOYB</p> <p>COBOL name: DRS-DRQBL-BACK-Y-OFFSET</p> |
| OFFSETYF | <p>A 13-byte field specifying the offset in the y direction from the page origin for the front side of each page of output.</p> <p>Valid values are mmm.nnnUU, where m is a digit from 0 - 9, n is a digit from 0 - 9 and UU represents one of the following units: IN (inches), CM (centimeters), MM (millimeters), PELS or POINTS</p> <p>Assembler name: DRQOXOYF</p> <p>COBOL name: DRS-DRQBL-FRONT-Y-OFFSET</p> |
| OUTBIN | <p>A 4-byte binary field specifying the printer output bin identifier to be used for the SYSOUT dataset.</p> <p>Assembler name: DRQOBIN</p> <p>COBOL name: DRS-DRQBL-OUTBIN</p> |
| OUTDISP (NORMAL) | <p>An 8-byte field specifying the output disposition when the job ends normally.</p> <p>Assembler name: DRQOODSN</p> <p>COBOL name: DRS-DRQBL-NORMAL-DISP</p> |

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| OUTDISP (ABNORMAL) | An 8-byte field specifying the output disposition when the job ends abnormally. Assembler name: DRQOODSA COBOL name: DRS-DRQBL-ABNORMAL-DISP |
| OVERLAYB | An 8-byte field specifying that the named medium overlay is to be placed on the back side of each sheet to be printed. Assembler name: DRQOXOV B COBOL name: DRS-DRQBL-BACK-OVERLAY |
| OVERLAYF | An 8-byte field specifying that the named medium overlay is to be placed on the front side of each sheet to be printed. Assembler name: DRQOXOV F COBOL name: DRS-DRQBL-FRONT-OVERLAY |
| OVFL | An 8-byte field specifying whether or not JES3 should test for page overflow on an output printer (JES3 only). Valid values are "ON" or "OFF". Assembler name: DRQOXOFL COBOL name: DRS-DRQBL-OVERFLOW |
| PAGEDEF | A 6-byte field specifying the name of a PAGEDEF member in a PSF library. Assembler name: DRQOPGDF COBOL name: DRS-DRQBL-PAGEDEF |
| PIMSG | A 1-byte field specifying whether or not a functional subsystem should print its messages in the output listing. Valid values are "Y" or "N". Assembler name: DRQOPMSG COBOL name: DRS-DRQBL-PIMSG |
| PIMSG COUNT | A 2-byte binary field specifying the number of errors to cause printing of PIMSG to be terminated. Valid values are 0 through 999. Assembler name: DRQOPMCT COBOL name: DRS-DRQBL-PIMSG-COUNT |
| PORTNO | A 4-byte binary field specifying the TCP/IP port number at which the printing application connects to the printer. Valid values are 1 - 65535. Assembler name: DRQOXPR T COBOL name: DRS-DRQBL-PORT |
| PRMODE | An 8-byte field specifying the process mode required to print the dataset. Valid values are "LINE", "PAGE", or any valid installation-defined process mode. Assembler name: DRQOPRMD COBOL name: DRS-DRQBL-PRMODE |
| PRTEROR | An 8-byte field specifying how a SYSOUT dataset that has had printing terminated by a functional subsystem is to be released by JES. Valid values are "DEFAULT", "HOLD" or "QUIT". Assembler name: DRQOXPT E COBOL name: DRS-DRQBL-ERROR-DISPOSITION |

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| PRTOPTNS | <p>An 16- byte field specifying the named entity that contains additional print options for an IP-destined dataset that is being sent by a functional subsystem.</p> <p>Assembler name: DRQOXPRO COBOL name: DRS-DRQBL-PRINT-OPTIONS</p> |
| PRTQUEUE | <p>A 127-byte field specifying the print queue name used when printing the IP-destined dataset.</p> <p>Assembler name: DRQOXPRQ COBOL name: DRS-DRQBL-PRINT-QUEUE</p> |
| PRTY | <p>A 2-byte binary field specifying the initial priority at which the SYSOUT dataset enters the output queue. Value values are 0 through 255.</p> <p>Assembler name: DRQOPRTY COBOL name: DRS-DRQBL-INITIAL-PRIORITY</p> |
| RESFMT | <p>An 8-byte field specifying the resolution used to format the print dataset. Valid values are "P240" or "P300".</p> <p>Assembler name: DRQOXRES COBOL name: DRS-DRQBL-RESOLUTION</p> |
| RETAINF | <p>A 10-byte field specifying how long a functional subsystem will retain an IP-destined dataset after a failed transmission.</p> <p>Assembler name: DRQOXRTF COBOL name: DRS-DRQBL-FAILED-RETAIN-TIME</p> |
| RETAINS | <p>A 10 byte field specifying how long a functional subsystem will retain an IP-destined dataset after a successful transmission.</p> <p>Assembler name: DRQOXRTS COBOL name: DRS-DRQBL-SUCCESS-RETAIN-TIME</p> |
| RETRYL | <p>A 4-byte binary field specifying the number of attempts an FSS will try for transmission of an IP-destined dataset. Valid values are 0 -32767.</p> <p>Assembler name: DRQOXRTL COBOL name: DRS-DRQBL-MAX-RETRIES</p> |
| RETRYT | <p>A 10-byte field specifying how much time a functional subsystem will wait between retries of transmission attempts of a dataset.</p> <p>Assembler name: DRQOXRTT COBOL name: DRS-DRQBL-TIME-BETWEEN-RETRIES</p> |
| ROOM | <p>A 60-byte field specifying the room identification to be printed on output separator pages.</p> <p>Assembler name: DRQOROOM COBOL name: DRS-DRQBL-ROOM</p> |
| SYSAREA | <p>A 1-byte field specifying whether or not the system should reserve an area for the security label on each page of printed output. Valid values are "Y" or "N".</p> <p>Assembler name: DRQOSARE COBOL name: DRS-DRQBL-SYSAREA</p> |

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| TITLE | A 60-byte field specifying the title to be printed on JES banner pages. Assembler name: DRQOTITL COBOL name: DRS-DRQBL-TITLE |
| TRC | A 1-byte field specifying whether or not the SYSOUT dataset should have a trc character in the second character of each record. Assembler name: DRQOTRC COBOL name: DRS-DRQBL-TRC |
| UCS | A 4-byte field specifying a universal character set, print train, or character-arrangement table for a 3800 Printing Subsystem. Assembler name: DRQOUCS COBOL name: DRS-DRQBL-UCS |
| WRITER | An 8-byte field specifying the writer name. Assembler name: DRQOWRTR COBOL name: DRS-DRQBL-WRITER |
| OUTPUT DESCRIPTION | A 60-byte character field that is NOT used when allocating the OUTPUT JCL statement. There is no OUTPUT JCL statement keyword that corresponds to this field. This field simply allows an installation to associate a description with the OUTPUT JCL statement. The DRS/VPI @OUTDESC keyword can be used for this purpose when defining dynamic OUTPUT JCL statements to DRS/VPI. Assembler name: DRQODESC COBOL name: DRS-DRQBL-OUTDESC |

For an extended output statement, the following fields will also appear in the extension:

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| USERLIB(S) | Eight 44-byte fields containing the name(s) assigned to the output statements. Assembler name: DRQOXUL1 through DRQOXUL8 COBOL name: DRS-DRQBL-USERLIB-1 through DRS-DRQBL-USERLIB-8 |
| USER DATA FIELD(S) | Sixteen 60-byte fields containing USERDATA values. Assembler name: DRQOXD01 through DRQOXD16 COBOL name: DRS-DRQBL-USERDATA-1 through DRS-DRQBL-USERDATA-16 |

The macro “DRSDRQB” in file LRS.DRS.V1R34.MACLIB is supplied to generate a DSECT of the QUERY BLOCK.

The copy member “DRSDRQBG” in file LRS.DRS.V1R34.MACLIB is supplied to generate a COBOL description of the QUERY BLOCK to be used for general queries.

Member “DRSDRQBD” generates a COBOL description of the QUERY BLOCK to be used for detail queries.

Member “DRSDRQBS” generates a COBOL description of the QUERY BLOCK to be used for system queries.

Member “DRSDRQBO” generates a COBOL description of the QUERY BLOCK to be used for general output statement queries.

Member “DRSDRQBL” generates a COBOL description of the QUERY BLOCK to be used for detail output statement queries.

For a detail report query, the fields in the extension for a SYSOUT dataset are:

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| RECORD FORMAT | <p>A one-byte character field containing the record format of the report. The possible values are “F” for fixed format, “V” for variable format, and “U” for undefined format.</p> <p>Assembler name: DRQRFT COBOL name: DRS-DRQBD-RFT</p> |
| CARRIAGE CONTROL | <p>A one-byte character field containing the carriage control type of the report. The possible values are “A” for ASA, “M” for machine, or blank (X’40’) for no carriage control.</p> <p>Assembler name: DRQRFC COBOL name: DRS-DRQBD-RFC</p> |
| LRECL | <p>A two-byte binary field containing the record length of records in this report. The length includes the carriage control byte, if carriage control is specified as “A” or “M”.</p> <p>Assembler name: DRQLREC COBOL name: DRS-DRQBD-LRECL</p> |
| BLOCKSIZE | <p>A two-byte binary field containing the block size of this report.</p> <p>Assembler name: DRQBLKS COBOL name: DRS-DRQBD-BLKSIZE</p> |
| DEST | <p>An eight-byte character field containing the destination of this report.</p> <p>Assembler name: DRQDEST COBOL name: DRS-DRQBD-DEST</p> |
| WRITER | <p>An eight-byte character field containing the writer name of this report.</p> <p>Assembler name: DRQWRTR COBOL name: DRS-DRQBD-WRITER</p> |
| FORM | <p>A four-byte character field containing the form name of this report.</p> <p>Assembler name: DRQFORM COBOL name: DRS-DRQBD-FORM</p> |
| FCB | <p>A four-byte character field containing the FCB name of this report.</p> <p>Assembler name: DRQFCB COBOL name: DRS-DRQBD-FCB</p> |
| UCS | <p>A four-byte character field containing UCS name of this report.</p> <p>Assembler name: DRQUCS COBOL name: DRS-DRQBD-UCS</p> |
| CLASS | <p>A one-byte character field containing the SYSOUT class of this report.</p> <p>Assembler name: DRQCLAS COBOL name: DRS-DRQBD-CLASS</p> |

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| HOLD | A one-byte character field containing whether the report is to be held. The possible values are “Y” and “N”. Assembler name: DRQHOLD COBOL name: DRS-DRQBD-HOLD |
| COPIES | A two-byte binary field containing the number of copies to be printed. Assembler name: DRQCOPY COBOL name: DRS-DRQBD-COPIES |
| DDNAME | An eight-byte character field containing the DDNAME of this report. Assembler name: DRQDDN COBOL name: DRS-DRQBD-DDNAME |

For an extended report query, the following fields will also appear in the extension for a SYSOUT dataset:

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| FORM | An eight-byte character field containing the form name of this report. Assembler name: DRQXFORM COBOL name: DRS-DRQBD-EXTENDED-FORM |
| USERID | An eight-byte character field containing the SYSOUT userid of this report. Assembler name: DRQUSRID COBOL name: DRS-DRQBD-USERID |
| OUTPUT STATEMENT STEP | An eight-byte character field containing the OUTPUT STATEMENT stepname of this report. Assembler name: DRQUTST COBOL name: DRS-DRQBD-OUTPUT-STMT-STEP |
| OUTPUT STATEMENT PROC | An eight-byte character field containing the OUTPUT STATEMENT procedure name of this report. Assembler name: DRQUTPR COBOL name: DRS-DRQBD-OUTPUT-STMT-PROC |
| OUTPUT STATEMENT NAME | An eight-byte character field containing the OUTPUT STATEMENT name of this report. Assembler name: DRQUTNM COBOL name: DRS-DRQBD-OUTPUT-STMT-NAME |
| FORMS ALIGN | A one-byte character field containing the form alignment verification of this report. Assembler name: DRQFRMAV COBOL name: DRS-DRQBD-FORM-ALIGN-VERIF |
| UCS VERIFY | A one-byte character field containing the UCS verification of this report. The possible values are “Y” and “N”. Assembler name: DRQUCSVR COBOL name: DRS-DRQBD-UCS-VERIF |

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| FOLD | A one-byte character field containing the fold value of this report. The possible values are “Y” and “N”. Assembler name: DRQFOLD COBOL name: DRS-DRQBD-FOLD |
| BURST | A one-byte field that directs output to a stacker on a 3800 Printing Subsystem. “Y” = burster trimmer stacker; “N” = continuous forms stacker. Assembler name: DRQBURST COBOL name: DRS-DRQBD-BURST |
| COPY GROUP(S) | Eight one-byte fields containing the copy groups of this report. Assembler name: DRQCPYG1 through DRQCPYG8 COBOL name: DRS-DRQBD-COPY-GROUP-1 through DRS-DRQBD-COPY-GROUP-8 |
| CHARS | Four four-byte fields containing the names of the character arrangement tables of this report. Assembler name: DRQCHAR1 through DRQCHAR4 COBOL name: DRS-DRQBD-3800-CHAR-ARR-1 through DRS-DRQBD-3800-CHAR-ARR-4 |
| FLASH | An eight-byte field containing the forms overlay to be used in printing this report. Assembler name: DRQFLASH COBOL name: DRS-DRQBD-3800-FLASH-OVERLAY |
| COPY MODULE | A four-byte character field containing the name of the copy modification module of this report. Assembler name: DRQCMOD COBOL name: DRS-DRQBD-3800-COPY-MODULE |
| FLASH COUNT | A one-byte field containing the number of copies on which the forms overlay is to be printed. Assembler name: DRQFLSCT COBOL name: DRS-DRQBD-3800-FLASH-COUNT |
| COPY MODULE TABLE | A one-byte field containing the copy module table reference of this report. Assembler name: DRQCMTRC COBOL name: DRS-DRQBD-3800-COPY-MOD-TAB |
| SUBSYSTEM NAME | A four-byte character field containing the subsystem name which processes the allocation request. Assembler name: DRQSSNM COBOL name: DRS-DRQBD-SUBSYSTEM-NAME |
| SUBSYSTEM PARM | A sixteen-byte field containing the parameter to be passed to the subsystem during allocation. Assembler name: DRQSSPRM COBOL name: DRS-DRQBD-SUBSYSTEM-PARM |
| JOBNAME | An eight-byte character field containing the job name of this report. Assembler name: DRQJOBNM COBOL name: DRS-DRQBD-JOB-NAME |

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| USERID | An eight-byte character field containing the SYSOUT owner userid of this report. |
| | Assembler name: DRQUSID |
| | COBOL name: DRS-DRQBD-USER-ID |
| USER AREA | A 32-byte field containing the user data of this report. |
| | Assembler name: DRQUSER |
| | COBOL name: DRS-DRQBD-USER-BYTES |

For an extended report query, the following fields will also appear in the extension for a DASD dataset:

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| MEMBER NAME | An eight-byte character field containing the dataset member name of this report. |
| | Assembler name: DRQDMEMB |
| | COBOL name: DRS-DRQBD-DASD-MEMBER |
| UNIT NAME | An eight-byte character field containing the dataset unit name of this report. |
| | Assembler name: DRQDUNIT |
| | COBOL name: DRS-DRQBD-DASD-UNIT |
| STATUS | A one-byte character field containing the dataset initial status of this report. The possible values are "N" (NEW), "O" (OLD), "S" (SHR), and "M" (MOD). |
| | Assembler name: DRQDSTAT |
| | COBOL name: DRS-DRQBD-DASD-ISTATUS |
| NORMAL DISPOSITION | A one-byte character field containing the dataset normal disposition of this report. The possible values are "C" (CATLG), "U" (UNCATLG), "K" (KEEP), and "D" (DELETE). |
| | Assembler name: DRQDNDSP |
| | COBOL name: DRS-DRQBD-DASD-NORMAL-DISP |
| RETENTION PERIOD | A two-byte binary field containing the dataset retention period. The possible values range from 0-9999. |
| | Assembler name: DRQDRTPD |
| | COBOL name: DRS-DRQBD-DASD-RETPD |
| RETENTION | A one-byte character field indicating whether retention was specified. The possible values are "Y" and "N". |
| | Assembler name: DRQDRTPS |
| | COBOL name: DRS-DRQBD-DASD-RETPS |
| AVERAGE RECORD UNIT | A one-byte character field containing the average record unit. The possible values are "U" (UNITS), "K" (THOUSANDS), and "M" (MILLIONS). |
| | Assembler name: DRQDAVRU |
| | COBOL name: DRS-DRQBD-DASD-AVGREC-UNIT |
| AVERAGE RECORD SIZE | A two-byte binary field containing the average record size. |
| | Assembler name: DRQDAVRS |
| | COBOL name: DRS-DRQBD-DASD-AVGREC-SIZE |

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| VOLUME | A six-byte character field containing the volume the dataset resides on. Assembler name: DRQDVOL COBOL name: DRS-DRQBD-DASD-VOLUME |
| EXPIRATION DATE | A seven-byte field containing the expiration date of this report. Assembler name: DRQDEXPD COBOL name: DRS-DRQBD-DASD-EXPDT |
| TYPE | A one-byte character field containing the dataset type. The possible values are “L” (LIBRARY or PDSE) and “P” (PDS). Assembler name: DRQDDSTY COBOL name: DRS-DRQBD-DASD-DSNTYPE |
| RELEASE | A one-byte character field containing whether unused space is to be released. The possible values are “Y” and “N”. Assembler name: DRQDRLSE COBOL name: DRS-DRQBD-DASD-RLSE |
| DASD | A one-byte character field containing whether the allocation is DASD. The possible values are “Y” and “N”. Assembler name: DRQDDASD COBOL name: DRS-DRQBD-DASD-INDICATOR |
| ALLOCATION TYPE | A one-byte character field containing the allocation type. The possible values are “B” (blocks), “C” (cylinders) and “T” (tracks). Assembler name: DRQDDASD COBOL name: DRS-DRQBD-DASD-ALLOC-TYPE |
| PRIMARY SPACE | A two-byte binary field containing the primary space allocation. Assembler name: DRQDPRI COBOL name: DRS-DRQBD-DASD-PRI-ALLOC |
| SECONDARY SPACE | A two-byte binary field containing the secondary space allocation. Assembler name: DRQDSEC COBOL name: DRS-DRQBD-DASD-SEC-ALLOC |
| BLOCKS | A two-byte binary field containing the number of directory blocks. Assembler name: DRQDDIR COBOL name: DRS-DRQBD-DASD-DIR-BLOCKS |
| NAME | A 44-byte character field containing the dataset name. Assembler name: DRQDDSNM COBOL name: DRS-DRQBD-DASD-DSNAME |
| VOLUME COUNT | A two-byte binary field containing the volume count. Assembler name: DRQDVLCT COBOL name: DRS-DRQBD-VOLUME-CNT |
| UNIT COUNT | A two-byte binary field containing the unit count. Assembler name: DRQDUNCT COBOL name: DRS-DRQBD-UNIT-CNT |

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| STORAGE CLASS | An eight-byte character field containing the SMS storage class. Assembler name: DRQDSTCL COBOL name: DRS-DRQBD-STORCLAS |
| MANAGEMENT CLASS | An eight-byte character field containing the SMS management class. Assembler name: DRQDMGCL COBOL name: DRS-DRQBD-MGMTCLAS |
| DATA CLASS | An eight-byte character field containing the SMS data class. Assembler name: DRQDDACL COBOL name: DRS-DRQBD-DATACLAS |

For an extended report query, the following fields will also appear in the extension for an HFS dataset:

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| ORGANIZATION | A one-byte character field containing the HFS file data organization. Assembler name: DRQHFDAT COBOL name: DRS-DRQBD-HFS-FILE-DATA-ORG |
| NORMAL DISP | A one-byte character field containing the normal pathdisp. The possible values are “D” (DELETE) and “K” (KEEP). Assembler name: DRQHPNDS COBOL name: DRS-DRQBD-HFS-NRML-DISP |
| ABNORMAL DISP | A one-byte character field containing the abnormal pathdisp. The possible values are “D” (DELETE) and “K” (KEEP). Assembler name: DRQHPCDS COBOL name: DRS-DRQBD-HFS-ABNRML-DISP |
| PATHMODE READ USER | A one-byte character field indicating if READ is allowed for the user. The possible values are “Y” and “N”. Assembler name: DRQHRUSR COBOL name: DRS-DRQBD-HFS-READ-USER |
| PATHMODE READ GROUP | A one-byte character field indicating if READ is allowed for the user’s group. The possible values are “Y” and “N”. Assembler name: DRQHRGRP COBOL name: DRS-DRQBD-HFS-READ-GROUP |
| PATHMODE READ OTHER | A one-byte character field indicating if READ is allowed for users not in the user’s group. The possible values are “Y” and “N”. Assembler name: DRQHROTH COBOL name: DRS-DRQBD-HFS-READ-OTHER |
| PATHMODE WRITE USER | A one-byte character field indicating if WRITE is allowed for user. The possible values are “Y” and “N”. Assembler name: DRQHWUSR COBOL name: DRS-DRQBD-HFS-WRITE-USER |
| PATHMODE WRITE GROUP | A one-byte character field indicating if WRTIE is allowed for the user’s group. The possible values are “Y” and “N”. Assembler name: DRQHWGRP COBOL name: DRS-DRQBD-HFS-WRITE-GROUP |

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| PATHMODE WRITE OTHER | <p>A one-byte character field indicating if WRITE is allowed for users not in the user's group. The possible values are "Y" and "N".</p> <p>Assembler name: DRQHWOTH</p> <p>COBOL name: DRS-DRQBD-HFS-WRITE-OTHER</p> |
| PATHMODE EXEC USER | <p>A one-byte character field indicating if EXEC is allowed for the user. The possible values are "Y" and "N".</p> <p>Assembler name: DRQHXUSR</p> <p>COBOL name: DRS-DRQBD-HFS-EXEC-USER</p> |
| PATHMODE EXEC GROUP | <p>A one-byte character field indicating if EXEC is allowed for the user's group. The possible values are "Y" and "N".</p> <p>Assembler name: DRQHXGRP</p> <p>COBOL name: DRS-DRQBD-HFS-EXEC-GROUP</p> |
| PATHMODE EXEC OTHER | <p>A one-byte character field indicating if EXEC is allowed for users not in the user's group. The possible values are "Y" and "N".</p> <p>Assembler name: DRQHXOTH</p> <p>COBOL name: DRS-DRQBD-HFS-EXEC-OTHER</p> |
| PATHOPTS OAPPEND | <p>A one-byte character field indicating whether group OAPPEND was specified. The possible values are "Y" and "N".</p> <p>Assembler name: DRQHPOAP</p> <p>COBOL name: DRS-DRQBD-HFS-GRP-OAPPEND</p> |
| PATHOPTS OCREAT | <p>A one-byte character field indicating whether group OCREAT was specified. The possible values are "Y" and "N".</p> <p>Assembler name: DRQHPOCR</p> <p>COBOL name: DRS-DRQBD-HFS-GRP-OCREAT</p> |
| PATHOPTS OEXCL | <p>A one-byte character field indicating whether group OEXCL was specified. The possible values are "Y" and "N".</p> <p>Assembler name: DRQHPOEX</p> <p>COBOL name: DRS-DRQBD-HFS-GRP-OEXCL</p> |
| PATHOPTS ONOCPTY | <p>A one-byte character field indicating whether group ONOCPTY was specified. The possible values are "Y" and "N".</p> <p>Assembler name: DRQHPONC</p> <p>COBOL name: DRS-DRQBD-HFS-GRP-ONOCPTY</p> |
| PATHOPTS ONONBLOCK | <p>A one-byte character field indicating whether group ONONBLOCK was specified. The possible values are "Y" and "N".</p> <p>Assembler name: DRQHPONB</p> <p>COBOL name: DRS-DRQBD-HFS-GRP-ONONBLOCK</p> |
| PATHOPTS OSYNC | <p>A one-byte character field indicating whether group OSYNC was specified. The possible values are "Y" and "N".</p> <p>Assembler name: DRQHPOSY</p> <p>COBOL name: DRS-DRQBD-HFS-GRP-OSYNC</p> |

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| PATHOPTS OTRUNC | A one-byte character field indicating whether group OTRUNC was specified. The possible values are “Y” and “N”. Assembler name: DRQHPOTR COBOL name: DRS-DRQBD-HFS-GRP-OTRUNC |
| TYPE | A one-byte character field containing the dataset type. The possible values are “H” for normal HFS files and “F” for FIFO/NAMED PIPE files. Assembler name: DRQHDSTY COBOL name: DRS-DRQBD-HFS-DSNTYPE |
| DASD | A one-byte character field indicating if the allocation is DASD. Assembler name: DRQHDASD COBOL name: DRS-DRQBD-HFS-DASD-INDICATOR |
| PATH | A 100-byte character field containing the HFS path name. Assembler name: DRQHPTH COBOL name: DRS-DRQBD-HFS-PATH-NAME |

For a system query, the following fields are also in the extension:

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| SAPR2 STATUS | A one-byte character field containing the DRS/SAPR2 product status. Assembler name: DRQSSAPP COBOL name: Not available. |
| NATURAL STATUS | A one-byte character field containing the DRS/NATURAL product status. Assembler name: DRQSNATP COBOL name: Not available. |

Command Block (DRCB)

The COMMAND block can be used to issue commands to DRS via the CMND call.

The individual fields which make up the COMMAND BLOCK are:

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| 'DRCB' | The control block identifier. Assembler name: DRCID COBOL name: DRS-DRCB-ID |
| COMMAND VERB | An eight-byte character field which must contain the name of the command to be issued to DRS. Valid values are "CLOSELOG", "QUIESCE", "RESTART", "SNAP", and "SSET". CLOSELOG indicates that the current DRS log file should be closed so it is available for printing. DRS will immediately allocate a new log file and will begin recording entries in the new log. QUIESCE indicates that DRS should stop accepting INIT calls. DRS will still accept PUT and TERM calls for active reports. RESTART indicates that DRS should start accepting INIT calls. This means that new reports can become active to DRS. SNAP indicates that a formatted dump of DRS control blocks should be created, based on the SNAP parameters (class, destination, form, etc.) specified. SSET indicates that system log or trace options are to be changed. This option requires that one or both of the following fields be specified. Assembler name: DRCCMND COBOL name: DRS-DRCB-VERB |
| NEW LOG OPTION | For an SSET command, this one-byte character field contains a "Y" to enable DRS logging and an "N" to disable DRS logging. Assembler name: DRCLOG COBOL name: DRS-DRCB-LOG-OPTION |
| NEW TRACE TYPES | For an SSET command, this two-byte character field contains the trace options to be specified to DRS. This should be an EBCDIC representation of the bit setting. For example, if the trace options are to be set to a value of X'30', this two-byte field should contain the characters 30 (X'F3F0'). Assembler name: DRCTRYP COBOL name: DRS-DRCB-TRACE-TYPES |

The macro "DRSDRCB" in file LRS.DRS.V1R34.MACLIB is supplied to generate a DSECT of the COMMAND BLOCK. The copy member "DRSDRCBC" in file LRS.DRS.V1R34.MACLIB is supplied to generate a COBOL description of the COMMAND BLOCK.

Output Block (DROB)

The OUTPUT block can be used to dynamically add or delete OUTPUT JCL statements in the DRS address space, under MVS/ESA JES2.

The individual fields which make up the OUTPUT BLOCK are:

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| 'DROB' | The control block identifier. Assembler name: DROID COBOL name: DRS-DROB-ID |
| OUTPUT ID | An eight-byte character field which can contain the name to be assigned to the OUTPUT JCL statement to be defined, when adding an OUTPUT JCL statement. If this field is blank, a name will be assigned. When deleting an existing dynamically defined OUTPUT JCL statement, this field must be supplied. Assembler name: DROOUTID COBOL name: DRS-DROB-OUTPUT-ID |
| FUNCTION | A three-byte character field indicating whether the OUTPUT JCL statement is to be defined ("ADD") or deleted ("DEL"). Assembler name: DROFUNC COBOL name: DRS-DROB-FUNCTION |
| EXTENDED ATTR INDICATOR | A one-byte character field indicating whether the "extended" DROB fields will be present in the DROB. Valid values are "Y" or "N". Assembler name: DROXATTR COBOL name: DRS-DROB-XATTR |
| RETURN CODE | A four-byte binary field, filled in by DRS, specifying the results of the call. A non-zero value indicates that a failure occurred. Assembler name: DRORC COBOL name: DRS-DROB-RETURN-CODE |
| REASON CODE | A four-byte binary field, filled in by DRS, specifying the particular reason that a call failed. A non-zero value indicates that a failure occurred. Assembler name: DROREAS COBOL name: DRS-DROB-REASON-CODE |
| TEXT UNIT KEY | A four-byte binary field, filled in by DRS, specifying the text unit key of the text unit that caused the call to fail. Assembler name: DROTUKEY COBOL name: DRS-DROB-TEXT-UNIT-KEY |
| MAIL ATTR INDICATOR | A one-byte character field indicating whether the email extended DROB fields will be present in the DROB. Valid values are "Y" or "N". If this field is set to "Y", the EXTENDED ATTR INDICATOR must also be set to "Y". Assembler name: DROMATTR COBOL name: DRS-DROB-MATTR |

ZERO-VALUE FLAGS A four-byte hex field containing flags that indicate which DROB fields contain a value of zero. Note that you must set this flag if a zero-value is specified.

For example, if LINECT=0 is required, then set DROZFLG1=X'20' and set DROLINCT=0.

Assembler name: DROZFLGS
DROZFLG1
DROZ1CKL X'80' CHECKPOINT
LINES = 0
DROZ1FLC X'20' FLASH COUNT = 0
DROZ1LCT X'10' LINECT = 0
DROZ1PIM X'08' PIMSG COUNT = 0
DROZ1PRI X'04' PRIORITY = 0
DROZFLG2
DROZFLG3
DROZFLG4

COBOL name: DRS-DROB-ZFLAGS
DRS-DROB-ZFLAG-1
DRS-DROB-ZFLAG-2
DRS-DROB-ZFLAG-3
DRS-DROB-ZFLAG-4

ADDRESS Four 60-byte fields specifying the address to be printed on output separator pages.

Assembler name: DROADDR1, DROADDR2,
DROADDR3, and DROADDR4

COBOL name: DRS-DROB-ADDR1,
DRS-DROB-ADDR2,
DRS-DROB-ADDR3, and
DRS-DROB-ADDR4

BUILDING A 60-byte field specifying the building to be printed on output separator pages.

Assembler name: DROBLDG

COBOL name: DRS-DROB-BUILDING

BURST A 1-byte field which directs output to a stacker on a 3800 Printing Subsystem. "Y" = burster-trimmer-stacker; "N" = continuous forms stacker.

Assembler name: DROBURST

COBOL name: DRS-DROB-BURST

CHARS Four 4-byte fields specifying the names of character arrangement tables to be used when printing on a 3800.

Assembler name: DROCHAR1, DROCHAR2,
DROCHAR3, and DROCHAR4

COBOL name: DRS-DROB-CHAR1,
DRS-DROB-CHAR2,
DRS-DROB-CHAR3, and
DRS-DROB-CHAR4

| | |
|----------------------|--|
| CKPTLINE | A 2-byte binary field specifying the checkpoint value in lines. Assembler name: DROCKLIN COBOL name: DRS-DROB-CHECKPOINT-LINES |
| CKPTPAGE | A 2-byte binary field specifying the checkpoint value in pages. Assembler name: DROCKPAG COBOL name: DRS-DROB-CHECKPOINT-PAGES |
| CKPTSEC | A 2-byte binary field specifying the checkpoint value in seconds. Assembler name: DROCKSEC COBOL name: DRS-DROB-CHECKPOINT-SECOND S |
| CLASS | A 1-byte field specifying the SYSOUT class. Assembler name: DROCLASS COBOL name: DRS-DROB-CLASS |
| COLORMAP | An 8-byte field specifying the AFP resource for the print file which contains color translation information. Assembler name: DROXCMAP COBOL name: DRS-DROX-COLOR-MAP |
| COMPACT | An 8-byte field specifying the name of a compaction table for JES to use when sending the SYSOUT dataset to an SNA remote terminal. Assembler name: DROCOMPT COBOL name: DRS-DROB-COMPACTION-TABLE |
| COMSETUP | An 8-byte field specifying the AFP resource for the print file which contains setup information. Assembler name: DROXCSET COBOL name: DRS-DROX-COM-SETUP |
| CONTROL | An 8-byte field specifying the type of spacing to be applied to the SYSOUT dataset. Valid values consist of "SINGLE", "DOUBLE", "TRIPLE", and "PROGRAM". Assembler name: DROCNTL COBOL name: DRS-DROB-CONTROL |
| COPIES | An 2-byte binary field specifying the number of copies to be printed. Valid values range from 1 to 255. Assembler name: DROCOPY COBOL name: DRS-DROB-COPIES |
| COPY GROUP(S) | Eight 1-byte binary fields specifying copy groups. Assembler name: DROCPYG1 through DROCPYG8 COBOL name: DRS-DROB-CPYG1 through DRS-DROB-CPYG8 |
| DATAACK | An 8-byte field specifying whether or not print-positioning and invalid-character data-check errors are to be blocked or unblocked for printers accessed through the functional subsystem Print Services Facility (PSF). Valid values are "BLOCK", "UNBLOCK", "BLKCHAR", and "BLKPOS". Assembler name: DRODATCK COBOL name: DRS-DROB-DATAACK |

| | |
|--------------------|--|
| DEFAULT | <p>A 1-byte field specifying whether or not the OUTPUT statement can be implicitly referenced by SYSOUT DD statements in the same job. Valid values are “Y” or “N”.</p> <p>Assembler name: DRODEFLT</p> <p>COBOL name: DRS-DROB-DEFLT</p> |
| DEPT | <p>A 60-byte field specifying the department to be printed on output separator pages.</p> <p>Assembler name: DRODEPT</p> <p>COBOL name: DRS-DROB-DEPARTMENT</p> |
| DEST | <p>A 17-byte field specifying the destination for the SYSOUT dataset.</p> <p>Assembler name: DRODEST</p> <p>COBOL name: DRS-DROB-DESTINATION</p> |
| DEST (LONG) | <p>A 127-byte field specifying the destination for the SYSOUT dataset. The longer destination field is intended for a TCP/IP address in the format “IP:xxxxxxx” or “node.IP:xxxxxxx”. This field and the 17-byte DEST field are mutually exclusive.</p> <p>Assembler name: DROXDSTL</p> <p>COBOL name: DRS-DROX-DESTINATION-LONG</p> |
| DPAGELBL | <p>A 1-byte field specifying whether or not the system should print the security label on each page of printed output. Valid values are “Y” or “N”.</p> <p>Assembler name: DRODPLBL</p> <p>COBOL name: DRS-DROB-DPAGELBL</p> |
| DUPLEX | <p>An 8-byte field specifying whether printing is to be done on both sides of the sheet. Valid values consist of “NO”, “NORMAL” or “TUMBLE”.</p> <p>Assembler name: DROXDUPX</p> <p>COBOL name: DRS-DROX-DUPLEX</p> |
| FCB | <p>A 4-byte field specifying the FCB name.</p> <p>Assembler name: DROFCB</p> <p>COBOL name: DRS-DROB-FCB</p> |
| FLASH | <p>A 4-byte field specifying the forms overlay to be used in printing the SYSOUT dataset on a 3800 Printing Subsystem.</p> <p>Assembler name: DROFLASH</p> <p>COBOL name: DRS-DROB-FLASH</p> |
| FLASH COUNT | <p>A 2-byte binary field specifying the number of copies on which the forms overlay is to be printed. Valid values consist of 0 through 255.</p> <p>Assembler name: DROFLSCT</p> <p>COBOL name: DRS-DROB-FLASH-COUNT</p> |
| FORMDEF | <p>A 6-byte field specifying the name of a FORMDEF member in a PSF library.</p> <p>Assembler name: DROFMDEF</p> <p>COBOL name: DRS-DROB-FORMDEF</p> |

| | |
|-------------------|--|
| FORMLEN | <p>A 10-byte field specifying the numeric length and unit type that will be used to change the physical paper length without reconfiguring the printer.</p> <p>Valid values are nn.nnnUU, where n is a digit 0-9, and UU represents one of the following units:</p> <p>IN (inches) or CM (centimeters).</p> <p>Assembler name: DROXFMLN COBOL name: DRS-DROX-FORM-LENGTH</p> |
| FORMS | <p>An 8-byte field specifying the form name to be used for the dataset.</p> <p>Assembler name: DROFORM COBOL name: DRS-DROB-FORM</p> |
| GROUPID | <p>An 8-byte field specifying the name of an output group to which this dataset belongs.</p> <p>Assembler name: DROGRPID COBOL name: DRS-DROB-GROUP-ID</p> |
| INDEX | <p>A 2-byte binary field specifying the left margin on a 3211 printer with the indexing feature. Valid values are 1 through 31.</p> <p>Assembler name: DROINDEX COBOL name: DRS-DROB-INDEX</p> |
| INTRAY | <p>A 4-byte binary field specifying the paper source when printing AFP files. Valid values are 1- 255.</p> <p>Assembler name: DROXNTRA COBOL name: DRS-DROX-INTRAY</p> |
| LINDEX | <p>A 2-byte binary field specifying the right margin on a 3211 printer with the indexing feature. Valid values are 1 through 31.</p> <p>Assembler name: DROLINDEX COBOL name: DRS-DROB-LINDEX</p> |
| LINECT | <p>A 2-byte binary field specifying the maximum number of lines JES2 is to printer on each output page. Valid values are 0 through 255.</p> <p>Assembler name: DROLINCT COBOL name: DRS-DROB-LINECT</p> |
| MODIFY | <p>A 4-byte field specifying a copy modification module name that tells JES how to print the SYSOUT dataset on a 3800 Printing Subsystem.</p> <p>Assembler name: DROCMOD COBOL name: DRS-DROB-COPY-MOD</p> |
| MODIFY TRC | <p>A 1-byte field specifying the table name in the CHARS parameter (0 for first, 1 for second, 2 for third, etc.).</p> <p>Assembler name: DROCMTRC COBOL name: DRS-DROB-COPY-MOD-TRC</p> |
| NAME | <p>A 60-byte field specifying the preferred name to be printed on output separator pages.</p> <p>Assembler name: DRONAME COBOL name: DRS-DROB-NAME</p> |

| | |
|-----------------|---|
| NOTIFY | <p>Four 17-byte fields specifying the 1 to 4 users to be notified when a job completes.</p> <p>Assembler name: DRONOTFY, DRONOTF2, DRONOTF3, DRONOTF4</p> <p>COBOL name: DRS-DROX-NOTIFY, DRS-DROX-NOTIFY2, DRS-DROX-NOTIFY3, DRS-DROX-NOTIFY4</p> |
| OFFSETXB | <p>A 13-byte field specifying the offset in the x direction from the page origin for the back side of each page of output.</p> <p>Valid values are mmm.nnnUU, where m is a digit from 0 - 9, n is a digit from 0 - 9 and UU represents one of the following units:</p> <p>IN (inches)</p> <p>CM (centimeters)</p> <p>MM (millimeters)</p> <p>PELS or POINTS</p> <p>Assembler name: DROXOFXB</p> <p>COBOL name: DRS-DROX-BACK-X-OFFSET</p> |
| OFFSETXF | <p>A 13-byte field specifying the offset in the x direction from the page origin for the front side of each page of output.</p> <p>Valid values are mmm.nnnUU, where m is a digit from 0 - 9, n is a digit from 0 - 9 and UU represents one of the following units:</p> <p>IN (inches)</p> <p>CM (centimeters)</p> <p>MM (millimeters)</p> <p>PELS or POINTS</p> <p>Assembler name: DROXOFXF</p> <p>COBOL name: DRS-DROX-FRONT-X-OFFSET</p> |
| OFFSETYB | <p>A 13-byte field specifying the offset in the y direction from the page origin for the back side of each page of output. Valid values are mmm.nnnUU, where m is a digit from 0 - 9, n is a digit from 0 - 9 and UU represents one of the following units: IN (inches), CM (centimeters), MM (millimeters), PELS or POINTS</p> <p>Assembler name: DROXOFYB</p> <p>COBOL name: DRS-DROX-BACK-Y-OFFSET</p> |
| OFFSETYF | <p>A 13-byte field specifying the offset in the y direction from the page origin for the front side of each page of output.</p> <p>Valid values are mmm.nnnUU, where m is a digit from 0 - 9, n is a digit from 0 - 9 and UU represents one of the following units:</p> <p>IN (inches)</p> <p>CM (centimeters)</p> <p>MM (millimeters)</p> <p>PELS or POINTS</p> <p>Assembler name: DROXOFYF</p> <p>COBOL name: DRS-DROX-FRONT-Y-OFFSET</p> |

| | |
|-------------------------------|--|
| OUTBIN | A 4-byte binary field specifying the printer output bin identifier to be used for the SYSOUT dataset. Assembler name: DROOBIN COBOL name: DRS-DROB-OUTBIN |
| OUTDISP (NORMAL) | An 8-byte field specifying the output disposition when the job ends normally. Assembler name: DROODSPN COBOL name: DRS-DROB-NORMAL-DISP |
| OUTDISP (ABNORMAL) | An 8-byte field specifying the output disposition when the job ends abnormally. Assembler name: DROODSPA COBOL name: DRS-DROB-ABNORMAL-DISP |
| OVERLAYB | An 8-byte field specifying that the named medium overlay is to be placed on the back side of each sheet to be printed. Assembler name: DROXVLB COBOL name: DRS-DROX-BACK-OVERLAY |
| OVERLAYF | An 8-byte field specifying that the named medium overlay is to be placed on the front side of each sheet to be printed. Assembler name: DROXVLF COBOL name: DRS-DROX-FRONT-OVERLAY |
| OVFL | An 8-byte field specifying whether or not JES3 should test for page overflow on an output printer. (JES3 only) Valid values are "ON" or "OFF". Assembler name: DROXOVFL COBOL name: DRS-DROX-OVERFLOW |
| PAGEDEF | A 6-byte field specifying the name of a PAGEDEF member in a PSF library. Assembler name: DROPGDEF COBOL name: DRS-DROB-PAGEDEF |
| PIMSG | A 1-byte field specifying whether or not a functional subsystem should print its messages in the output listing. Valid values are "Y" or "N". Assembler name: DROPIMSG COBOL name: DRS-DROB-PIMSG |
| PIMSG COUNT | A 2-byte binary field specifying the number of errors to cause printing of PIMSG to be terminated. Valid values are 0 through 999. Assembler name: DROPIMCT COBOL name: DRS-DROB-PIMSG-COUNT |
| PORTNO | A 4-byte binary field specifying the TCP/IP port number at which the printing application connects to the printer. Valid values are 1 - 65535. Assembler name: DROXPORT COBOL name: DRS-DROX-PORT |

| | |
|-----------------|--|
| PRMODE | An 8-byte field specifying the process mode required to print the dataset. Valid values are "LINE", "PAGE", or any valid installation-defined process mode. Assembler name: DROPRMOD COBOL name: DRS-DROB-PRMODE |
| PRERROR | An 8-byte field specifying how a SYSOUT dataset that has had printing terminated by a functional subsystem is to be released by JES. Valid values are "DEFAULT", "HOLD" or "QUIT". Assembler name: DROXPTER COBOL name: DRS-DROX-ERROR-DISPOSITION |
| PRTOPTNS | An 16- byte field specifying the named entity that contains additional print options for an IP-destined dataset that is being sent by a functional subsystem. Assembler name: DROXPRT0 COBOL name: DRS-DROX-PRINT-OPTIONS |
| PRTQUEUE | A 127-byte field specifying the print queue name used when printing the IP-destined dataset. Assembler name: DROXPRTQ COBOL name: DRS-DROX-PRINT-QUEUE |
| PRTY | A 2-byte binary field specifying the initial priority at which the SYSOUT dataset enters the output queue. Value values are 0 through 255. Assembler name: DROPRTY COBOL name: DRS-DROB-INITIAL-PRIORITY |
| RESFMT | An 8-byte field specifying the resolution used to format the print dataset. Valid values are "P240" or "P300". Assembler name: DROXRFMT COBOL name: DRS-DROX-RESOLUTION |
| RETAINF | A 10-byte field specifying how long a functional subsystem will retain an IP-destined dataset after a failed transmission. Assembler name: DROXRETF COBOL name: DRS-DROX-FAILED-RETAIN-TIME |
| RETAINS | A 10 byte field specifying how long a functional subsystem will retain an IP-destined dataset after a successful transmission. Assembler name: DROXRETS COBOL name: DRS-DROX-SUCCESS-RETAIN-TIME |
| RETRYL | A 4-byte binary field specifying the number of attempts an FSS will try for transmission of an IP-destined dataset. Valid values are 0 -32767. Assembler name: DROXRETL COBOL name: DRS-DROX-MAX-RETRIES |

| | |
|-------------------------------|--|
| RETRYT | <p>A 10-byte field specifying how much time a functional subsystem will wait between retries of transmission attempts of a dataset.</p> <p>Assembler name: DROXRETT</p> <p>COBOL name: DRS-DROX-TIME-BETWEEN-RETRIES</p> |
| ROOM | <p>A 60-byte field specifying the room identification to be printed on output separator pages.</p> <p>Assembler name: DROROOM</p> <p>COBOL name: DRS-DROB-ROOM</p> |
| SYSAREA | <p>A 1-byte field specifying whether or not the system should reserve an area for the security label on each page of printed output. Valid values are "Y" or "N".</p> <p>Assembler name: DROSAREA</p> <p>COBOL name: DRS-DROB-SYSAREA</p> |
| TITLE | <p>A 60-byte field specifying the title to be printed on JES banner pages.</p> <p>Assembler name: DROTITLE</p> <p>COBOL name: DRS-DROB-TITLE</p> |
| TRC | <p>A 1-byte field specifying whether or not the SYSOUT dataset should have a trc character in the second character of each record.</p> <p>Assembler name: DROTRC</p> <p>COBOL name: DRS-DROB-TRC</p> |
| UCS | <p>A 4-byte field specifying a universal character set, print train, or character-arrangement table for a 3800 Printing Subsystem.</p> <p>Assembler name: DROUCS</p> <p>COBOL name: DRS-DROB-UCS</p> |
| WRITER | <p>An 8-byte field specifying the writer name.</p> <p>Assembler name: DROWRTR</p> <p>COBOL name: DRS-DROB-WRITER</p> |
| OUTPUT DESCRIPTION | <p>A 60-byte character field that is NOT used when allocating the OUTPUT JCL statement. There is no OUTPUT JCL statement keyword that corresponds to this field. This field simply allows an installation to associate a description with the OUTPUT JCL statement. The DRS/VPI @OUTDESC keyword can be used for this purpose when defining dynamic OUTPUT JCL statements to DRS/VPI.</p> <p>Assembler name: DRODESC</p> <p>COBOL name: DRS-DROB-OUTPUT-DESCRIPTI ON</p> |

The following fields are in the 'extended' version of the DROB. To use these fields the DROXATTR field must be set to 'Y'.

USERLIB(S) Eight 44-byte character fields containing the dataset name of a USERLIB.
Assembler name: DROXULB1 through DROXULB8
COBOL name: DRS-DROBX-USERLIB-1 through DRS-DROBX-USERLIB-8

USER DATA FIELD(S) Sixteen 60-byte character fields containing USERDATA values.
Assembler name: DROXUD01 through DROXUD16
COBOL name: DRS-DROBX-USERDATA-1 through DRS-DROBX-USERDATA-16

The following fields are in the 'email extension' of the DROB. To use these fields, both the DROXATTR and the DROMATTR fields must be set to 'Y'.

| | |
|---------------------------------|--|
| EMAIL FILE NAME | A 60-byte field containing the file name to be used for an email attachment. Assembler name: DROMFILE COBOL name: DRS-DROBM-MAILFILE |
| EMAIL "FROM" NAME | A 60-byte field containing the name to be used as the "from" name for an email message. Assembler name: DROMFROM COBOL name: DRS-DROBM-MAILFROM |
| EMAIL "REPLY TO" ADDRESS | A 60-byte field containing the an email address to be used as the "reply to" address for an email message. Assembler name: DROMRPLY COBOL name: DRS-DROBM-REPLYTO |
| EMAIL "BCC" RECIPIENTS | Thirty-two 60-byte fields containing the blind copy recipient email addresses for an email message. Assembler name: DROMBCC01 through DROMBCC32 COBOL name: DRS-DROBM-MAILBCC-1 through DRS-DROBM-MAILBCC-32 |
| EMAIL "CC" RECIPIENTS | Thirty-two 60-byte fields containing the copy recipient email addresses for an email message. Assembler name: DROMCC01 through DROMCC32 COBOL name: DRS-DROBM-MAILCC-1 through DRS-DROBM-MAILCC-32 |
| EMAIL "TO" RECIPIENTS | Thirty-two 60-byte fields containing the primary recipient email addresses for an email message. Assembler name: DROMTO01 through DROMTO32 COBOL name: DRS-DROBM-MAILTO-1 through DRS-DROBM-MAILTO-32 |

The macro "DRSDROB" in file LRS.DRS.V1R34.MACLIB is supplied to generate a DSECT of the OUTPUT BLOCK. The copy member "DRSDROBC" in file LRS.DRS.V1R34.MACLIB is supplied to generate a COBOL description of the OUTPUT BLOCK.



Section 22

DRS/API User Exits

Introduction

Version 1 Release 3.4 of DRS has seven optional user exits that can be used to customize DRS operation. None of these exits is required. Sample source code for all user exits is supplied to you in the DRS source library (file LRS.DRS.V1R34.ASM) on the distribution cartridge.

DRS loads all available user exits during DRS initialization. Therefore, user exits must be linked into the appropriate JOBLIB, STEPLIB, or LINKLIST library prior to starting the DRS application.

Sample JCL to assemble and link an exit is included on the DRS distribution cartridge as member EXITASML in file LRS.DRS.V1R34.CNTL. That JCL is reproduced here:

```
//JOBNAME JOB (YOUR JOB CARD INFORMATION)
//ASMH EXEC PGM=IEV90,PARM='OBJECT,NODECK,RENT,XREF(SHORT)'
//SYSLIB DD DSN=SYS1.MACLIB,DISP=SHR
// DD DSN=SYS1.AMODGEN,DISP=SHR
// DD DSN=LRS.DRS.V1R34.MACLIB,DISP=SHR
// DD DSN=LRS.DRS.V1R34.ASM,DISP=SHR
//SYSUT1 DD UNIT=VIO,SPACE=(CYL,(5,2))
//SYSUT2 DD UNIT=VIO,SPACE=(CYL,(5,2))
//SYSUT3 DD UNIT=VIO,SPACE=(CYL,(5,2))
//SYSPUNCH DD DUMMY
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=LRS.DRS.V1R34.ASM(DRSSUEXX),DISP=SHR
//SYSLIN DD DSN=&&OBJ,DISP=(,PASS),SPACE=(TRK,(6,3)),
// UNIT=VIO,DCB=BLKSIZE=1600
//*
//LKED EXEC PGM=IEWL,PARM='XREF,LET,LIST,RENT,REUS,REFR,MAP,AC=0',
// COND=(5,LT,ASMH)
//SYSPRINT DD SYSOUT=*
//SYSUT1 DD UNIT=VIO,SPACE=(CYL,(1,1))
//SYSLOAD DD DSN=LRS.DRS.V1R34.LOAD(DRSSUEXX),DISP=SHR
//SYSLIN DD DSN=&&OBJ,DISP=(OLD,DELETE,DELETE)
/*
```

Language

All user exits must be written in Assembler Language.

Reentrancy Considerations

All user exits must be reentrant.

Exit Types & Recovery Considerations

There are two types of DRS user exits: interface and subtask. **Interface** user exits execute under the same TCB as the DRS caller. **Subtask** user exits execute under the DRS service TCB (DRSSMAIN). The only difference between the two types of user exits is whether or not DRS will establish a recovery environment prior to invoking the user exit. DRS will not establish a recovery environment for interface related user exits. If the user exit abends, control will be passed to the DRS caller's recovery routine, if any. Subtask related user exit abends are intercepted by DRS. DRS disables the user exit, takes a dump (SYSUDUMP), and continues processing as if the user exit did not exist. Note that DRS will no longer invoke the user exit after an abend has been detected. The user should examine the dump to determine the cause of the abend. The type of each user exit is documented in the detailed description for each user exit.

Execution Environment

All user exits are invoked in problem state and storage protect key 8.

Linkage Conventions

When a user exit receives control, register 15 contains the entry address, register 14 contains the address to which the user exit must return control, and register 13 contains the address of OS-style 18 word savearea. All user exits must save and restore registers according to standard MVS linkage conventions.

Parameters Passed

When control is passed to a DRS user exit routine, register 0 contains a request code and register 1 points to a parameter list. The request code and parameter list are user exit dependent and are documented in the detailed description for each user exit.

Return Codes

When a user exit returns control to DRS, it must set an appropriate return code in register 15. The return codes are user exit dependent and are documented in the detailed description for each user exit.

Exit-to-Exit Communication

The DRS System Attribute DSECT (mapping macro DRSSYAT), which is passed as the first parameter to all user exits, contains a two word field (SYAUSRWD) which can be used to pass information between user exits. These two words are never modified by DRS, so one user exit can place a value in it, or perhaps a pointer to some GETMAINED area, and other user exits will have that information available to them. Additionally, the DRS report control area (mapping macro DRSRCA), contains a two word field (RCAUSRWD) which can be used to pass information between the user exits that have access to it.

Exit Tracing

DRS will trace entry to and exit from each user exit whenever the user exit trace type mask (X'10') is set on in the DRSSOPTS module. The DRS trace types may also be changed dynamically by issuing the DRS CMND request call specifying the SSET command.

The general format of each trace type is as follows.

| BYTES | CONTENTS |
|--------------|---|
| 00-03 | Trace Type (UnnE = entry or UnnX = exit, nn = exit number) |
| 04-07 | Time Stamp (Format = HHMMSSSTH) |
| 08-09 | Request Code |
| 10-11 | Return Code |
| 12-15 | TCB address |
| 16-31 | Exit dependent data (documented with user exit description) |

A copy of the DRS trace table can be obtained by issuing the DRS CMND request call specifying the SNAP command.

The parameters passed to each exit, along with all internal trace entries, can be traced to the MVS GTF trace file. See [“Customizing the DRS System Options” on page 20.9](#) for information on setting trace options.

Exit Selection Table

| Exit | Name | Title | Type | Recovery |
|-------------|-------------|--------------------|-------------|-----------------|
| 00 | DRSSUE00 | DRS Initialization | Interface | No |
| 01 | DRSSUE01 | DRS Termination | Interface | No |
| 02 | DRSSUE02 | Request | Subtask | Yes |
| 03 | DRSSUE03 | Add Line(s) | Subtask | Yes |
| 04 | DRSSUE04 | Snap Dump | Subtask | Yes |
| 05 | DRSSUE05 | WTO | Both | Yes & No |
| 06 | DRSSUE06 | OS Services | Interface | No |

Table 22.1: Exit Selection Table

Initialization Exit (Exit 00)

| | |
|-----------------------------|--|
| Module Name: | DRSSUE00 |
| Invoked by: | DRSSINIT |
| Execution TCB: | Interface TCB |
| Recovery: | None |
| Function: | This exit is called after DRS initialization has been completed. |
| Request Code (R0): | Always 00 |
| Parameter List (R1): | Word 0 - A (System attributes) |
| Trace Data (Entry): | Request code System user words |
| Trace Data (Exit): | Return code System user words |
| Return Codes (R15): | 00 - Successful completion |
| Sample Program: | Member DRSSUE00 in file LRS.DRS.V1R34.ASM is an example of the DRS Initialization Exit. This example merely issues a message via WTO, which includes the job name and the DRS version, release number and fix level. |

Termination Exit (Exit 01)

| | |
|-----------------------------|---|
| Module Name: | DRSSUE01 |
| Invoked by: | DRSSTERM |
| Execution TCB: | Interface TCB |
| Recovery: | None |
| Function: | This exit is called after DRS termination has been completed. |
| Request Code (R0): | Always 00 |
| Parameter List (R1): | Word 0 - A (System attributes) |
| Trace Data (Entry): | Request code System user words |
| Trace Data (Exit): | Return code System user words |
| Return Codes (R15): | 00 - Successful completion |
| Sample Program: | Member DRSSUE01 in file LRS.DRS.V1R34.ASM is an example of the DRS Termination Exit. This example merely issues a message via WTO, which includes the job name and processing statistics. |

Request Exit (Exit 02)

| | |
|-----------------------------|--|
| Module Name: | DRSSUE02 |
| Invoked by: | DRSSMAIN |
| Execution TCB: | Subtask TCB |
| Recovery: | ESTAE Exit |
| Function: | This exit is called prior to processing each DRS request. The exit may reject the request by returning with RC=04. |
| Request Code (R0): | 1 - INIT Request 2 - PUT Request 3 - TERM Request 4 - QURY Request 5 - CMND Request 6 - SHUT Request 7 - OUTP Request |
| Parameter List (R1): | Word 0 - A (System attributes) Word 1 - A (DRRB) Word 2 - A (2 nd argument) or zeros Word 3 - A (Report control area) or zeros Word 4 - A (Alternate data buffer) (Initialized by the exit) |
| Trace Data (Entry): | Request code Address of DRRB Address of 2 nd argument |
| Trace Data (Exit): | Return code Address of DRRB Address of 2 nd argument |
| Return Codes (R15): | 00 - Process request 04 - Reject request |
| Sample Program: | Member DRSSUE02 in file LRS.DRS.V1R34.ASM is an example of the DRS Request Exit. This example reformats 3270 data into print lines. |

Add Lines Exit (Exit 03)

| | |
|------------------------------------|---|
| Module Name: | DRSSUE03 |
| Invoked by: | DRSSMAIN |
| Execution TCB: | Subtask TCB |
| Recovery: | ESTAE Exit |
| Function: | This exit is called after a dataset has been successfully allocated and opened and prior to unallocation. The purpose of this exit is to allow insertion of data before and after each SYSOUT dataset created by DRS. |
| Request Code (R0): | 00 - Add line(s) at start of dataset 04 - Add line(s) at end of dataset |
| Parameter List (R1): | WORD 0 - A (System attributes) WORD 1 - A (Report control area) WORD 2 - A (Report attributes) WORD 3 - A (Line workarea) WORD 4 - A (User words) |
| Trace Data (Entry): | Request code Address of RAT Address of line work area Contents of user words |
| Trace Data (Exit): | Return code Address of RAT Address of line work area Contents of user words |
| Return Codes (R15): | 00 - Write line (invoke exit again) 04 - Do not write line (exit completed) |
| Sample Program: | Member DRSSUE03 in file LRS.DRS.V1R34.ASM is an example of the DRS Add Lines Exit. This example adds separator or banner pages at the start and end of each data file. |
| Programming Considerations: | For DRS/VPI users, the SEPAR keyword now allows banner pages to be added by routines which can be unique for each virtual printer definition. |

Snap Dump Exit (Exit 04)

| | |
|-----------------------------|---|
| Module Name: | DRSSUE04 |
| Invoked by: | DRSSSNAP |
| Execution TCB: | Subtask TCB |
| Recovery: | ESTAE exit |
| Function: | This exit is called whenever an error is detected while processing a user DRS request (e.g., INIT, PUT, TERM, etc). The purpose of this exit is to allow the user to determine whether or not a SNAP dump should be taken. |
| Request Code (R0): | 00 - Invoked by error processing 04 - Invoked by command processing |
| Parameter List (R1): | Word 0 - A (System attributes) Word 1 - A (Report control area) Word 2 - A (Error attributes) |
| Trace Data (Entry): | Request code Report ID Default DRS action |
| Trace Data (Exit): | Return code Report ID Updated DRS action |
| Return Codes (R15): | 00 - Successful completion |
| NOTES: | To indicate that a snap dump should not be created, the snap dump flag (\$DUMP) on the field ERAFLAG1 should be turned off. This is demonstrated in the sample User Exit 04 distributed as member DRSSUE04 in file LRS.DRS.V1R34.ASM. |
| Sample Program: | Member DRSSUE04 in file LRS.DRS.V1R34.ASM is an example of the DRS Snap Dump Exit. This example bypasses SNAP dumps for dynamic allocation errors due to invalid destinations. |

WTO Exit (Exit 05)

| | |
|-----------------------------|---|
| Module Name: | DRSSUE05 |
| Invoked by: | DRSSMSGH |
| Execution TCB: | All DRS subtasks |
| Recovery: | None |
| Function: | This exit is called prior to issuing a WTO. The exit may modify the WTO, request that the WTO not be issued, or request that the WTO not be issued and not be logged to SYSLOG. |
| Request Code (R0): | Always 00 |
| Parameter List (R1): | Word 0 - A (System attributes) Word 1 - A (WTO attributes) |
| Trace Data (Entry): | Request code Message ID Message attributes Message text length Message text (first 10 bytes) |
| Trace Data (Exit): | Return code Message ID Message attributes Message text length Message text (first 10 bytes) |
| Return Codes (R15): | 00 - Issue WTO 04 - Do not issue WTO 08 - Do not issue WTO and do not log message to SYSLOG |
| Sample Program: | Member DRSSUE05 in file LRS.DRS.V1R34.ASM is an example of the DRS WTO Exit. This example cancels message DRS009, changes the WTO descriptor code for messages DRS021 and DRS022, and bypasses writing messages DRS100 and DRS101 (ALLOCATION/UNALLOCATION) messages to SYSLOG. |

OS Services Exit (Exit 06)

| | |
|-----------------------------|--|
| Module Name: | DRSSUE06 |
| Invoked by: | DRSSINTB |
| Execution TCB: | Interface TCB |
| Recovery: | None |
| Function: | This exit is called prior to issuing an OS services request (e.g., WAIT, ABEND, etc.) when using the non-CICS interface of DRS. The purpose of this exit is to allow non-CICS TP monitors to substitute a TP monitor request in place of the OS request. This will prevent DRS from placing the entire TP monitor in a wait state (WAIT/ENQ request) or abending the TP monitor (ABEND request). |
| Request Code (R0): | Always 00 |
| Parameter List (R1): | Word 0 - A (System attributes) Word 1 - A (OS services attributes) |
| Trace Data (Entry): | Request code OS services request type ABEND code (ABEND request) ENQ type (SHR EXCL) (ENQ/DEQ request) ENQ/DEQ RNAME length (ENQ/DEQ request) ENQ/DEQ RNAME (ENQ/DEQ request) ECB address (WAIT request) ECB value (WAIT request) |
| Trace Data (Exit): | Return code OS services request type ABEND code (ABEND request) ENQ type (SHR EXCL) (ENQ/DEQ request) ENQ/DEQ RNAME length (ENQ/DEQ request) ENQ/DEQ RNAME (ENQ/DEQ request) ECB address (WAIT request) ECB value (WAIT request) |
| Return Codes (R15): | 00 - Request processed 04 - Function not implemented |
| Sample Program: | Member DRSSUE06 in file LRS.DRS.V1R34.ASM is an example of the DRS OS Services Exit. This example does not change the processing for any OS services request. |



Section 23

DRS/API JES Considerations

In this section, we list a number of items related to JES operation which should be considered before you begin to use DRS. These items pertain to certain internal limits in JES2 and JES3.

Most users of DRS implement DRS in a CICS or other TP monitor environment to create a large number of small reports. A common example would be using DRS to create pick tickets for a warehouse, where each “set” of DRS calls (INIT, PUT, TERM) creates one ticket. This type of application can result in a significant increase in the number of individual SYSOUT datasets in existence on the JES spool at any point in time. Most of the considerations listed in this section pertain to JES limitations on the number of datasets.

JES2 Considerations

MVS/ESA versions of JES2 allow creation of a maximum of 9,999,999 SYSOUT datasets per job.

The additional output generated by DRS may require increasing the size of the JES2 output queue (number of JOEs). If the SYSOUT datasets created by DRS are retrieved from the JES spool and printed in a timely fashion, the number of JOEs now specified may be adequate. However, exceptional situations, such as “broken” printers or an extremely high volume of processing, resulting in many more SYSOUT datasets than normal, should be considered.

If the JES2 output queues are full (no JOEs available), SYSOUT datasets being spun or becoming available as jobs end will not be queued for processing. These SYSOUT datasets will remain unavailable until the JOE shortage is relieved. The JES2 spool offload facility can be used to relieve a shortage of JOEs.

Spool Space

While the spool space for the dataset itself is made available for reuse after a spin dataset has been processed, the space for the associated spool control block remains until the whole job is purged. One spool block is required, to contain a spin IOT control block, for each SYSOUT dataset created by DRS.

To reclaim this space, you need to stop and start the job which is issuing the DRS calls (such as CICS). After all of the datasets from the job have been processed, the job will be purged and the spool space will be reclaimed. Installations should consider increasing the amount of spool space allocated to mitigate the impact of unpurged control blocks. The amount of additional space needed depends upon the number of datasets being created and the frequency with which the application which uses DRS (such as CICS) is restarted.

JES3 Considerations

JES3 uses JSAM buffers to hold control information about the spin datasets when it is adding or processing a dataset. If a backlog occurs, more buffers will be needed. If there are not enough buffers, JES3 and the task creating datasets (such as CICS) will hang. Installations may have to increase the buffer space definition in their JES3 initialization decks to provide sufficient buffers so that a backlog can be detected and cleared before JES3 runs out of buffers.

Spool Space

While the spool space for the dataset itself is made available for reuse after a spin dataset has been processed, the space occupied by the JDS and OSE control blocks remains allocated until the whole job is purged. Each spin dataset uses one entry in a JDS record as well as in an OSE record.

To reclaim this space, you need to stop and start the job which is issuing the DRS calls (such as CICS). After all of the datasets from the job have been processed, the job will be purged and the spool space will be reclaimed. Installations should consider increasing the amount of spool space allocated to mitigate the impact of unpurged control blocks. The amount of additional space needed depends upon the number of datasets being created and the frequency with which the application which uses DRS (such as CICS) is restarted.

If the SYSOUT datasets created by DRS are retrieved from the JES spool and printed in a timely fashion, the amount of spool space now specified may be adequate. However, exceptional situations, such as “broken” printers or an extremely high volume of processing, resulting in many more SYSOUT datasets than normal, should be considered.

If a shortage of spool space occurs, the JES3 dump job facility can be used to free spool space. After the shortage has been relieved, the facility can be used to restore the jobs to the system.

Section 24 DRS/API Return Codes

| Return code (decimal) | Return code (hex) | Meaning |
|-----------------------|-------------------|--|
| 0000 | X'0000' | GOOD RETURN CODE |
| 0002 | X'0002' | DRRB IS IN BAD STORAGE |
| 0003 | X'0003' | INVALID DRRB |
| 0004 | X'0004' | REQUEST REJECTED BY USER EXIT |
| 0020 | X'0014' | DRRB INVALID REPORT ID |
| 0021 | X'0015' | DRRB FUNCTION IS INVALID |
| 0023 | X'0017' | DRRB OPTION 1 IS INVALID |
| 0024 | X'0018' | DRRB OPTION 2 IS INVALID |
| 0025 | X'0019' | DRRB OPTION 3 IS INVALID |
| 0026 | X'001A' | DRRB OPTION 4 IS INVALID |
| 0027 | X'001B' | DRRB LINE COUNT IS INVALID |
| 0050 | X'0032' | DRS SHUTDOWN IN PROGRESS |
| 0051 | X'0033' | MULTIPLE SUBTASKS ATTEMPTING TO UPDATE SAME REPORT |
| 0060 | X'003C' | NO STORAGE FOR SWA |
| 0061 | X'003D' | NO STORAGE FOR SCA |
| 0080 | X'0050' | ATTACH ERROR |
| 0081 | X'0051' | SUBTASK ABENDED |
| 0082 | X'0052' | DRS INITIALIZATION ERROR |
| 0101 | X'0065' | BAD PARMS PASSED (ONLY ONE) |
| 0102 | X'0066' | DRIB BASE IS IN BAD STORAGE |
| 0103 | X'0067' | INVALID DRIB |
| 0104 | X'0068' | DRIB ATTR IS IN BAD STORAGE |
| 0105 | X'0069' | DRIB EXTENDED ATTR IS IN BAD STORAGE |
| 0110 | X'006E' | INVALID DATASET NAME |

| Return code (decimal) | Return code (hex) | Meaning |
|------------------------------|--------------------------|--|
| 0111 | X'006F' | INVALID MEMBER NAME |
| 0112 | X'0070' | INVALID UNIT |
| 0113 | X'0071' | INVALID ALLOCATION TYPE |
| 0115 | X'0073' | INVALID PRIMARY ALLOCATION |
| 0116 | X'0074' | INVALID SECONDARY ALLOCATION |
| 0117 | X'0075' | INVALID INITIAL ALLOCATION DISPOSITION |
| 0118 | X'0076' | INVALID VOLUME PARAMETER |
| 0119 | X'0077' | INVALID NORMAL DISPOSITION |
| | | |
| 0120 | X'0078' | INVALID NUMBER OF ATTR SECTIONS |
| 0121 | X'0079' | DRIB RECORD FORMAT IS INVALID |
| 0122 | X'007A' | DRIB LRECL IS INVALID |
| 0123 | X'007B' | DRIB BLKSIZE IS INVALID |
| 0124 | X'007C' | DRIB JOBNAME IS INVALID |
| 0127 | X'007F' | DRIB CNTRL IS INVALID |
| 0128 | X'0080' | DRIB DEST IS INVALID |
| 0129 | X'0081' | DRIB WRITER IS INVALID |
| | | |
| 0130 | X'0082' | DRIB FORM IS INVALID |
| 0131 | X'0083' | DRIB FCB IS INVALID |
| 0132 | X'0084' | DRIB UCS IS INVALID |
| 0133 | X'0085' | DRIB CLASS IS INVALID |
| 0134 | X'0086' | DRIB HOLD IS INVALID |
| 0135 | X'0087' | DRIB COPIES IS INVALID |
| 0136 | X'0088' | DRIB EXTEND ATTR FLAG IS INVALID |
| 0137 | X'0089' | DRIB DELETE OPTION IS INVALID |
| 0138 | X'008A' | DRIB DDNAME IS INVALID |
| 0139 | X'008B' | DRIB EXTEND FORM IS INVALID |
| | | |
| 0140 | X'008C' | DRIB SYSOUT USERID IS INVALID |
| 0141 | X'008D' | DRIB OUTPUT REF IS INVALID |
| 0142 | X'008E' | DRIB COPY GROUP(S) ARE INVALID |
| 0143 | X'008F' | DRIB CHAR TABLE(S) ARE INVALID |
| 0144 | X'0090' | DRIB BURST IS INVALID |
| 0145 | X'0091' | DRIB FLASH IS INVALID |
| 0146 | X'0092' | DRIB FLASH COUNT IS INVALID |
| 0147 | X'0093' | DRIB COPY MODULE IS INVALID |
| 0148 | X'0094' | DRIB COPY MOD REF IS INVALID |

| Return code (decimal) | Return code (hex) | Meaning |
|------------------------------|--------------------------|--|
| 0150 | X'0096' | INIT ON EXISTING REPORT |
| 0151 | X'0097' | DRS SYSTEM IS QUIESCING |
| 0152 | X'0098' | DRIB JOBNAME SPECIFIED; DRS/API LOADED FROM NON-AUTHORIZED LIBRARY |
| 0153 | X'0099' | DRIB JOBNAME SPECIFIED; MVS RELEASE DOES NOT SUPPORT JOBNAME CHANGE |
| 0154 | X'009A' | DRIB USERID WAS SPECIFIED; DRS/API LOADED FROM NON-AUTHORIZED LIBRARY. |
| 0155 | X'009B' | DRIB USERID WAS SPECIFIED; MVS RELEASE DOES NOT SUPPORT USERID CHANGE. |
| 0156 | X'009C' | DRIB JOBNAME WAS SPECIFIED; JOBNAME CHANGE REQUEST FAILED |
| 0157 | X'009D' | DRIB USERID WAS SPECIFIED; USERID CHANGE REQUEST FAILED |
| | | |
| 0160 | X'00A0' | NO STORAGE FOR RCA |
| 0162 | X'00A2' | NO STORAGE FOR BFCB |
| 0163 | X'00A3' | NO STORAGE FOR DATA LINE |
| | | |
| 0170 | X'00AA' | DRIB UCS VERIFICATION IS INVALID |
| 0171 | X'00AB' | DRIB FOLD IS INVALID |
| 0172 | X'00AC' | DRIB SUBSYSTEM NAME IS INVALID |
| 0173 | X'00AD' | DRIB SUBSYSTEM PARM IS INVALID |
| 0174 | X'00AE' | INVALID DATSET NUMBER |
| 0175 | X'00AF' | INVALID DIRECTORY BLOCKS |
| 0176 | X'00B0' | INVALID RETENTION PERIOD |
| 0177 | X'00B1' | INVALID RETENTION PERIOD INDICATOR |
| 0178 | X'00B2' | INVALID AVERAGE RECORD UNIT |
| 0179 | X'00B3' | INVALID AVERAGE RECORD SIZE |
| | | |
| 0182 | X'00B6' | DYNAMIC ALLOCATION FAILURE |
| 0183 | X'00B7' | OPEN FAILURE |
| 0185 | X'00B9' | DCB ABEND EXIT DRIVEN |
| 0187 | X'00BB' | SUBTASK ABENDED |
| 0188 | X'00BC' | SYNAD EXIT DRIVEN - ADD LINE(S) EXIT |
| 0189 | X'00BD' | ABEND EXIT DRIVEN - ADD LINE(S) EXIT |
| | | |

| Return code (decimal) | Return code (hex) | Meaning |
|------------------------------|--------------------------|--|
| 0191 | X'00BF' | INVALID EXPIRATION DATE |
| 0192 | X'00C0' | INVALID DATASET TYPE |
| 0193 | X'00C1' | INVALID RELEASE UNUSED SPACE INDICATOR |
| 0194 | X'00C2' | INVALID VOLUME COUNT |
| 0195 | X'00C3' | INVALID UNIT COUNT |
| 0196 | X'00C4' | INVALID SMS STORAGE CLASS |
| 0197 | X'00C5' | INVALID SMS MANAGEMENT CLASS |
| 0198 | X'00C6' | INVALID SMS DATA CLASS 11 |
| | | |
| 0201 | X'00C9' | BAD PARMS PASSED |
| 0203 | X'00CB' | DATA LINE IS IN BAD STORAGE |
| | | |
| 0220 | X'00DC' | VARIABLE LENGTH RECORD TOO SMALL |
| 0221 | X'00DD' | VARIABLE LENGTH RECORD TOO LARGE |
| 0222 | X'00DE' | UNDEFINED LENGTH RECORD TOO SMALL |
| 0223 | X'00DF' | UNDEFINED LENGTH RECORD TOO LARGE |
| | | |
| 0250 | X'00FA' | NO REPORT EXISTS |
| 0251 | X'00FB' | PREVIOUS TERM ERROR DETECTED |
| | | |
| 0280 | X'0118' | SYNAD EXIT DRIVEN |
| 0281 | X'0119' | DCB ABEND EXIT DRIVEN |
| 0283 | X'011B' | SUBTASK ABENDED |
| | | |
| | | |
| 0301 | X'012D' | BAD PARMS PASSED |
| 0303 | X'012F' | DRTB BASE IS IN BAD STORAGE |
| 0304 | X'0130' | INVALID DRTB |
| 0305 | X'0131' | DRTB ATTR IS IN BAD STORAGE |
| | | |
| 0320 | X'0140' | INVALID NUMBER OF ATTR SECTIONS |
| 0321 | X'0141' | INVALID OVERRIDING ATTRIBUTE INDEX |
| 0322 | X'0142' | INVALID OVERRIDING DISPOSITION |
| 0323 | X'0143' | INVALID OVERRIDING SYSOUT CLASS |
| 0324 | X'0144' | INVALID OVERRIDING HOLD |
| 0325 | X'0145' | INVALID OVERRIDING NOHOLD |
| 0326 | X'0146' | INVALID OVERRIDING DESTINATION |
| | | |
| 0350 | X'015E' | NO REPORT EXISTS |

| Return code (decimal) | Return code (hex) | Meaning |
|------------------------------|--------------------------|---|
| 0381 | X'017D' | SUBTASK ABENDED |
| 0382 | X'017E' | SYNAD EXIT DRIVEN - ADD LINE(S) EXIT |
| 0383 | X'017F' | ABEND EXIT DRIVEN - ADD LINE(S) EXIT |
| 0384 | X'0180' | CLOSE FAILURE |
| 0385 | X'0181' | DYNAMIC UNALLOCATION FAILURE |
| | | |
| 0401 | X'0191' | BAD PARMS PASSED (ONLY ONE) |
| 0402 | X'0192' | DRQB BASE IS IN BAD STORAGE |
| 0403 | X'0193' | INVALID DRQB |
| 0404 | X'0194' | DRQB EXTENSION IS IN BAD STORAGE |
| | | |
| 0420 | X'01A4' | INVALID QUERY TYPE |
| 0421 | X'01A5' | INVALID NUMBER OF SLOTS |
| 0422 | X'01A6' | INVALID EXTENSION SIZE |
| 0423 | X'01A7' | INVALID ATTR SECTION NUMBER |
| 0424 | X'01A8' | INVALID QUERY REPORT ID |
| | | |
| 0450 | X'01C2' | MISSING QUERY REPORT ID |
| 0451 | X'01C3' | ATTR SECTION NUMBER IS TOO LARGE FOR REPORT |
| | | |
| 0481 | X'01E1' | SUBTASK ABENDED |
| | | |
| 0501 | X'01F5' | BAD PARMS PASSED |
| | | |
| 0582 | X'0246' | SOME REPORTS FAILED TERM PROCESSING |
| 0587 | X'024B' | SUBTASK ABENDED |
| | | |
| 0601 | X'0259' | BAD PARMS PASSED (ONLY ONE) |
| 0602 | X'025A' | DRCB BASE IS IN BAD STORAGE |
| 0603 | X'025B' | INVALID DRCB |
| | | |
| 0620 | X'026C' | INVALID COMMAND VERB |
| 0621 | X'026D' | INVALID LOG OPTION |
| 0622 | X'026E' | INVALID TRACE TYPES |
| 0623 | X'026F' | INVALID TRACE ADDRESS |
| 0623 | X'0270' | INVALID MESSAGE ID |
| | | |
| 0650 | X'028A' | CLOSELOG REJECTED - LOGGING DISABLED |
| | | |

| Return code (decimal) | Return code (hex) | Meaning |
|------------------------------|--------------------------|--------------------------------------|
| 0660 | X'0294' | NO STORAGE FOR LQE |
| | | |
| 0680 | X'02A8' | SUBTASK ABENDED |
| | | |
| 0701 | X'02BD' | BAD PARMS PASSED (ONLY ONE) |
| 0702 | X'02BE' | DROB BASE IS IN BAD STORAGE |
| 0703 | X'02BF' | INVALID DROB |
| 0704 | X'02C0' | DROB EXTENDED ATTR IS IN BAD STORAGE |
| 0705 | X'02C1' | DROB MAIL ATTR IS IN BAD STORAGE |
| | | |
| 0720 | X'02D0' | DROB OUTPUT NAME IS INVALID |
| 0721 | X'02D1' | DROB FUNCTION IS INVALID |
| 0722 | X'02D2' | DROB ADDRESS IS INVALID |
| 0723 | X'02D3' | DROB BUILDING IS INVALID |
| 0724 | X'02D4' | DROB BURST IS INVALID |
| 0725 | X'02D5' | DROB CHAR TABLE(S) ARE INVALID |
| 0726 | X'02D6' | DROB CKPTLINE IS INVALID |
| 0727 | X'02D7' | DROB CKPTPAGE IS INVALID |
| 0728 | X'02D8' | DROB CKPTSEC IS INVALID |
| 0729 | X'02D9' | DROB CLASS IS INVALID |
| | | |
| 0730 | X'02DA' | DROB COMPACT IS INVALID |
| 0731 | X'02DB' | DROB CONTROL IS INVALID |
| 0732 | X'02DC' | DROB COPY IS INVALID |
| 0733 | X'02DD' | DROB COPY GROUP(S) ARE INVALID |
| 0734 | X'02DE' | DROB DATAACK IS INVALID |
| 0735 | X'02DF' | DROB DEFAULT IS INVALID |
| 0736 | X'02E0' | DROB DEPARTMENT IS INVALID |
| 0737 | X'02E1' | DROB DESTINATION IS INVALID |
| 0738 | X'02E2' | DROB DPAGELBL IS INVALID |
| 0739 | X'02E3' | DROB FCB IS INVALID |
| | | |
| 0740 | X'02E4' | DROB FLASH IS INVALID |
| 0741 | X'02E5' | DROB FLASH COUNT IS INVALID |
| 0742 | X'02E6' | DROB FORMDEF IS INVALID |
| 0743 | X'02E7' | DROB FORM IS INVALID |
| 0744 | X'02E8' | DROB GROUPID IS INVALID |
| 0745 | X'02E9' | DROB INDEX IS INVALID |
| 0746 | X'02EA' | DROB LINDEX IS INVALID |

| Return code (decimal) | Return code (hex) | Meaning |
|------------------------------|--------------------------|---------------------------------------|
| 0747 | X'02EB' | DROB LINECT IS INVALID |
| 0748 | X'02EC' | DROB COPY MODULE IS INVALID |
| 0749 | X'02ED' | DROB COPY MOD REF IS INVALID |
| | | |
| 0750 | X'02EE' | NOT EXECUTING UNDER MVS/ESA |
| 0751 | X'02EF' | DRS SYSTEM QUIESCING |
| 0752 | X'02F0' | OUTPUT STATEMENT DOES NOT EXIST |
| 0753 | X'02F1' | OUTPUT STATEMENT ALREADY EXISTS |
| 0754 | X'02F2' | NULL OUTPUT STATEMENT SPECIFIED |
| 0755 | X'02F3' | OUTPUT STATEMENT DESTINATION CONFLICT |
| | | |
| 0760 | X'02F8' | NO STORAGE FOR OCA |
| | | |
| 0770 | X'0302' | DROB NAME IS INVALID |
| 0771 | X'0303' | DROB NOTIFY IS INVALID |
| 0772 | X'0304' | DROB OUTDISP (NORMAL) IS INVALID |
| 0773 | X'0305' | DROB OUTDISP (ABNORMAL) IS INVALID |
| 0774 | X'0306' | DROB PAGEDEF IS INVALID |
| 0775 | X'0307' | DROB PIMSG IS INVALID |
| 0776 | X'0308' | DROB PIMSG COUNT IS INVALID |
| 0777 | X'0309' | DROB PRMODE IS INVALID |
| 0778 | X'030A' | DROB PRIORITY IS INVALID |
| 0779 | X'030B' | DROB ROOM IS INVALID |
| | | |
| 0780 | X'030C' | SUBTASK ABENDED |
| 0781 | X'030D' | DYNAMIC OUTPUT FAILURE (OUTADD) |
| 0782 | X'030E' | DYNAMIC OUTPUT FAILURE (OUTDEL) |
| | | |
| 0820 | X'0334' | DROB SYSAREA IS INVALID |
| 0821 | X'0335' | DROB TITLE IS INVALID |
| 0822 | X'0336' | DROB TRC IS INVALID |
| 0823 | X'0337' | DROB UCS IS INVALID |
| 0824 | X'0338' | DROB WRITER IS INVALID |
| 0825 | X'0339' | DROB EXTEND ATTR FLAG IS INVALID |
| 0826 | X'033A' | DROB USERLIB IS INVALID |
| 0827 | X'033B' | DROB USERDATA IS INVALID |
| 0828 | X'033C' | DROB OUTBIN IS INVALID |
| 0829 | X'033D' | DROB COLORMAP IS INVALID |
| | | |

| Return code (decimal) | Return code (hex) | Meaning |
|------------------------------|--------------------------|--------------------------------------|
| 0830 | X'033E' | DROB COMSETUP IS INVALID |
| 0831 | X'033F' | DROB DEST (LONG) IS INVALID |
| 0832 | X'0340' | DROB DUPLEX IS INVALID |
| 0833 | X'0341' | DROB FORMLEN IS INVALID |
| 0834 | X'0342' | DROB INTRAY IS INVALID |
| 0835 | X'0343' | DROB OFFSETXB IS INVALID |
| 0836 | X'0344' | DROB OFFSETXF IS INVALID |
| 0837 | X'0345' | DROB OFFSETYB IS INVALID |
| 0838 | X'0346' | DROB OFFSETYF IS INVALID |
| 0839 | X'0347' | DROB OVERLAYB IS INVALID |
| | | |
| 0840 | X'0348' | DROB OVERLAYF IS INVALID |
| 0841 | X'0349' | DROB OVFL IS INVALID |
| 0842 | X'034A' | DROB PORTNO IS INVALID |
| 0843 | X'034B' | DROB PRTEROR IS INVALID |
| 0844 | X'034C' | DROB PRTOPTNS IN INVALID |
| 0845 | X'034D' | DROB PRTQUEUE IS INVALID |
| 0846 | X'034E' | DROB RETAINF IS INVALID |
| 0847 | X'034F' | DROB RETAINS IS INVALID |
| 0848 | X'0350' | DROB RETRYL IS INVALID |
| 0849 | X'0351' | DROB RETRYT IS INVALID |
| | | |
| 0850 | X'0352' | DROB RESFMT IS INVALID |
| 0851 | X'0353' | DROB ZERO-VALUE FLAGS ARE INVALID |
| 0852 | X'0354' | DROB MAILBCC IS INVALID |
| 0853 | X'0355' | DROB MAILCC IS INVALID |
| 0854 | X'0356' | DROB MAILFILE IS INVALID |
| 0855 | X'0357' | DROB MAILFROM IS INVALID |
| 0856 | X'0358' | DROB MAILTO IS INVALID |
| 0857 | X'0359' | DROB REPLYTO IS INVALID |
| | | |
| 0950 | X'03B6' | INVALID DRRB FUNCTION CODE |
| 0951 | X'03B7' | INVALID DRSSCBVL REQUEST CODE |
| 0952 | X'03B8' | UNEXPECTED ABEND IN DRSSMAIN SUBTASK |
| | | |
| 0980 | X'03D4' | ALL SUBTASKS ABENDED |
| 0981 | X'03D5' | INVALID SCA CONTROL BLOCK |
| | | |

| Return code (decimal) | Return code (hex) | Meaning |
|------------------------------|--------------------------|--|
| 0998 | X'03E6' | INVALID DRS KEY SPECIFIED |
| 0999 | X'03E7' | DRS TRIAL HAS EXPIRED |
| | | |
| 1100 | X'044C' | HFS SERVICES NOT ENABLED |
| | | |
| 1110 | X'0456' | INVALID HFS DATASET TYPE |
| 1111 | X'0457' | INVALID HFS FILEDATA |
| 1112 | X'0458' | INVALID HFS PATH |
| 1113 | X'0459' | INVALID HFS PATHDISP - NORMAL |
| 1114 | X'045A' | INVALID HFS PATHDISP - ABNORMAL |
| | | |
| 1120 | X'0460' | INVALID HFS PATHMODE READ ACCESS FOR USER |
| 1121 | X'0461' | INVALID HFS PATHMODE WRITE ACCESS FOR USER |
| 1122 | X'0462' | INVALID HFS PATHMODE EXEC ACCESS FOR USER |
| 1123 | X'0463' | INVALID HFS PATHMODE READ ACCESS FOR GROUP |
| 1124 | X'0464' | INVALID HFS PATHMODE WRITE ACCESS FOR GROUP |
| 1125 | X'0465' | INVALID HFS PATHMODE EXEC ACCESS FOR GROUP |
| 1126 | X'0466' | INVALID HFS PATHMODE READ ACCESS FOR OTHER |
| 1127 | X'0467' | INVALID HFS PATHMODE WRITE ACCESS FOR OTHER |
| 1128 | X'0468' | INVALID HFS PATHMODE EXEC ACCESS FOR OTHER |
| | | |
| 1130 | X'046A' | INVALID HFS PATHOPTS - OAPPEND |
| 1131 | X'046B' | INVALID HFS PATHOPTS - OCREAT |
| 1132 | X'046C' | INVALID HFS PATHOPTS - OEXCL |
| 1133 | X'046D' | INVALID HFS PATHOPTS - ONOCTTY |
| 1134 | X'046E' | INVALID HFS PATHOPTS - ONONBLOCK |
| 1135 | X'046F' | INVALID HFS PATHOPTS - OSYNC |
| 1136 | X'0470' | INVALID HFS PATHOPTS - OTRUNC |
| | | |
| 1140 | X'0474' | ONONBLOCK REQUIRED FOR FIFO/NAMED PIPE. |
| | | |
| 1280 | X'5001' | ERROR ATTEMPTING HFS WRITE |
| 1281 | X'5001' | ERROR ATTEMPTING HFS WRITE FOR ADD LINE(S) EXIT |
| | | |
| 2801 | X'0AF1' | VSIO BAD PARMS PASSED (ONLY ONE) |
| | | |

| Return code (decimal) | Return code (hex) | Meaning |
|------------------------------|--------------------------|--|
| 2861 | X'0B2D' | VSIO NO STORAGE FOR SFCB |
| 2862 | X'0B2E' | VSIO NO STORAGE FOR VSCB |
| | | |
| 2881 | X'0B41' | VSIO DYNAMIC ALLOCATION FAILURE |
| 2887 | X'0B47' | VSIO SUBTASK ABENDED |
| | | |
| 3001 | X'0BB9' | UNSUPPORTED ACCESS METHOD VERSION |
| 3002 | X'0BBA' | INVALID ACCESS METHOD REQUEST CODE. (The reason code contains the invalid request code) |
| 3003 | X'0BBB' | UNSUPPORTED OPERATING ENVIRONMENT |
| 3004 | X'0BBC' | UNSUPPORTED NATURAL FILE TYPE |
| 3005 | X'0BBD' | OPEN FOR INPUT REQUEST IS NOT SUPPORTED |
| 3006 | X'0BBE' | READ REQUEST IS NOT SUPPORTED |
| 3007 | X'0BBF' | UTILITY REQUEST IS NOT SUPPORTED |
| 3010 | X'0BC2' | NATURAL REGION OR SYSTEM SWITCH IS NOT SUPPORTED DURING PRINT REQUEST. |
| | | |
| 3011 | X'0BC3' | RECORD LENGTH IS GREATER THAN FILE BLKSIZE AND TRUNCATION IS DISABLED. |
| 3012 | X'0BC4' | CICS DFHEISTG ADDRESS IS INVALID |
| 3013 | X'0BC5' | CICS DFHEIB ADDRESS IS INVALID |
| | | |
| 3051 | X'0BEB' | LOGIC ERROR – INVALID OPTSUTIL REQUEST CODE |
| 3052 | X'0BEC' | LOGIC ERROR – INVALID DRSSTOR REQUEST CODE |
| | | |
| 3060 | X'0BF4' | NATURAL THREAD WORKING STORAGE IS NOT AVAILABLE |
| 3061 | X'0BF5' | GETMAIN REQUEST FAILED (The reason code contains the OS GETMAIN return code or the CICS EIBRESP return code.) |
| 3062 | X'0BF6' | FREEMAIN REQUEST FAILED (The reason code contains the OS FREEMAIN return code or the CICS EIBRESP return code.) |
| | | |

| Return code (decimal) | Return code (hex) | Meaning |
|------------------------------|--------------------------|--|
| 3080 | X'0C08' | LOAD REQUEST FOR OUTPUT CHARACTERISTICS TABLE FAILED (DRSNSDEF) (The reason code contains the OS ABEND code or the CICS EIBRESP return code.) |
| 3081 | X'0C09' | DELETE FAILED FOR OUTPUT CHARACTERISTICS TABLE (DRSNSDEF) (The reason code contains the CICS EIBRESP return code.) |
| 3082 | X'0C0A' | CICS LINK REQUEST TO MODULE DRSSINTC FAILED (The reason code contains the CICS EIBRESP return code.) |
| 3083 | X'0C0B' | LINK TO DRSSINTB FAILED (The reason code contains the OS ABEND code.) |
| 3084 | X'0C0C' | OUTPUT CHARACTERISTICS TABLE HEADER IS INVALID |
| 3085 | X'0C0D' | OUTPUT CHARACTERISTICS TABLE CONTAINS UNSUPPORTED VERSION NUMBER. |
| 3086 | X'0C0E' | INCORRECT DRS/API VERSION. MUST BE V1 R3.3 AT FIX LEVEL 35 OR HIGHER. |
| | | |
| 3098 | X'0C1A' | DRS/NATURAL PRODUCT KEY IS INVALID |
| 3099 | X'0C1B' | DRS/NATURAL PRODUCT KEY HAS EXPIRED |
| | | |
| 3198 | X'0C7E' | DRS/SAPR2 KEY IS INVALID |
| 3199 | X'0C7F' | DRS/SAPR2 KEY HAS EXPIRED |

Table 24.1: DRS/API Return Codes



Section 25

Sample DRS/API Programs

The distribution cartridge contains the source code for several sample programs which invoke DRS/API. These programs demonstrate the formats of the calls and the control blocks passed to the calls.

“[Sample COBOL and Assembler Programs](#)” on page 25.2 are very simple examples intended to show the basic formats of calls. “[DRS Call Utility](#)” on page 25.5 is an application that can be used to test DRS calls and to monitor the activity of DRS/API in a CICS address space.

Sample COBOL and Assembler Programs

Execution JCL for the non-CICS programs should include both a SYSOUT and a SYSUDUMP DD statement. The non-CICS COBOL programs use the “DISPLAY” verb to inform the user of any non-zero return codes from the DRS calls; the non-CICS assembler language programs write messages to DDNAME SYSOUT to inform the user of any non-zero return codes from the DRS calls. Both the COBOL and assembler language programs generate a dump with abend code U0100 when any non-zero DRS return code occurs.

You can associate any transaction ID with the CICS programs to test them. They do not use any CICS maps. An example of the PCT entry for one of these programs is:

```
DFHPCT TYPE=ENTRY, X
      TRANSID=XXXX, (use any transid you choose) X
      PROGRAM=DRSXC04, X
      PRIVATE=YES, X
      DTB=NO
```

An example of the PPT entry for one of these programs is:

```
DFHPPT TYPE=ENTRY, X
      PROGRAM=DRSXC04, X
      PGMLANG=COBOL
```

or

```
DFHPPT TYPE=ENTRY, X
      PROGRAM=DRSXA04, X
      PGMLANG=ASSEMBLER
```

The sample programs and their functions are:

Example # 1:

COBOL source member name: DRSXC01

Assembler source member name: DRSXA01

This non-CICS program uses the INIT, PUT, and TERM calls to create a report. The report is routed to a destination of U3999 and SYSOUT class of A. Each PUT call adds one print line to the report. The resulting report contains a total of four print lines.

Example # 2:

COBOL source member name: DRSXC02

Assembler source member name: DRSXA02

This non-CICS program uses the INIT, PUT, and TERM calls to create a report. Three attribute groups are described on the INIT call, so three datasets are created on the JES spool, each with a unique combination of destination, class, etc. This program demonstrates adding more than one line to a report with a single PUT call.

This program also demonstrates the use of the detail QURY call to retrieve information about a dataset, as well as using the termination control block on the TERM call to modify the characteristics of a dataset.

Example # 3:

COBOL source member name: DRSXC03

Assembler source member name: DRSXA03

This non-CICS program demonstrates the use of the CMND call. After the INIT and PUT calls are used to create an active report, the SNAP command is issued. This is followed by a TERM call.

Example # 4:

COBOL source member name: DRSXC04

Assembler source member name: DRSXA04

This CICS program uses the INIT, PUT, and TERM calls to create a report. Three attribute groups are described on the INIT call, so three datasets are created on the JES spool, each with a unique combination of destination, class, etc. This program demonstrates adding more than one line to a report with a single PUT call.

Example # 5:

COBOL source member name: DRSXC05

Assembler source member name: DRSXA05

This CICS program uses the INIT, PUT, and TERM calls to submit a batch job via the internal reader. In this case, the INIT call indicates a writer name of INTRDR, and the PUT call is passing JCL statements to DRS rather than print lines.

Example # 6:

COBOL source member name: DRSXC06

Assembler source member name: DRSXA06

This non-CICS program uses the INIT, PUT, and TERM calls to create two datasets. One is a SYSOUT dataset, and the other is a DASD dataset.

Example #7:

COBOL source member name: DRSXC07

Assembler source member name: DRSXA07

This non-CICS program uses the OUTP ADD and OUTP DEL calls. It dynamically adds an OUTPUT statement and refers to that OUTPUT statement when making the INIT call. Several lines are added to the report with the PUT call. The TERM call is used to close the report and the OUTP DEL call is used to delete the OUTPUT statement.

Example #8:

COBOL source member name: DRSXC08

Assembler source member name: DRSXA08

This non-CICS program uses the INIT, PUT and TERM calls to create an HFS file.

DRS Call Utility

The DRS Call Utility provides for the interactive construction and execution of DRS System calls from a CICS transaction. The following options are available:

| | |
|---------------------|--|
| INIT DASD | Establishes the attributes of a DASD dataset. |
| INIT HFS | Establishes the attributes of an HFS file. |
| INIT SYSOUT | Establishes the attributes of a report. These are similar to the parameters you would code in SYSOUT JCL statements. |
| PUT | Adds print lines to a report that has been previously initiated. |
| TERM | Ends a previously initiated report. The report is then available for printing from the JES spool. |
| OUTP | Dynamically defines an OUTPUT JCL statement, which can then be referenced in a DRS "INIT" call. |
| QUERY GENL | Returns information on which reports are active in DRS. |
| QUERY DASD | Returns information on the attributes of a specific DASD dataset. |
| QUERY HFS | Returns information on the attributes of a specific HFS file. |
| QUERY SYSOUT | Returns information on the attributes of a specific initiated report. |
| QUERY OUTG | Returns information about dynamically defined OUTPUT JCL statements. |
| QUERY OUTD | Returns information about a specific dynamically defined OUTPUT JCL statement. |
| QUERY SYS | Returns information about DRS system status and collected statistics. |
| CMND | Permits issuing special commands to DRS. |
| TRACE | Browses the contents of the DRS system trace table (not a DRS call). |
| ERROR CODES | Browses the contents of a list of DRS error codes and dynamic allocation error codes. |

Each screen displayed by the DRS Call Utility has a HELP screen, which can be viewed by using the PF-1 key. These HELP screens describe the function which the screen supports and the types of information which appear on the screen.

Installation procedures for the DRS Call Utility are given on the next page.

Installing the DRS Call Utility

The steps required to install the DRS Call Utility are:

1. **Update the CICS tables to define the DRS Call Utility (i.e., transaction, program, and map).**

Note: Transaction must be defined as EXECKEY (CICS).

```
DFHPCT TYPE=ENTRY,                                *
      TRANSID=XXXX,      (use any transid you choose) *
      PROGRAM=DRSXUTL,   *
      PRIVATE=YES,      *
      DTB=NO
```



```
DFHPPT TYPE=ENTRY,      DRS Call Utility Program *
      PROGRAM=DRSXUTL,   *
      PGMLANG=ASSEMBLER
```



```
DFHPPT TYPE=ENTRY,      DRS Call Utility Mapset *
      MAPSET=DRSXUTM,    *
      PGMLANG=ASSEMBLER, *
      USAGE=MAP
```

2. **Copy the following modules from LRS.DRS.V1R34.LOAD into one of the CICS DFHRPL libraries.**

- DRSXUTL (DRS Call Utility program)
- DRSXUTM (DRS Call Utility mapset)

Sample JCL to assemble and linkedit the DRS Call Utility is supplied in members ASMD2UT, ASMD2UTM, and LKEDD2UT on file #28 of the distribution cartridge. Installations that choose to modify the DRS Call Utility can use the sample JCL to re-assemble and re-link the utility.

Source to the DRS Call Utility is supplied on the distribution cartridge. The source consists of the following members:

LRS.DRS.V1R34.ASM (file #26)

- DRSXUTAA (Browse DRS and/or DAIR error codes)
- DRSXUTCA (COMMAREA definition)
- DRSXUTMS (Mapset)
- DRSXUT00 (Primary Menu processor)
- DRSXUT01 (INIT Call processor)
- DRSXUT02 (PUT Call processor)
- DRSXUT03 (TERM Call processor)
- DRSXUT04 (OUTP Call processor)
- DRSXUT05 (GENL QURY Call processor)
- DRSXUT06 (DETL QURY Call processor)
- DRSXUT07 (OUTG QURY Call processor)
- DRSXUT08 (OUTD QURY Call processor)
- DRSXUT09 (SYS QURY Call processor)
- DRSXUT10 (CMND Call processor)

-
- DRSXUT11 (Browse DRS trace table processor)
 - DRSXUT1D (INIT DASD)
 - DRSCUT1H (INIT HFS)
 - DRSXUT6D (QURY DASD)
 - DRSXUT6H (QURY HFS)

LRS.DRS.V1R34.MACLIB (file #27)

- DRSXUTM (Mapset definition)



Section 26

Introduction To DRS/SAPR2

The DRS/SAPR2 interface is a direct interface from SAP R2 applications to the JES spool. It enables any existing SAP R2 application running in CICS to create a report on the JES spool without any application changes and without the use of either SAP R2 exits or the SAP R2 external spool interface.

Using DRS/SAPR2 provides complete control over the JES spool attributes assigned to a report and enables existing reports to use the sophisticated printing facilities of Advanced Function Presentation (AFP) to enhance the quality of printed output from existing SAP R2 applications.

With the DRS/SAPR2 interface, JES spool attributes can be specified at the system level as global defaults for the entire SAP R2 system, at the individual printer level as defaults for a specific report, or can be specified for individual reports.

The JES spool attributes assigned to a report are controlled by the SAP R2 format names which are specified in SAP R2 table 022D. By selecting different format names you can control the spooling attributes of specific reports, or you can specify a default format to be used by a specific printer in the SAP R2 printer table 022B.

The DRS/SAPR2 interface provides complete control over all SYSOUT attributes including class, destination, form name, writer name, FORMDEF, PAGEDEF, etc.

DRS/SAPR2 is simple to install and requires no changes to SAP R2 software. It can be implemented at the individual printer level to enable simple migration from existing printing facilities and has no effect on existing printers which are directly controlled by SAP R2 print facilities.



Section 27

DRS/SAPR2 Installation

Introduction

This section gives you the information you need to install DRS/SAPR2 on your system. The details of this procedure are listed in “Installation Steps” on the following page. Before you do the actual installation, you must install DRS/API. Please see [“DRS/API Installation” on page 20.1](#).

Installation Steps

The steps to install the DRS/SAPR2 Print Interface are:

1. **Read the entire installation procedure.**
2. **Install the DRS/API product.** (See [“DRS/API Installation”](#) on page 20.1.)
3. **Build the DRS/SAPR2 defaults module.** (See [“Building the DRS/SAPR2 Defaults Module”](#) on page 27.4.)
4. **Build the DRS/SAPR2 printer alias table (optional).** (See [“Building the DRS/SAPR2 Printer Alias Table”](#) on page 27.13.)
5. **Update the CICS tables to define the DRS/SAPR2 interface modules, transactions and message queues.** (See [“Updating the CICS Tables”](#) on page 27.15.)
6. **Copy the DRS/SAPR2 programs to a load library in the CICS DFHRPL concatenation.** (See [“Copying the DRS/SAPR2 Modules for CICS”](#) on page 27.17.)
7. **Define a printer TD queue and restart CICS with a COLD start.** (See [“Defining the Printer TD Queue”](#) on page 27.18.)
8. **Define the new printer TD queue to SAP R2 via table 022B.** (See [“Defining the Printer to SAP R2”](#) on page 27.19.)
9. **The DRS/SAPR2 interface installation is now complete.**

The remainder of this section provides the information required to perform the above steps.

Installing the DRS/API Product

The DRS/SAPR2 print interface uses the facilities of DRS/API to create output on the JES spool. Before installing the DRS/SAPR2 interface, the DRS/API product must be installed and defined to CICS.

For information on installing DRS/API, please refer to [“DRS/API Installation”](#) on page 20.1.

Building the DRS/SAPR2 Defaults Module

The DRS/SAPR2 print interface uses an assembled module named DPSSSDEF to define the default SYSOUT attributes which should be assigned to output created from SAP R2 applications running in a CICS system. These global defaults can then be overridden for individual printers or reports.

The DRS/SAPR2 interface defaults module (DPSSSDEF) allows an installation to define default values for any of the SYSOUT attributes that would be available using the SYSOUT DD JCL statement or the OUTPUT JCL statement. The SYSOUT attributes defined in DPSSSDEF are used, along with the ERRACTN, ERRCLASS and ERRDEST keywords, to generate a SYSOUT dataset if an error is encountered, including reports which are incomplete.

In addition to SYSOUT parameters, certain processing options are defined in the defaults module.

The defaults module is generated by performing the following steps:

Modify member DPSSSDEF in library LRS.DRS.V1R34.ASM, specifying the values you want to use as a default for each parameter.

Create the defaults module named DPSSSDEF by assembling and linking your modified version of the DPSSSDEF member into a CICS DFHRPL library. Sample JCL to assemble and link the DRS/SAPR2 defaults module is contained in member SDEFASML or SDEFASMH in dataset LRS.DRS.V1R34.CNTL.

The keywords which are used to define the defaults modules are described on the following pages.

The following is a sample DPSSSDEF source member:

```
$DRSSDEF @OUTDESC='SAMPLE DEFAULTS MEMBER',      X
  CLASS=A,                                       X
  NODE=N1,                                       X
  DEST=R99,                                      X
  FORMS=STD,                                     X
  FORMDEF=A10110,                                X
  PAGEDEF=B11082
END
```

DRS/SAPR2 Defaults Module

```
b      One or more blanks must precede $DRSSDEF
$DRSSDEF
  { @OUTDESC= }
  { ,ADDR1= }
  { ,ADDR2= }
  { ,ADDR3= }
  { ,ADDR4= }
  { ,BUILDING= }
  { ,BURST= }
  { ,CHARS= }
  { ,CKPTLINE= }
  { ,CKPTPAGE= }
  { ,CKPTSEC= }
  { ,CLASS= }
  { ,COLORMAP= }
  { ,COMPACT= }
  { ,COMSETUP= }
  { ,CONTROL= }
  { ,COPIES= }
  { ,DATAACK= }
  { ,DEPT= }
  ( ,DEST= )
  { ,DPAGELBL= }
  { ,DUPLEX= }
  { ,ERRACTN= }
  { ,ERRCLASS= }
  { ,ERRDEST= }
  { ,FCB= )
  { ,FFOPT= }
  { ,FLASH= }
  { ,FORMDEF= }
  { ,FORMLEN= }
  ( ,FORMS= )
  { ,GROUPID= )
  ( ,INDEX= )
  ( ,LINDEX= )
  { ,LINECT= }
  { ,MAXLRECL= }
  { ,MODIFY= }
  { ,NAME= }
  { ,NODE= }
  { ,NOTIFY= }
  { ,NOTIFY2= }
  { ,NOTIFY3= }
  { ,NOTIFY4= }
  { ,OFFSETXB= }
  { ,OFFSETXF= }
  { ,OFFSETYB= }
  { ,OFFSETYF= }
  { ,OUTBIN= }
  { ,OUTDISP= }
```

```
{ ,OVERLAYB=}
{ ,OVERLAYF=}
{ ,OVLF=}
{ ,PAGEDEF=}
{ ,PIMSG=}
{ ,PORTNO=}
{ ,PRMODE=}
{ ,PRTEROR=}
{ ,PRTOPTS=}
{ ,PRTQUEUE=}
{ ,PRTY=}
{ ,RESFMT=}
{ ,RETAINF=}
{ ,RETAINS=}
{ ,RETRY=}
{ ,RETRYL=}
{ ,RETRYT=}
{ ,ROOM=}
{ ,SYSAREA=}
{ ,TDQMSG=}
{ ,TDQTRC=}
{ ,TITLE=}
{ ,TRC=}
{ ,UCS=}
{ ,USEROPTS=}
{ ,USRDTA01=}
{ ,USRDTA02=}
{ ,USRDTA03=}
{ ,USRDTA04=}
{ ,USRDTA05=}
{ ,USRDTA06=}
{ ,USRDTA07=}
( ,USRDTA08=}
{ ,USRDTA09=}
{ ,USRDTA10=}
{ ,USRDTA11=}
{ ,USRDTA12=}
{ ,USRDTA13=}
{ ,USRDTA14=}
{ ,USRDTA15=}
{ ,USRDTA16=}
{ ,USRLIB01=}
{ ,USRLIB02=}
{ ,USRLIB03=}
{ ,USRLIB04=}
{ ,USRLIB05=}
{ ,USRLIB06=}
{ ,USRLIB07=}
{ ,USRLIB08=}
{ ,WAIT=}
{ ,WRITER=}
END
```

Brackets, {}, are used to enclose optional parameters, which may or may not be specified. If a parameter is not coded, the default for that parameter will be used.

The following are operational parameters which control the DRS/SAPR2 interface processing:

ERRACTN=
ERRCLASS=
ERRDEST=
FFOPT=
MAXLRECL=
RETRY=
TDQMSG=
TDQTRC=
USEROPTS=
WAIT=

The @OUTDESC keyword allows 60 bytes of text to be added as a comment to the DRS control block which represents the OUTPUT statement (DROB). For more information about the DROB, see [“DRS/API Request Calls” on page 21.1](#).

All of the remaining parameters refer to SYSOUT characteristics which could be specified on a SYSOUT DD statement or an OUTPUT JCL statement. For a complete description of these parameters, refer to the MVS JCL Reference Manual.

Note: A value of '*' can be specified in the DEST, FORMS, GROUPID, NODE or WRITER parameters to indicate that the current SAP R2 printer name should be inserted into that field. Optionally, an eight character SAP R2 printer alias can be substituted. Refer to [“Building the DRS/SAPR2 Printer Alias Table” on page 27.13](#) and to [“Using the Printer Alias Table” on page 28.8](#) for more details about the printer alias table.

The parameters of the \$DRSSDEF macro are explained below:

| | |
|---------------------|--|
| ADDR1= | A 60-byte field specifying the first address to be printed on separator pages. |
| ADDR2= | A 60-byte field specifying the second address to be printed on separator pages. |
| ADDR3= | A 60-byte field specifying the third address to be printed on separator pages. |
| ADDR4= | A 60-byte field specifying the fourth address to be printed on separator pages. |
| BUILDING= | A 60-byte field specifying the building to be printed on separator pages. |
| BURST= | A 1-byte field which directs output to a stacker on a 3800 Printing Subsystem. 'B' = burster-trimmer-stacker; 'C' = continuous forms stacker. |
| CHARS= | Four 4-byte fields specifying the names of character arrangement tables to be used. |
| CKPTLINE= | Checkpoint lines. Valid values are 0-32767. |
| CKPTPAGE= | Checkpoint pages. Valid values are 0-32767. |
| CKPTSEC= | Checkpoint seconds. Valid values are 0-32767. |
| CLASS= | A 1-byte field specifying the SYSOUT class. Valid values are 0-9 or A-Z. |
| COLORMAP= | An 8-byte field specifying the AFP resource for the print file which contains color translation information |
| COMPACT= | An 8-byte field specifying the name of a compaction table for JES to use. |
| COMSETUP= | An 8-byte field specifying the APF resource for the print file which contains setup information. |
| CONTROL= | An 8-byte field specifying the type of spacing to be applied to the SYSOUT dataset. Valid values consist of "SINGLE", "DOUBLE", "TRIPLE" or "PROGRAM". |
| COPIES= | The copies or copy groups to be used to print the field. One copies field or up to 8 copy group values may be specified. Valid values are 0-255. |
| DATAACK= | An 8-byte field specifying action to be taken for AFP print errors; valid values are "BLOCK", "UNBLOCK", "BLKCHAR" or "BLKPOS". |
| DEPT= | A 60-byte field specifying the department to be printed on separator pages. |
| DEST= | An 8-character destination or userid. The DEST value may contain an '*' at any point to indicate that the current printer id should be inserted. |
| DEST (LONG)= | A 127-byte field specifying the destination for the SYSOUT dataset. The longer destination field is intended for a TCP/IP address in the format "IP:xxxxxxx" or "node.IP:xxxxxxx". This field and the 17-byte DEST field are mutually exclusive. |
| DPAGELBL= | A 1-byte field specifying whether the security label should be printed on each page. Valid values are "Y" or "N". |

| | |
|------------------|--|
| DUPLEX= | An 8-byte field specifying whether printing is to be done on both sides of the sheet. Valid values consist of “NO”, “NORMAL” or “TUMBLE”. |
| ERRACTN= | The action to be taken for any report in error, including reports with SYSOUT parameters that are invalid and reports which are incomplete. Valid values are “KEEP”, “HOLD” or “DELETE”. The default is “KEEP”. |
| ERRCLASS= | The SYSOUT class to be specified on the TERM call if the report is in error or is incomplete. |
| ERRDEST= | The destination to be specified on the TERM call if the report is in error or is incomplete. |
| FCB= | A 4-byte field containing the FCB name. |
| FFOPT= | The action to be taken if a form feed is encountered at the beginning of a report. Valid values are “KEEP”, which indicates to keep the form feed character in the report; “DELETE”, which indicates to remove the form feed character; and “SAP”, which indicates to use the option specified in the SAP R2 tables to keep or remove the form feed character. The default is “SAP”. |
| FLASH= | Two fields to represent the forms overlay name and the number of copies on which the forms overlay is to be printed. Valid values for the flash name include any 4 character flash name. Valid values for the flash count are 0 to 255. |
| FORMDEF= | A 6-byte field representing the name of a FORMDEF for AFP processing. |
| FORMLEN= | A 10-byte field specifying the numeric length and unit type that will be used to change the physical paper length without reconfiguring the printer. Valid values are nn.nnnUU, where n is a digit 0-9, and UU represents one of the following units: IN (inches) or CM (centimeters). |
| FORMS= | An 8-byte field to specify the form name to be used for this dataset. The FORMS value may contain an ‘*’ at any point to indicate that the current printer id should be inserted. |
| GROUPLD= | An 8-byte field to specify the name of an OUTPUT GROUP to which this dataset belongs. The GROUPLD value may contain an ‘*’ at any point to indicate that the current printer id should be inserted. |
| INDEX= | A field specifying the left margin on a printer with an indexing feature. Valid values are 1 to 31. |
| INTRAY= | A 4-byte binary field specifying the paper source when printing AFP files. Valid values are 1- 255. |
| LINDEX= | A field specifying the right margin on a printer with the indexing feature. Valid values are 1 to 31. |
| LINECT= | A field specifying the maximum number of lines JES is to print on each output page. Valid values are 0 to 255. |
| MAXLRECL= | Specifies the maximum length of print data to be added to a report using the DRS/SAPR2 interface. The value does not include the carriage control byte, which is always present. Lines which are longer will be truncated, unless USEROPTS=20 is specified to stop processing for lines which exceed the MAXLRECL. Valid values are 511 to 32755. |

| | |
|------------------|---|
| MODIFY= | Two values which specify the 4-byte name of a copy modification module and the 1-byte field which indicates which table name in the CHARS parameter should be used. Valid values for the first field are any 1-4 character name of a copy modification module. Valid values for the second field are 0-3. |
| NAME= | A 60-byte field to specify the name to be printed on the separator pages. |
| NODE= | An 8-byte field specifying the JES Node name to be used. The NODE value may contain an "*" at any point to indicate that the current printer id should be inserted. |
| NOTIFY= | A 17-byte field specifying the first user to be notified when a job completes |
| NOTIFY2= | A 17-byte field specifying the second user to be notified when a job completes |
| NOTIFY3= | A 17-byte field specifying the third user to be notified when a job completes |
| NOTIFY4= | A 17-byte field specifying the fourth user to be notified when a job completes |
| OFFSETXB= | A 13-byte field specifying the offset in the x direction from the page origin for the back side of each page of output. Valid values are mmm.nnnUU, where m is a digit from 0 - 9, n is a digit from 0 - 9 and UU represents one of the following units: IN (inches), CM (centimeters), MM (millimeters), PELS or POINTS |
| OFFSETXF= | A 13-byte field specifying the offset in the x direction from the page origin for the front side of each page of output. Valid values are mmm.nnnUU, where m is a digit from 0 - 9, n is a digit from 0 - 9 and UU represents one of the following units: IN (inches), CM (centimeters), MM (millimeters), PELS or POINTS |
| OFFSETYB= | A 13-byte field specifying the offset in the y direction from the page origin for the back side of each page of output. Valid values are mmm.nnnUU, where m is a digit from 0 - 9, n is a digit from 0 - 9 and UU represents one of the following units: IN (inches), CM (centimeters), MM (millimeters), PELS or POINTS |
| OFFSETYF= | A 13-byte field specifying the offset in the y direction from the page origin for the front side of each page of output. Valid values are mmm.nnnUU, where m is a digit from 0 - 9, n is a digit from 0 - 9 and UU represents one of the following units: IN (inches), CM (centimeters), MM (millimeters), PELS or POINTS |
| OUTBIN= | A 4-byte binary field specifying the printer output bin identifier to be used. Valid values are 1 to 65535. |
| OUTDISP= | Two fields which represent the output disposition when the job ends NORMALLY or ABNORMALLY. Valid values are WRITE, HOLD, KEEP, LEAVE and PURGE. |
| OVERLAYB= | An 8-byte field specifying that the named medium overlay is to be placed on the back side of each sheet to be printed. |
| OVERLAYF= | An 8-byte field specifying that the named medium overlay is to be placed on the front side of each sheet to be printed. |
| OVFL= | An 8-byte field specifying whether or not JES3 should test for page overflow on an output printer. (JES3 only) Valid values are "ON" or "OFF". |
| PAGEDEF= | A 6-byte field specifying the name of a PAGEDEF member to be used for AFP processing. |

| | |
|------------------|---|
| PIMSG= | Two fields which specify whether messages should be printed on the output listing during AFP processing, and the number of errors which should be printed. Valid values for the first field are “Y” or “N”; valid values for the second field are 0 to 999. |
| PORTNO= | A 4-byte binary field specifying the TCP/IP port number at which the printing application connects to the printer. Valid values are 1 - 65535. |
| PRMODE= | An 8-byte field specifying the process mode required to print the dataset. Valid values are “LINE”, “PAGE” or any valid installation-defined process mode. |
| PRTEROR= | An 8-byte field specifying how a SYSOUT dataset that has had printing terminated by a functional subsystem is to be released by JES. Valid values are “DEFAULT”, “HOLD” or “QUIT”. |
| PRTOPTNS= | An 16- byte field specifying the named entity that contains additional print options for an IP-destined dataset that is being sent by a functional subsystem. |
| PRTQUEUE= | A 127-byte field specifying the print queue name used when printing the IP-destined data |
| PRTY= | Specifies the initial priority at which the SYSOUT dataset enters the output queue. Valid values are 0 to 255. |
| RESFMT= | An 8-byte field specifying the resolution used to format the print dataset. Valid values are “P240” or “P300”. |
| RETAINF= | A 10-byte field specifying how long a functional subsystem will retain an IP-destined dataset after a failed transmission. |
| RETAINS= | A 10 byte field specifying how long a functional subsystem will retain an IP-destined dataset after a successful transmission. |
| RETRY= | Specifies the number of times a CICS request will be made to read additional data for an incomplete report when the previous read indicated that the queue was empty. Valid values are 1 to 10; the default is 5. Between retry attempts, DRS/SAPR2 will wait for the time specified on the WAIT keyword. |
| RETRYL= | A 4-byte binary field specifying the number of attempts an FSS will try for transmission of an IP-destined dataset. Valid values are 0 -32767. |
| RETRYT= | A 10-byte field specifying how much time a functional subsystem will wait between retries of transmission attempts of a dataset. |
| ROOM= | A 60-byte field specifying the room identification to be printed on separator pages. |
| SYSAREA= | Specifies whether or not the system should reserve an area for the security label on each page of printed output. Valid values are “Y” or “N”. |
| TDQMSG= | The 4-character name of the TD queue to be used to write the DRS/SAPR2 messages. If this queue is not available, the CSMT queue will be used. |
| TDQTRC= | The 4-character name of the TD queue to be used to write the DRS/SAPR2 messages. If this queue is not available, the CSMT queue will be used. |
| TITLE= | A 60-byte field specifying the title to be printed on separator pages. |
| TRC= | A 1-byte field specifying whether or not the SYSOUT dataset has a TRC character in the second character of each record. Valid values are “Y” or “N”. |
| UCS= | A 4-byte field specifying a universal character set, print train, or character-arrangement name. |

USEROPTS= An 8-byte field which represents a 4-byte hex value with flags for special processing options.

80000000 Do not issue informational messages.
40000000 Continue processing after warning messages for
SYSOUT keyword parsing
20000000 Stop processing if record exceeds MAXLRECL
10000000 Do not create a DRS SNAP for processing errors

All others are currently unassigned.

USRDTA01= Sixteen 60-byte fields containing user data values.

USRDTA02=

USRDTA03=

USRDTA04=

USRDTA05=

USRDTA06=

USRDTA07=

USRDTA08=

USRDTA09=

USRDTA10=

USRDTA11=

USRDTA12=

USRDTA13=

USRDTA13=

USRDTA15=

USRDTA16=

USRLIB01= Eight 44-byte fields containing the dataset name(s) of user libraries for AFP processing.

USRLIB02=

USRLIB03=

USRLIB04=

USRLIB05=

USRLIB06=

USRLIB07=

USRLIB08=

WAIT= Specifies the time in seconds to wait between retries to obtain additional print lines for an incomplete report if the previous read indicated that the CICS queue was empty. Valid values are 1 to 60; the default is 3 seconds. The number of times to retry is specified using the RETRY keyword.

WRITER= An 8-byte field specifying the writer name. The WRITER value may contain an '*' at any point to indicate that the current printer id should be inserted.

Building the DRS/SAPR2 Printer Alias Table

The DRS/SAPR2 print interface uses an assembled module named DPSSPTAB to define the alias names for SAP R2 printers. This optional table allows an 8-character name to be used to replace the 4-character name defined in CICS for the SAP R2 print queue. This 8-character name will be substituted into the SYSOUT fields containing “*”. The fields which allow such substitution are: DEST, FORMS, GROUPID, NODE and WRITER. If no printer alias table is found, or if the 4-character SAP R2 printer name is not located in the printer alias table, the 4-character name will be used for any substitution requested.

To define a DRS/SAPR2 printer alias table, perform the following steps:

1. **Modify member DPSSPTAB in library LRS.DRS.V1R34.ASM, specifying the values you want to use for the printer name and its alias.**
2. **Create the printer alias module named DPSSPTAB by assembling and linking your modified version of the DPSSPTAB member into a CICS DFHRPL library. Sample JCL to assemble and link the DRS/SAPR2 printer alias module is contained in member PTABASML or PTABASMH in dataset LRS.DRS.V1R34.CNTL.**

The keywords which are used to define the printer alias table are described on the following page.

The following is a sample DRSSPTAB source member:

```
$DRSPTAB  SAPID=PRT1,ALIAS=RMT99
$DRSPTAB  SAPID=PRT2,ALIAS=U4087
$DRSPTAB  SAPID=PRT3,ALIAS=LOCAL
END
```

DRS/SAPR2 Printer Alias Table

```
b           One or more blanks must precede $DRSPTAB

$DRSPTAB

  SAPID=
  ,ALIAS=
```

The parameters of the \$DRSPTAB macro are explained below:

SAPID= The 1 to 4 character name of the printer in the SAP R2 CICS queue.

ALIAS= The 1 to 8 character name of the alias to be used for substitution, when an “*” is located in the DEST, FORMS, GROUPID, NODE or WRITER SYSOUT keywords.

The \$DRSPTAB macro is used to define each printer for which an alias is desired.

For more information on using the printer alias table, see [“Using the Printer Alias Table” on page 28.8](#).

Updating the CICS Tables

The DRS/SAPR2 Print Interface program (DP34SAPP), the DRS/SAPR2 defaults module (DPSSSDEF) and the optional printer alias module (DPSSPTAB) must be defined to CICS via PPT and PCT entries. You can add the required definitions using RDO or standard CICS tables. If you choose to use RDO, sample JCL is supplied in member SAPRDO in dataset LRS.DRS.V1R34.CNTL.

The transaction defined which is related to program DP34SAPP must have the same name as the TRANSID value on the DCT entry defined for the print queue. See [“Defining the Printer TD Queue” on page 27.18](#).

The following RDO or macro definitions are required:

Add to the PPT & PCT using RDO:

```
DEFINE PROGRAM(DP34SAPP) GROUP(gggg) LANG(ASSEMBLER)
DEFINE PROGRAM(DPSSSDEF) GROUP(gggg) LANG(ASSEMBLER)
DEFINE PROGRAM(DPSSPTAB) GROUP(gggg) LANG(ASSEMBLER)

DEFINE TRANSACTION(DRSP) GROUP(gggg)
PROGRAM(DP34SAPP)

ADD GROUP(gggg) LIST(1111)
```

or, add to the PPT using macro definitions:

```
DFHPPT TYPE=ENTRY,          DRS/SAPR2 interface program      *
PROGRAM=DP34SAPP,          *
PGMLANG=ASSEMBLER          *

DFHPPT TYPE=ENTRY,          DRS/SAPR2 defaults              *
PROGRAM=DPSSSDEF,          *
PGMLANG=ASSEMBLER          *

DFHPPT TYPE=ENTRY,          DRS/SAPR2 Printer alias table    *
PROGRAM=DPSSPTAB,          *
PGMLANG=ASSEMBLER          *
```

And to the PCT using macro definitions:

```
DFHPCT TYPE=ENTRY,          DRS/SAPR2 Print interface      *
TRANSID=DRSP,              *
PROGRAM=DP34SAPP           *
```

In addition to the programs and transactions, the message queues for DRS/SAPR2 must be defined to CICS. If the TDQMSG and TDQTRC keywords in the defaults module are set to names for queues that are already defined to CICS, then no additional definitions would be necessary. However, it is recommended that unique queues be defined to CICS for the DRS/SAPR2 messages and for the DRS/SAPR2 trace datasets.

Assuming that TDQMSG=DPMS and TDQTRC=DPTR were specified, the DCT entries should be defined as:

```

DPSSMSG  DFHDCT  TYPE=SDSCI,          OUTPUT DATASET FOR DRS/SAPR2 MSGS  X
          BLKSIZE=136,              LRECL + RDW                        X
          BUFNO=1,                  WRITE OUT EACH BUFFER              X
          DSCNAME=DPSSMSG,          SYSOUT DDNAME                      X
          RECFORM=VARUNB,           VARIABLE UNBLOCKED                 X
          RECSIZE=132,              LRECL                               X
          TYPEFLE=OUTPUT
DPSSTRC  DFHDCT  TYPE=SDSCI,          OUTPUT DATASET FOR DRS/SAPR2 TRACE X
          BLKSIZE=136,              LRECL + RDW                        X
          BUFNO=1,                  WRITE OUT EACH BUFFER              X
          DSCNAME=DPSSTRC,          SYSOUT DDNAME                      X
          RECFORM=VARUNB,           VARIABLE UNBLOCKED                 X
          RECSIZE=132,              LRECL                               X
          TYPEFLE=OUTPUT
DPMS     DFHDCT  TYPE=EXTRA,          DRS/SAPR2 MESSAGES                 X
          DESTID=DPMS,              MUST MATCH TDQMSG= IN DPSSSDEF    X
          DSCNAME=DPSSMSG
DPTR     DFHDCT  TYPE=EXTRA,          DRS/SAPR2 TRACE MESSAGES           X
          DESTID=DPTR,              MUST MATCH TDQTRC= IN DPSSSDEF    X
          DSCNAME=DPSSTRC

```

The DSCNAME for the DPMS queue must match the DSCNAME (DDNAME) for the DPSSMSG DCT entry. The DSCNAME for the DPTR queue must match the DSCNAME (DDNAME) for the DPSSTRC DCT entry. Both DDNAMES must be added to the JCL for the CICS system. Examples of the necessary JCL statements follow:

```

//DPSSMSG DD  SYSOUT=A,DCB=(DSORG=PS,RECFM=V,BLKSIZE=136)
//DPSSTRC DD  SYSOUT=A,DCB=(DSORG=PS,RECFM=V,BLKSIZE=136)

```

Copying the DRS/SAPR2 Modules for CICS

The DRS/SAPR2 load library must be added to the CICS DFHRPL concatenation or the following modules copied to a library in the DFHRPL concatenation:

DP34SAPP

DPSSSDEF

DPSSPTAB (optional)

In addition, the DRS/API modules must be available in the DFHRPL libraries. See [“DRS/API Installation” on page 20.1](#) for information on which DRS/API modules are necessary for using DRS in CICS.

Defining the Printer TD Queue

Each printer defined to SAP R2 requires a Transient Data (TD) queue to be defined to CICS. For SAP R2 printers that will use the DRS/SAPR2 print interface, a DCT entry as described below is required.

```
DFHDCT TYPE=INTRA,          DRS/SAPR2 Printer queue      *
DESTID=nnnn,              See note 1                    *
DESTFAC=FILE,             *
DESTRCV=LG,               *
TRANSID=DRSP,            See note 2                    *
TRIGLEV=1
```

Note 1: nnnn should be replaced with the printer name defined in SAP R2 table 022B.

Note 2: The TRANSID value must match the TRANSACTION defined for PROGRAM DP34SAPP.

Note 3: After adding the above entry, it is necessary to cold start CICS for the change to come into effect.

Defining the Printer to SAP R2

The new printer must now be defined to SAP R2 via table 022B.

SAP R2 table 022B contains an entry for each printer defined to the SAP R2 system and the associated DCT entry. It can also contain a printer type which refers to SAP R2 table 022D. The following sample shows defining a printer named “PRT1” with a printer type “DRS”.

Table 022B

| <u>Dest</u> | <u>R</u> | <u>DCT</u> | <u>022D-Type</u> | <u>Prolog</u> | <u>Epilog</u> | <u>LF</u> | <u>UPC</u> | <u>FFB</u> | <u>FFA</u> | <u>Comment</u> |
|-------------|----------|------------|------------------|---------------|---------------|-----------|------------|------------|------------|----------------|
| PRT1 | R | PRT1 | DRS | | | | | X | X | Printer PRT1 |

The name specified for “DCT” should match the DESTID in the DCT definition in CICS as described in the previous section.

The DRS/SAPR2 Print Interface is now ready to use. Any output sent to this SAP R2 printer (PRT1) will now be sent directly to the DRS/SAPR2 interface, which will place the output on the JES spool using the default SYSOUT attributes defined in the output defaults module DPSSSDEF.

Individual SYSOUT attributes for specific printers or for specific reports can be specified via SAP R2 table 022D, which is described in the [“Setting SYSOUT Attributes With DRS/SAPR2”](#) on page 28.1.



Section 28

Setting SYSOUT Attributes With DRS/SAPR2

The DRS/SAPR2 Print Interface provides facilities to specify JES SYSOUT attributes at three levels:

- System defaults
- Printer defaults
- Specific report attributes

When assigning attributes to a report, the *SYSOUT* options are processed in the above order; options specified at the individual report level override options specified at the printer or system level.

DRS/SAPR2 System Defaults

As described in the [“DRS/SAPR2 Installation” on page 27.1](#), the global defaults for all printers in a CICS region with SAP R2 are defined via the DPSSSDEF defaults module. It is possible to define different system defaults for individual SAP R2 systems by creating separate DPSSSDEF modules to be used by each SAP R2/CICS system. In this way, it is possible to have different default SYSOUT attributes for test and production SAP R2/CICS systems.

Specifying Printer and Report SYSOUT Attributes

The SYSOUT attributes specified at the printer and report level are controlled via parameter strings defined in SAP R2 table 022D. This standard SAP R2 table is normally used to define printer command sequences to enable SAP R2 applications to control printer options. With the DRS/SAPR2 interface, this facility is used to control the JES SYSOUT options.

Table 022D

| Type | Format | Seq | L | S | X | D | Format string | Comment |
|---------|--------|-----|---|---|---|---|-------------------------------|---------|
| DRS | LAND | | | 1 | | | `*DRS* C=A FD=LAND PD=LAND <' | |
| DRS | PORT | | | 1 | | | `*DRS* C=A FD=PORT PD=PORT <' | |
| HPLASER | PORT | | | 1 | | | `1B&100 | |
| HPLASER | LAND | | | 1 | | | `1B&110 | |

The SAP R2 022D table contains a printer type, a format name, and the command string to be sent.

The type allows defining groups of commands for a particular type of printer or interface. For example, "HPLASER" may be the type for HP/PCL commands that would be sent by SAP R2 to the printer. "PS" might be the type for postscript commands. "DRS" might be used as the type for DRS/SAPR2 SYSOUT keywords.

A format name is used when selecting a specific command string.

A command string can contain up to 52 bytes of data. By using the sequence field (Seq), it is possible to assign several strings to a single format name. For more information on the format of the command strings, see ["Defining DRS/SAPR2 Command Strings" on page 28.9.](#)

Printer Defaults

Default SYSOUT attributes can be defined at the individual printer level by specifying the name of the command string in the Prolog field of the SAP R2 printer table 022B.

Table 022B

| Dest | R | DCT | 022D-Type | Prolog | Epilog | LF | UPC | FFB | FFA | Comment |
|------|---|------|-----------|--------|--------|----|-----|-----|-----|--------------|
| PRT1 | R | PRT1 | DRS | LAND | | | | X | X | Printer PRT1 |

Table 022D

| Type | Format | Seq | L | S | X | D | Format string | Comment |
|------|--------|-----|---|---|---|---|---|---------|
| DRS | LAND | | | 1 | | | `*DRS* CLASS=A FORMDEF=LAND PAGEDEF=LAND <' | |

The 022D-Type field in the SAP R2 printer table 022B indicates which group of commands should be selected from the format table 022D, and the Prolog field selects a specific command string to be used as the default for this printer.

Report SYSOUT Attributes

The SYSOUT attributes for individual reports can be controlled in two ways, either by explicitly selecting the output options from within the SAP R2 application program (ABAP) that creates the report or by allowing the user to select a different printer name to select a different set of output options.

An individual ABAP can select specific output options for a report using the PRINT-CONTROL statement. This statement allows an ABAP to select one or more command strings from table 022D. The command strings selected via the PRINT-CONTROL statement override defaults specified at the system or printer level.

The format of the PRINT-CONTROL statement is:

PRINT-CONTROL: FUNCTION: 'LAND'

The above statement selects the output options defined in the 'LAND' command string in table 022D.

Table 022B

| <u>Dest</u> | <u>R</u> | <u>DCT</u> | <u>022D-Type</u> | <u>Prolog</u> | <u>Epilog</u> | <u>LF</u> | <u>UPC</u> | <u>FFB</u> | <u>FFA</u> | <u>Comment</u> |
|-------------|----------|------------|------------------|---------------|---------------|-----------|------------|------------|------------|----------------|
| PRT1 | R | PRT1 | DRS | PORT | | | | X | X | Printer PRT1 |

Table 022D

| <u>Type</u> | <u>Format</u> | <u>Seq</u> | <u>L</u> | <u>S</u> | <u>X</u> | <u>D</u> | <u>Format string</u> | <u>Comment</u> |
|-------------|---------------|------------|----------|----------|----------|----------|---|----------------|
| DRS | PORT | | | 1 | | | '*DRS* CLASS=A FORMDEF=PORT PAGEDEF=PORT <' | |
| DRS | LAND | | | 1 | | | '*DRS* CLASS=A FORMDEF=LAND PAGEDEF=LAND <' | |

ABAP Program

```
PRINT-CONTROL:FUNCTION: 'LAND'  
  
WRITE /text
```

In the above example, printer 'PRT1' has a default command string of 'PORT' which selects PAGEDEF and FORMDEF of 'PORT', but the ABAP overrides the printer defaults by selecting command string 'LAND'.

The output options selected via the PRINT-CONTROL statement remain in effect until the end of the report or until another PRINT-CONTROL statement is used to select different options. Every time the output options are changed using the PRINT-CONTROL statement, the current SYSOUT dataset is closed and a new dataset with the modified output options is allocated.

The PRINT-CONTROL statement can be used to select more than one command string from table 022D. In that case, the parameter options from both strings are combined.

Table 022D

| Type | Format | Seq | L | S | X | D | Format string | Comment |
|------|--------|-----|---|---|---|---|---|---------|
| DRS | LAND | | | 1 | | | `*DRS* CLASS=A FORMDEF=LAND PAGEDEF=LAND <' | |
| DRS | ADDR | | | 1 | | | `*DRS* ADDR1="226 Berwick Avenue" <' | |

ABAP Program

```

PRINT-CONTROL: FUNCTION: 'LAND' , 'ADDR'

WRITE /text

```

When selecting more than one control string using the PRINT-CONTROL statement, SAP R2 applies special significance to the first two characters of the name. If the first two characters of the command name are the same, then only the information from the last string will be used. SAP R2 assumes both strings are of the same type so the second string overrides the first.

PRINT-CONTROL: FUNCTION: 'AA010' , 'AA020' Only last will be used.

PRINT-CONTROL: FUNCTION: '010AA' , '020AA' Both command strings will be used.

The first statement above would only select command string AA020; the second statement would correctly select both command strings.

An alternative way to allow the user to select different output options is to define the same printer multiple times with different names and assign different default output options to each. The user can then select output options by specifying the appropriate printer name.

Multiple Printer Names

| Dest | R | DCT | 022D-Type | Prolog | Epilog | LF | UPC | FFB | FFA | Comment |
|------|---|-----|-----------|--------|--------|----|-----|-----|-----|-------------|
| PR1 | R | PR1 | DRS | | | | | X | X | Printer PR1 |
| PR1L | R | PR1 | DRS | LAND | | | | X | X | Landscape |
| PR1P | R | PR1 | DRS | PORT | | | | X | X | Portrait |

When using this technique, the different SAP R2 printer names should all be associated with a single Transient Data queue (DCT entry).

Note: When processing the '*' character in the DEST, FORMS, GROUPID, NODE and WRITER parameters, the TD Queue name is inserted and not the SAP R2 printer name.

Establishing User Defaults

SAP R2 provides a standard facility to assign a default printer for a user in the profile record. This information is normally administered via SAP R2 transaction TMU5 illustrated below:

| User Defaults | USERID |
|--------------------|--|
| Start transaction | - |
| Transaction menu | - |
| Automatic start | - |
| Printer | PRT1 |
| Printer parameters | N G D |
| Control totals | - |
| Date format | - DD.MM.YYYY - MM/DD/YYYY - MM-DD-YYYY X YYYY.MM.DD |
| Decimal indicator | X Comma - Point |
| ABAP/4 job prefix | - |
| OK _ | PF: 3=Back 13=Save |

FIELD

DESCRIPTION

Printer

SAP R2 printer name from table 022B

Printer Parameters

1. L - Lists are stored in the SAP R2 spool file
N - Lists are not stored
2. G - Print immediately
H - Hold in SAP R2 spool file until released
3. D - Delete from SAP R2 spool file after printing
K - Keep in SAP R2 spool file after printer

Example:

N G D: No intermediate storage, print immediately, delete after printing

Using the Printer Alias Table

The SAP R2 printer alias table is an optional feature that provides a facility to translate a four character SAP R2 printer name into a 1-8 character printer alias. This printer alias can then be used in the DEST, FORMS, GROUPID, NODE or WRITER fields when DRS/SAPR2 is allocating a SYSOUT dataset. This is done by specifying an '*' in the appropriate field to indicate that the TD Queue name (normally the same as the SAP R2 printer name) should be inserted. For example:

DEST=* or DEST=PRT*

The four character SAP R2 printer name is simply inserted starting at the position indicated by the '*'. The DEST attribute for the above examples, assuming a SAP R2 printer name of 'SAP1', would be:

DEST=SAP1 or DEST=PRTSAP1

If a printer alias table (DPSSPTAB) is available, and it contains an entry that matches the SAP R2 printer ID, then the printer alias will be substituted when processing these special fields. For example, assume the following entry was in DPSSPTAB:

\$DRSPTAB SAPID=SAP1,ALIAS=RMT99

Using these values, the DEST attribute for the above examples would be:

DEST=RMT99 or DEST=PRTRMT99

For more information on defining the printer alias table, see [“Building the DRS/SAPR2 Printer Alias Table” on page 27.13.](#)

Defining DRS/SAPR2 Command Strings

The command strings used by the DRS/SAPR2 print interface consist of a command identifier ‘*DRS*’ followed by one or more SYSOUT option parameters and terminated with a single less than character (<).

Example

| Type | Format | Seq | L | S | X | D | Format string | Comment |
|------|--------|-----|---|---|---|---|---|---------|
| DRS | LAND | | | 1 | | | `*DRS* CLASS=A FORMDEF=LAND PAGEDEF=LAND <` | |

Note: When entering the command string in table 022D, the entire string must be enclosed by apostrophes (single quotes).

The DRS/SAPR2 SYSOUT parameters consist of an output keyword followed by an equal sign (=) and then a value to assign to the output option. Each parameter has a shorter alias name which can be used to reduce the length of the parameter string. For example:

PAGEDEF=LAND **or**

PD=LAND

Parameter values can be character, numeric or Y/N. Character values containing blanks must be enclosed in quotation marks. For example:

BUILDING=“Technical support office”

Any output option which has been defined at a higher level can be reset by assigning a null value. For example, the following example will reset the FCB name to blanks:

FCB=

Multiple strings of *DRS* parameters can be specified by using the sequence (Seq) field.

Example

| Type | Format | Seq | L | S | X | D | Format string | Comment |
|------|--------|-----|---|---|---|---|---|---------|
| DRS | LAND | 1 | | | | | `*DRS* CLASS=A FORMDEF=LAND PAGEDEF=LAND <` | |
| DRS | LAND | 2 | | | | | `*DRS* NODE=N1 DEST=* <` | |

The SYSOUT parameters supported by the DRS/SAPR2 interface include all the attributes which can be specified on a SYSOUT DD statement or on an OUTPUT JCL statement. For a complete list of the SYSOUT keywords, please refer to “DRS/SAPR2 SYSOUT Parameters” beginning on the following page.

DRS/SAPR2 SYSOUT Parameters

| Keyword | Alias | Description |
|-------------------------------|-------|--|
| ADDRn n = 1 to 4 | ADn | Delivery address to be printed on separator pages. Up to four address lines can be specified each containing 1 - 60 characters. If the address contains blanks, then the string must be enclosed in quotation marks. |
| BUILDING | BLD | Building name to be printed on separator pages. Building name can be 1 - 60 characters and must be enclosed in quotation marks if the value contains blanks. |
| BURST | BST | Indicates processing options for a 3800 printer. "B" indicates the output should be processed through the burster-trimmer-stacker feature or "C" indicates continuous forms. |
| CHARSn n = 1 to 4 | CHn | One to four character arrangement table names. Each character arrangement table name can be 1 - 4 characters. |
| CKPTLINE | CKL | The checkpoint line parameter in combination with the checkpoint page parameter controls the frequency of checkpoints for printing the document. Valid values are 0 - 32767. |
| CKPTPAGE | CKP | The checkpoint page parameter in combination with the checkpoint line parameter controls the frequency of checkpoints for printing the document. Valid values are 0 - 32767. |
| CKPTSEC | CKS | The checkpoint seconds parameter controls the frequency in seconds of checkpoints for printing the dataset. Valid values are 0 - 32767. |
| CLASS | C | Indicates the JES SYSOUT class. Valid values are A-Z or 0-9. |
| COLORMAP | CMAP | An 8-byte field specifying the AFP resource for the print file which contains color translation information. |
| COMPACT | CMP | Specifies the name of a compaction table. Must be 1 - 8 alphanumeric characters. |
| COMSETUP | CSET | An 8-byte field specifying the APF resource for the print file which contains setup information. |
| CONTROL | CTL | Specifies that each logical record starts with a carriage control character or that the output is to be printed with single, double, or triple spacing. Valid values are PROGRAM, SINGLE, DOUBLE, or TRIPLE. |
| COPIES | CPY | Specifies how many copies of the dataset are to be printed. Valid values are 0 - 255. |
| COPYGRPn n = 1 to 8 | CGn | Specifies up to 8 copy group values for this dataset. Valid values are 0 - 255. |
| DATAACK | DCK | Specifies the action to take for errors during AFP processing. Valid values are BLOCK, UNBLOCK, BLKCHAR, or BLKPOS. |

| Keyword | Alias | Description |
|-----------------|--------------|--|
| DEPT | DPT | Department name to be printed on separator pages. Value can be 1-60 characters and must be enclosed in quotation marks if it contains blanks. |
| DEST | D | Destination name. Value can be 1 - 8 characters. |
| DPAGELBL | DPL | Indicates whether the system should print the security label on each page of printed output. Valid values are Y or N. |
| DUPLEX | DUPX | An 8-byte field specifying whether printing is to be done on both sides of the sheet. Valid values consist of "NO", "NORMAL" or "TUMBLE". |
| FCB | FCB | Forms Control Buffer name. Value can be 1 to 4 characters. |
| FLASH | FLS | Specifies the forms overlay to be used in printing the dataset on a 3800 Printing Subsystem. Value can be 1 to 4 alphanumeric characters. |
| FLASHCNT | FCT | Specifies the number of copies on which the forms overlay is to be printed. Valid values are 0 to 255. |
| FORMDEF | FD | Indicates the name of the FORMDEF to be used for AFP processing. Valid values are 1 - 6 characters. |
| FORMLEN | FMLN | A 10-byte field specifying the numeric length and unit type that will be used to change the physical paper length without reconfiguring the printer. Valid values are nn.nnnUU, where n is a digit 0-9, and UU represents one of the following units: IN (inches) or CM (centimeters). |
| FORMS | F | Indicates the form name for the dataset. Value can be 1 to 8 alphanumeric characters. |
| GROUPID | GRP | Specifies the output group name for the dataset. Value can be 1-8 alphanumeric characters. |
| INDEX | IDX | The INDEX parameter sets the left margin when printing on a 3211 with the indexing feature. Valid values are 1 - 31. |
| LINDEX | LDX | The LINDEX parameter sets the right margin when printing on a 3211 with the indexing feature. Valid values are 1 - 31. |
| LINECT | LCT | The line count parameter specifies the number of lines to print per page when no carriage control characters are present. Valid values are 0 - 255. |
| MODIFY | MDF | Copy modification module name. Value can be 1 to 4 characters. |
| MODTRC | MTR | Specifies the table name in the CHARS parameter (0 for the first, 1 for the second, 2 for the third or 3 for the fourth). |
| NAME | NAM | Specifies the name to be printed on separator pages. Value can be 1 - 60 characters and must be enclosed in quotation marks if it contains blanks. |

| Keyword | Alias | Description |
|-----------------|--------------|--|
| NODE | N | Specifies the JES Node name to be used to print the dataset. Value can be 1 to 8 characters. |
| NOTIFY | NTF | Indicates the name of a TSO user who should be notified when the output prints. Value can be 1 to 17 characters. |
| NOTIFY2 | NTF2 | Specifies the second userid to be notified when a job completes; the user's ID can be prefixed with a valid JES node name. |
| NOTIFY3 | NTF3 | Specifies the third userid to be notified when a job completes; the user's ID can be prefixed with a valid JES node name. |
| NOTIFY4 | NTF4 | Specifies the fourth userid to be notified when a job completes; the user's ID can be prefixed with a valid JES node name. |
| OFFSETXB | OFXB | A 13-byte field specifying the offset in the x direction from the page origin for the back side of each page of output. Valid values are mmm.nnnUU, where m is a digit from 0 - 9, n is a digit from 0 - 9 and UU represents one of the following units: IN (inches), CM (centimeters), MM (millimeters), PELS or POINTS. |
| OFFSETXF | OFXF | A 13-byte field specifying the offset in the x direction from the page origin for the front side of each page of output. Valid values are mmm.nnnUU, where m is a digit from 0 - 9, n is a digit from 0 - 9 and UU represents one of the following units: IN (inches), CM (centimeters), MM (millimeters), PELS or POINTS. |
| OFFSETYB | OFYB | A 13-byte field specifying the offset in the y direction from the page origin for the back side of each page of output. Valid values are mmm.nnnUU, where m is a digit from 0 - 9, n is a digit from 0 - 9 and UU represents one of the following units: IN (inches), CM (centimeters), MM (millimeters), PELS or POINTS. |
| OFFSETYF | OFYF | A 13-byte field specifying the offset in the y direction from the page origin for the front side of each page of output. Valid values are mmm.nnnUU, where m is a digit from 0 - 9, n is a digit from 0 - 9 and UU represents one of the following units: IN (inches), CM (centimeters), MM (millimeters), PELS or POINTS. |
| OUTBIN | BIN | Specifies the output bin identifier to be used for this dataset. Valid values are 1 to 65535. |
| OUTDISPA | ODA | Indicates the SYSOUT output disposition for abnormal completion. Valid values are WRITE, HOLD, KEEP, LEAVE or PURGE. |
| OUTDISPN | ODN | Indicates the SYSOUT output disposition for normal completion. Valid values are WRITE, HOLD, KEEP, LEAVE or PURGE. |
| OVERLAYB | OVLB | An 8-byte field specifying that the named medium overlay is to be placed on the back side of each sheet to be printed. |
| OVERLAYF | OVLF | An 8-byte field specifying that the named medium overlay is to be placed on the front side of each sheet to be printed. |

| Keyword | Alias | Description |
|-----------------|--------------|--|
| OVFL | OVFL | An 8-byte field specifying whether or not JES3 should test for page overflow on an output printer (JES3 only). Valid values are "ON" or "OFF". |
| PAGEDEF | PD | Specifies the PAGEDEF which should be used for AFP processing. Value can be 1 to 6 characters. |
| PIMSG | PIM | Specifies whether or not messages should be printed on the output listing when processing AFP data. Valid values are Y or N. |
| PIMSGCNT | PIC | Specifies the number of errors to cause printing of PIMSG to be terminated. Valid values are 0 to 999. |
| PORTNO | PORT | A 4-byte binary field specifying the TCP/IP port number at which the printing application connects to the printer. Valid values are 1 - 65535. |
| PRMODE | PRM | Indicates the processing mode required to print the dataset. Value can be 1 to 8 characters, such as PAGE, LINE or an installation-defined value. |
| PRERROR | PTER | An 8-byte field specifying how a SYSOUT dataset that has had printing terminated by a functional subsystem is to be released by JES. Valid values are "DEFAULT", "HOLD" or "QUIT". |
| PRTOPTNS | PRTO | An 16- byte field specifying the named entity that contains additional print options for an IP-destined dataset that is being sent by a functional subsystem. |
| PRTQUEUE | PRTQ | A 127-byte field specifying the print queue name used when printing the IP-destined dataset. |
| PRTY | PTY | Indicates the initial output priority of the SYSOUT dataset. Valid values are 0 - 255. |
| RESFMT | RFMT | An 8-byte field specifying the resolution used to format the print dataset. Valid values are "P240" or "P300". |
| RETAINF | RETF | A 10-byte field specifying how long a functional subsystem will retain an IP-destined dataset after a failed transmission. |
| RETAINS | RETS | A 10 byte field specifying how long a functional subsystem will retain an IP-destined dataset after a successful transmission. |
| RETRYL | RETL | A 4-byte binary field specifying the number of attempts an FSS will try for transmission of an IP-destined dataset. Valid values are 0 -32767. |
| RETRYT | RETT | A 10-byte field specifying how much time a functional subsystem will wait between retries of transmission attempts of a dataset. |
| ROOM | ROM | Specifies the room name to be printed on separator pages. Value can be 1 to 60 characters and must be enclosed in quotation marks if it contains blanks. |
| SYSAREA | SYA | Indicates whether the system should reserve an area on each page for the security label. Valid values are Y or N. |

| Keyword | Alias | Description |
|-----------------------------------|--------------|--|
| TITLE | TTL | Specifies the title to be printed on separator pages. Value can be 1 to 60 characters and must be enclosed in quotation marks if it contains blanks. |
| TRC | TRC | Indicates whether the SYSOUT dataset contains Table Reference Characters. Valid values are Y or N. |
| UCS | UCS | Specifies the name of the Universal Character Set to be used when printing this dataset. Value can be 1 to 4 characters. |
| USRDTAnn nn = 01 to 16 | UDnn | Specifies 1-60 bytes of user data. Up to 16 fields can be specified. |
| USRLIBnn nn = 01 to 08 | ULnn | Indicates the names of 1 to 8 AFP resource libraries which should be concatenated ahead of the standard libraries. Value can be 1 to 44 characters. |
| WRITER | W | Specifies the writer name to be associated with this SYSOUT dataset. Value can be 1 to 8 alphanumeric characters. |

Section 29

DRS/SAPR2 Problem Determination

This section contains hints about diagnosing problems with DRS/SAPR2. Any of the following may help in problem resolution:

- DRS/SAPR2 messages, including trace messages
- DRS/API return codes
- DRS/API SNAP dumps
- Copies of SAP R2 spool record data
- SYSUDUMP for any ABEND that may occur

If you find you need assistance to resolve any problem, the LRS technical support is always ready to help you.

DRS/SAPR2 Messages

The DRS/SAPR2 messages are written to the CICS TD queue whose name was specified by the TDQMSG keyword in the DRS/SAPR2 defaults module (DPSSSDEF). If trace records were requested to be written to a message file, the DRSP070I messages will be sent to a CICS TD queue whose name was specified by the TDQTRC keyword. It is recommended that these queues be defined as JES SYSOUT files using DDNAMES of DPSSMSG and DPSSTRC. For more information on defining these TD queues to CICS, see [“Updating the CICS Tables” on page 20.15](#).

Browsing the DRS/SAPR2 message queue may help resolve a problem with invalid SYSOUT keywords or invalid keyword values. If LRS technical support requests additional tracing, the DRSP070I messages in the trace message file will help to determine what had happened up to the point of an error that was encountered.

All messages begin with “DRSP” and contain the date and time that the message was issued, along with the TD queue name associated with the printer. The messages are documented on page [36.124](#).

DRS/API Return Codes

DRS/API return codes will be displayed in the DRS/SAPR2 messages. These return codes are documented on page [24.1](#) and will be of assistance in determining the cause of SYSOUT keyword errors.

DRS/API SNAP Dumps

If a DRS/API error is encountered, a SNAP dump will be created using the SNAP parameters from the DRSSOPTS module. For more information about defining these SNAP options, see [“Customizing the DRS System Options” on page 20.9](#).

Copies of SAPR2 Spool Record Data

If you are having problems with the DRS/SAPR2 interface, the DRS support staff may request a copy of the SAP R2 print data so that the problem can be re-created in a test environment and a resolution found.

To capture the SAP R2 spool data an additional External DCT queue definition is required which moves the print data directly to an external sequential dataset.

DCT Entry

| | | | | |
|---------|--------|--|--------------------------------|-------------|
| DRSDOUT | DFHDCT | TYPE=SDSCI, DSCNAME=DRSDOUT, RECFORM=VARBLK, TYPEFLE=OUTPUT | Output dataset for SAP R2 data | X X X |
| DRSD | DFHDCT | TYPE=EXTRA, DESTID=DRSD, DSCNAME=DRSDOUT | DRS/SAPR2 Interface Print data | X X |

CICS JCL

| | | |
|-----------|----|---------------------------|
| //DRSDOUT | DD | DSN=dataset.name,DISP=SHR |
|-----------|----|---------------------------|

The output dataset should be pre-allocated with the following attributes:

RECFM=VB
DSORG=PS
LRECL=32756
BLKSIZE=32760

To capture the SAP R2 print data, you can define a new printer to SAP R2 which points to this new DCT entry and print to it as normal. Or, if you have a DRS/SAPR2 interface printer which has failed for some reason, the print data will still be in the printer queue and can be retrieved and sent to this external destination using the CEBR transaction.

To retrieve print data from a failed DRS/SAPR2 printer queue, use the CICS supplied transaction CEBR as follows:

1. Enter transaction 'CEBR'
2. On the command line enter 'GET prtr' (where prtr is the failed printer queue name). This will retrieve the print data from this queue and place it into temporary storage and will also display the data on the screen.
3. Enter 'PUT DRSD' (where DRSD is the name of the external transient data queue defined above). This will write the information to the external sequential dataset.
4. Use CEMT to close the external TD queue using: CEMT S TDQ(DRSD) CLOSE
5. The sequential dataset will now contain the SAP R2 printer data.

The SAP R2 print data can now be sent to LRS technical support on a cartridge or via e-mail.

Note: To download the SAP R2 print data to a PC file for delivery, the file should be transferred from the host as a BINARY transfer but with the CRLF option specified. This will enable LRS to reconstruct the original data when uploaded to our MVS system.

SYSUDUMP from ABEND

If DRS/SAPR2 abnormally terminates, a system dump will be created. These dumps will be extremely valuable for resolving problems where a DRS/SAPR2 program has abended. DRS/SAPR2 has an internal trace table which will be helpful in determining which events have most recently occurred. In addition, the DRS/SAPR2 control blocks will be dumped.

When you have a system dump from DRS/SAPR2, you should call LRS technical support for assistance. Some problems of this type can be resolved in a phone conversation. In most cases, you will be asked to send the dump by mail or e-mail. Please call LRS technical support before sending any dump.



Section 30

Introduction to DRS/Natural

DRS/Natural has been developed in partnership with Software/AG to provide a direct interface from the Natural environment to the JES spooling subsystem. The DRS/Natural product has been developed using a standardized interface to Natural that has been designed by Software/AG to provide a stable and supported interface to the LRS range of print management products.

DRS/Natural provides a direct interface from Natural applications to the JES spool. It enables any existing Natural application running in CICS or BATCH to create a report on the JES spool without any application changes.

The DRS/Natural interface provides complete control over the JES spool attributes assigned to a report and enables existing reports to use the printing facilities of Advanced Function Presentation (AFP) to enhance the quality of printed output from Natural applications.

With the DRS/Natural interface, JES spool attributes can be specified at the system level as global defaults for the entire Natural environment, at the individual printer level, or can be specified for individual reports. The spool file attributes supported include the standard JES SYSOUT attributes and the extended attributes normally specified via a JCL OUTPUT statement. This is all done dynamically and requires no JCL changes

The JES spool attributes assigned to a report are controlled using the standard print file attributes available in Natural, which are mapped dynamically to the required JES attributes. The DRS/Natural product has been designed to use only standard Natural interfaces and programming statements. This has been done to ensure compatibility with all future versions of Natural and to isolate Natural applications from the specifics of the JES spooling environment. This separation also allows for the central control and definition of spooling attributes and will enable Natural to exploit future enhancements to JES without the requirement to change the Natural environment or the underlying applications.

The DRS/Natural interface enables Natural applications to exploit the full power of the JES spooling subsystem and the LRS range of Enterprise Print Management products. The interface has been designed to be simple to install and is loaded dynamically by Natural at session initialization. The enhanced spooling facilities of DRS/Natural can be enabled at the individual session level which enables it to run in parallel with existing printing solutions and enable a phased migration and implementation.



Section 31

DRS/Natural Installation

Introduction

This section gives you the information you need to install DRS/Natural on your system. The details of this procedure are listed in “Installation Steps” on the following page. Before you do the actual installation, you must install the DRS/API product. Please see [“Installation Steps” on page 20.4.](#)

Installation Steps

The steps to install the DRS/Natural print interface are:

1. Read the entire installation procedure.
2. Install the DRS/API product. (See [“Installation Steps” on page 20.4.](#))
3. Check Natural product level. (See page [31.4.](#))
4. Linkedit DRS/Natural interface. (See page [31.5.](#))
5. Define the DRS/Natural modules to CICS. (See [“Updating the CICS Tables” on page 31.6.](#))
6. Define the DRS/Natural interface routine to Natural. (See [“Define DRS/Natural Interface to Natural” on page 31.8.](#))
7. Define a Natural print and hardcopy file using the DRS/Natural interface. (See [“Define a Print and Hardcopy File Using the DRS/Natural Interface” on page 31.9.](#))
8. The DRS/Natural interface installation is now complete.

The remainder of this section provides the information required to perform the above steps.

Installing the DRS/API Product

The DRS/Natural print interface uses the facilities of DRS/API to create output on the JES spool. Before installing the DRS/Natural interface, the DRS/API product must be installed and defined to CICS.

For information on installing DRS/API, please refer to [“Installation Steps”](#) on page 20.4.

Check Natural Product Level

The DRS/Natural interface requires Natural Version 2.3.2 or higher. In addition to the base product level the following fixes must be applied to ensure correct operation of the DRS/Natural interface.

| Fix Number | Pre-Requisite | Symptoms |
|------------|--------------------|--|
| NA33180 | NA32178 | Backend program not called in case of a non-zero session return code. |
| NA33208 | | Provide logical printer number to exit. |
| NA33209 | | CPRTADR incorrectly set on CLOSE for print files. |
| NA33245 | | CPRTADR incorrectly set on CLOSE for print files. |
| NA33260 | | OPEN errors never get reset, file unusable after error. |
| NA33264 | NA32189 NA32270 | Global area not fully initialized in some environments. |
| NA33277 | | Default to OPEN=ACC and CLOSE=CMD if no OPEN and/or CLOSE options have been specified for an AM=USER file. |
| NA34013 | | Settings of PRINT profile subparameters CLASS, COPIES, DISP, FORMS, NAME, PROFILE and PRTY are cleared after the print file is closed. |
| NA34015 | | Refresh file name at close. |
| NA34018 | | Enable user access method to disable DEFINE PRINTER OUTPUT routing. |
| NA34021 | NA34015 | Print file 0 file name change by User Access method not reflected in hardcopy destination name in IOCB. |
| NA34031 | NA33277 | Enable user access method to disable DEFINE PRINTER OUTPUT routing. |
| NA46209 | NA46148 | Message NAT1520 issued when attempting to use AM=USER. |

The status of the above fixes can be checked using the Natural 'DUMP ZAPS' command which will list all zaps that have been applied. Any zaps that are not applied can be obtained from Software AG technical support or are available online via the SAGNET support site.

If these fixes are applied to the Natural distribution libraries then it will be necessary to re-link the Natural run time nucleus. Please refer to the Software AG documentation for details.

WARNING: Please ensure that all zaps have been applied before continuing with the next step of the installation.

Linkedit DRS/Natural Interface

The DRS/Natural interface module must now be re-linked to incorporate the Natural Use Access Method routine (NATAMUSR). Sample JCL to re-link the DN34MAIN module is supplied in member NATLKED of dataset LRS.DRS.V1R34.CNTL.

The NATAMUSR module is supplied in the Natural load library from version 2.3.2 onwards.

Note: If any zaps are applied which update the NATAMUSR routine then the DRS/Natural module (DN34MAIN) must be re-linked to incorporate these changes.

```
//JOBNAME JOB (YOUR JOB CARD INFORMATION)
/**
/**-----*
/** NATLKED - SAMPLE JCL TO LINKEDIT THE DRS/NATURAL MODULE WITH *
/**          THE NATURAL USER ACCESS METHOD STUB. *
/** *
/** NOTE #1 - CHANGE DSN TO NATURAL LOAD LIBRARY *
/** NOTE #2 - CHANGE DSN AS REQUIRED *
/**-----*
/**
/**
/**LKED EXEC PGM=IEWL,PARM='XREF,LET,LIST,RENT,REUS,MAP'
/**SYSPRINT DD SYSOUT=*
/**SYSUT1 DD UNIT=VIO,SPACE=(CYL,(1,1))
/**NATLIB DD DSN=SAGLIB.NAT234.LOAD,DISP=SHR <== SEE NOTE #1
/**DRSLIB DD DSN=LRS.DRS.V1R34.LOAD,DISP=SHR <== SEE NOTE #2
/**SYSLMOD DD DSN=LRS.DRS.V1R34.LOAD,DISP=SHR <== SEE NOTE #2
/**SYSLIN DD *
ORDER DN34MAIN,NATAMUSR
CHANGE NATAM9EX(DN34MAIN)
INCLUDE NATLIB(NATAMUSR)
INCLUDE DRSLIB(DN34MAIN)
ENTRY CMAM09
NAME DN34MAIN(R)
/**
```

Updating the CICS Tables

The DRS/Natural interface program (DN34MAIN) and the DRS/Natural output characteristics table (DRSNSDEF) must be defined to CICS via PPT entries. You can add the required definitions using RDO or standard CICS tables. If you choose to use RDO, sample JCL is supplied in member NATRDO in dataset LRS.DRS.V1R34.CNTL.

The following RDO or macro definitions are required:

Add to the PPT using RDO:

```
DEFINE PROGRAM(DN34MAIN) GROUP(gggg) LANG(ASSEMBLER)
DEFINE PROGRAM(DRSNSDEF) GROUP(gggg) LANG(ASSEMBLER)

ADD GROUP(gggg) LIST(1111)
```

or, add to the PPT using macro definitions:

```
DFHPPT TYPE=ENTRY,DRS/NATURAL interface program *
PROGRAM=DN34MAIN, *
PGMLANG=ASSEMBLER

DFHPPT TYPE=ENTRY,DRS/NATURAL Output options table *
PROGRAM=DRSNSDEF, *
PGMLANG=ASSEMBLER
```

Copying the DRS/Natural Modules for CICS

The DRS/Natural load library must be added to the CICS DFHRPL concatenation or the following modules copied to a library in the DFHRPL concatenation:

DN34MAIN

DRSNSDEF

In addition, the DRS/API modules must be available in the DFHRPL libraries. See [“Installation Steps” on page 20.4](#) for information on which DRS/API modules are necessary for using DRS in CICS.

Define DRS/Natural Interface to Natural

The DRS/Natural interface is defined to the Natural environment using standard Natural profile parameters that instruct Natural to dynamically load the DRS/Natural interface at session initialization.

Natural profile parameters can be specified at two levels:

| | |
|----------------------------|--|
| Static Assignments | These are made by profile parameters specified in the NTPRM macro which generate the NATPARM parameter module, which is then assembled and linked with the Natural nucleus. |
| Dynamic Assignments | <p>These are parameters specified for the Natural execution, which override the static assignments and are valid for the current Natural session.</p> <p>Dynamic parameters can be specified in BATCH via the EXEC PARM statement or the CMPRMIN DD statement.</p> <p>In a CICS environment, profile parameters can be created using the SYSPARM command and can either be selected explicitly when invoking Natural or selected based on the USERID or TERMINAL ID of the user.</p> |

For a complete description of the Natural profile parameters and how they can be specified, please refer to the 'Natural Installation and Operations' manual in the section entitled 'Profile Parameters'.

The profile parameters required to instruct Natural to load the DRS/Natural interface are:

```
RCA=(NATAM09),  
RCALIAS=(NATAM09, DN34MAIN),      (Note: For Natural 4.1.2 or  
                                   later, parameter NTALIAS  
                                   replaces RCALIAS.)  
PROGRAM=DN34TERM                  (Batch Only)
```

The RCA parameter indicates that NaturalAccess Method 9 should be dynamically loaded at session initialization.

The RCALIAS (NTALIAS for Natural 4.1.2 or later) parameter indicates that the module that should be loaded is called DN34MAIN, the DRS/Natural interface module.

The PROGRAM parameter is **only** required for Batch execution of the DRS/Natural interface. This parameter instructs Natural to call program DN34TERM at session termination to shut down the DRS/API interface.

In a Batch environment, the DRS/Natural interface routine is dynamically loaded using a standard OS LOAD request. Therefore, the DN34MAIN module, the options module DRSNSDEF and the shutdown routine DN34TERM must be available via the Linklist or a STEPLIB DD statement.

In the CICS environment, the DRS/Natural interface is loaded using a CICS load request. Therefore, the DN34MAIN module and the options module DRSNSDEF must be available in the CICS DFHRPL concatenation.

Define a Print and Hardcopy File Using the DRS/Natural Interface

The previous step has instructed Natural to load the DRS/Natural interface. It is now necessary to define a print file and hardcopy file to use this new interface.

Natural print files are defined via Natural profile parameters and are allocated a file number in the range 1-31. Natural print file definitions can be specified as static definitions in the NATPARM parameter module using the NTPRINT macro or can be specified as dynamic definitions via the PRINT profile statement.

The following dynamic profile parameter is required to define a print file using DRS/Natural.

```
PRINT=( ( 1 ) ,AM=USER ,  
DEST=R123 ,  
CLASS=A ,  
BLKSIZE=200 )
```

| | |
|--------------------|--|
| PRINT=(1) | Defines Natural print file number 1. |
| AM=USER | Identifies the Access Method for this file as DRS/Natural |
| DEST=R123 | This is the Natural print destination name which, by default, will be mapped directly to the JES SYSOUT destination name. |
| CLASS=A | This is the Natural output class which, by default, is mapped directly to the JES SYSOUT class. |
| BLKSIZE=200 | The block size parameter controls the amount of Natural thread storage that is acquired as an output buffer for this file. This value should be large enough to contain the longest record written by a Natural application. |

The above definition will generate a JES SYSOUT dataset with CLASS=A and DEST=R123 using the default output characteristics table. For details of how to control the SYSOUT characteristic, please refer to [“DRS/Natural - Controlling SYSOUT Attributes” on page 32.1.](#)

To enable Natural hardcopy requests to be processed by DRS/Natural, the following profile statements are required:

```
HCAM=USER ,  
HCDEST=R123
```

| | |
|--------------------|--|
| HCAM=USER | Indicates that DRS/Natural should process hardcopy requests. |
| HCDEST=R123 | Defines the default hardcopy destination as R123. This setting can be overridden on the Natural hardcopy command ‘%H’ by including the destination name in the hardcopy request (i.e. ‘%HR567’). |

The above definition will direct all Natural hardcopy requests (‘%H’ command) to DRS/Natural with a destination of R123 which, by default, will be mapped directly to the JES SYSOUT destination name.

For details of how to control SYSOUT characteristic for specific printers or for hardcopy requests, please refer to [“DRS/Natural - Controlling SYSOUT Attributes” on page 32.1.](#)

Installation is Complete

The basic installation of DRS/Natural is now complete.

To verify the successful installation of DRS/Natural, you can now start a Natural session using the previously described profile parameters and issue the 'SYSFILE' command. In a BATCH environment this will display both Work and Print files available for this session. For CICS it is necessary to press 'PF10' to display print files.

The following print file information should be displayed:

```
12:40:41          ***** NATURAL SYSTP UTILITY *****          99-05-24
User LINEN06          - Print File Information -          TID A000

M No.  Type      Name  Recfm  Lrecl  Blksz  Status
-----
HC DRS R3.3  R123    U          250  Available for Output
 1 DRS R3.3  R123   VBA          200  Available for Output

Top of List
Command ==>
Enter-PF1--PF2--PF3--PF4--PF5--PF6--PF7--PF8--PF9--PF10--PF11--PF12
Cont  Help Menu Exit Sel  Pos  --  -  +  ++  Print Work  Canc
```

If no print files are displayed, then either the profile parameters have not been specified correctly, or DRS/Natural initialization failed. Check the system log for messages indicating the reason for the failure. A list of failing return codes can be found on page [24.1](#).

If the SYSFILE command shows the correct information for the hardcopy file and print file, then a '%H' command should generate a JES SYSOUT dataset containing the current screen image with a destination of R123. If a SYSOUT dataset is not created, then check the JES LOG and DRSLOG dataset for error messages.

Section 32

DRS/Natural - Controlling SYSOUT Attributes

Natural Print File Attributes

The DRS/Natural interface has been designed to use only standard Natural interfaces and programming statements. This has been done to ensure compatibility with future releases of Natural and also to avoid the requirement to include vendor specific non-standard statements within Natural applications.

Because the Natural environment provides direct support for a limited number of print files attributes, DRS/Natural incorporates a facility, which is external to Natural, to enable these attributes to be dynamically mapped to the more extensive JES spool file attributes. This enables Natural applications to fully exploit all current and future facilities of JES without requiring changes to the base Natural environment or the underlying Natural applications.

Print files are defined to Natural using the PRINT profile statement or NTPRINT macro. Each Natural user can have a maximum of thirty-one separate print files with Natural file numbers in the range 1-31. Because the print attributes of a single file can be overridden dynamically by the application, it is normally only necessary to define multiple print files for a user if an applications needs to output to more than one print file concurrently.

Below is a description of the Natural 'PRINT' profile statement which is used to define print output files and a description of how the Natural file attributes are interpreted by DRS/Natural.

```
PRINT=( (n) ,AM=USER ,
        DEST=ddddddd ,
        PROFILE=name ,
        NAME=name ,
        FORMS=name ,
        DISP=disp ,
        COPIES=nnn ,
        CLASS=A ,
        PRTY=nnn ,
        OPEN=xxx ,
        CLOSE=xxx ,
        RECFM=rr ,
        BLKSIZE=nnnn ,
        LRECL=nnn ,
        TRUNC=xxx ,
        PAD=xx )
```

| | |
|---------------------|---|
| PRINT((n)) | 'n' indicates the required print file number that can be in the range 1-31. |
| AM=USER | The access method must specify 'USER' to indicate that DRS/Natural should process requests for this file. |
| DEST=ddddddd | This is the Natural print destination which by default is mapped directly to the JES SYSOUT destination. Alternatively this value can be mapped to the JES SYSOUT WRITER attribute or can be ignored and only used as a look-up value when scanning the output options table DRSNSDEF that is described later. |
| PROFILE=name | This attribute is not mapped directly to any JES attribute but its value can be used as a look-up value when scanning the output options table DRSNSDEF that is described later. |
| NAME=name | The report name attribute is not mapped directly to any JES attribute but its value can be used as a look-up value when scanning the output options table DRSNSDEF that is described later. |
| FORMS=name | The Natural forms name parameter by default is mapped directly to the JES FORM name. |
| DISP=disp | Output file disposition: DELETE = Print file and then delete from JES. HOLD = Hold print file. KEEP = Print file and then hold (JCL OUTDISP=KEEP). LEAVE = Hold print file and retain when released (JCL OUTDISP=LEAVE). |
| COPIES=nnn | The Natural copies attribute by default is used as the JES copies value. |
| CLASS=A | The Natural output class by default is used as the JES SYSOUT class. |
| PRTY=nnn | The Natural output priority by default is used as the JES SYSOUT priority. Note: The setting of SYSOUT priority may have been disabled by your JES system programmer. |
| OPEN=xxx | This parameter is overridden by DRS/Natural to a value of 'ACC' which indicates that the JES SYSOUT dataset will be allocated and opened on first access. |
| CLOSE=xxx | This parameter is overridden by DRS/Natural to a value of 'CMD' which indicates that the file will be deallocated and closed when command mode, NEXT mode or MAINMENU is reached. |
| RECFM=rr | This value is used as the record format for the JES SYSOUT dataset. |
| BLKSIZE=nnn | This value is used by DRS/Natural to determine the size of the output buffer to allocate for this file. The value should be large enough to contain the longest record generated by a Natural application. Note: This storage is allocated from Natural thread storage. |
| LRECL=nnn | This value is ignored by DRS/Natural. |
| TRUNC=xxx | If TRUNC=ON then records which are greater than the BLKSIZE defined for this file will be truncated. With TRUNC=OFF any write request for a record larger than the BLKSIZE value will cause an error to be returned. |
| PAD=xx | This value is ignored by DRS/Natural. |

Dynamic Control of Natural Print Attributes

The default Natural print file attributes specified in the profile definitions can be modified for individual reports using the Natural 'DEFINE PRINTER' programming statement.

The 'DEFINE PRINTER' statement has the following syntax and should be specified before beginning output operations to the specified print file.

```
DEFINE PRINTER (n) OUTPUT 'dest'  
    PROFILE 'name'  
    NAME 'name'  
    CLASS 'c'  
    DISP 'disp'  
    COPIES nnn  
    PRTY nnn  
  
WRITE (1) 'TEST LINE 1'  
CLOSE PRINTER (1)
```

The ability to dynamically change the print file attributes enables applications to dynamically select an alternate printer destination or to select special SYSOUT attributes for individual print dataset.

The following section will explain how Natural file attributes like PROFILE, NAME and FORMS can be used to instruct DRS/Natural to select specific SYSOUT attributes. The JES attributes may include operational parameters or complex AFP attributes to select specific document formatting options.

Mapping Natural Attributes to JES SYSOUT Attributes

To enable Natural applications to exploit the full functionality of JES, the DRS/Natural interface provides a facility to map the limited Natural print attributes to the more extensive JES SYSOUT attributes.

This mapping is done via a simple configuration table which is scanned using the print file DEST, PROFILE, NAME and FORMS attributes to locate the required JES SYSOUT attributes.

The DRS/Natural output characteristic table consists of three main sections:

Output Characteristic Table DRSNSDEF

| |
|--------------------|
| Table Header |
| Selection Table |
| Output Options |

The Table Header contains configuration options and global defaults for the DRS/Natural interface.

The Selection Table section contains multiple entries which identify specific combinations of the print file DEST, PROFILE, NAME and FORMS values and a reference to the required JES output options. The DEST, PROFILE, NAME and FORMS values specified in the selection table can contain specific values, generic values or, if omitted, are assumed to match any incoming value.

The Selection Table is scanned from top to bottom until an entry is found which matches the incoming print file attributes. By arranging the order of this selection table, it is possible to define default output options for specific printers. The application can then override these options by specifying combinations of the PROFILE, NAME or FORMS attributes that match entries higher in the selection table.

The Output Options section of the configuration table defines specific, named, JES output characteristics, which can be selected by one or more selection table entries.

The DRS/Natural output characteristics table provides a very flexible method to select the required JES output options without the requirement to specify JES specific attributes directly within Natural applications. This enables JES attributes to be controlled centrally and changed without the requirement for application changes.

Below is an example DRS/Natural output characteristics table (DRSNSDEF) which shows the basic structure of the definitions.

```

*=====*
*
*      DRS/NATURAL SYSOUT CHARACTERISTICS TABLE
*
*=====*
*
*      $DRSNDEF TYPE=INITIAL,          GENERATE TABLE HEADER
*      ICPACT=DELETE,                 DELETE INCOMPLETE REPORTS
*      NATDEST=JESDEST,               USE NATURAL DEST AS JES DEST
*      TRACE=YES,                     ENABLE TRACING
*      USEROPTS=00000000,            USER OPTION FLAGS
*      DEFAULT=DEFOUT                 DEFAULT OUTPUT OPTIONS
*-----*
*      SELECTION CRITERIA
*-----*
*
*      --- APPLICATION SPECIFIC SELECTIONS ---
*
*      $DRSNDEF NFORM=INVOICE,OUTPUT=INVOICE
*
*      --- HARDCOPY SELECTIONS ---
*
*      $DRSNDEF NPROF=HARDCOPY,OUTPUT=HCOPY
*
**     --- PRINTER SPECIFIC SELECTIONS ---
*
*      $DRSNDEF NDEST=PRT1,OUTPUT=PORT
*      $DRSNDEF NDEST=PRT2,OUTPUT=PORT
*      $DRSNDEF NDEST=P*,OUTPUT=LAND
*-----*
*      OUTPUT CHARACTERISTICS
*-----*
*
DEFOUT  $DRSNDEF @OUTDESC='DEFAULT OUTPUT OPTIONS',
        CLASS=H,
        FORM=STD
*
HCOPY   $DRSNDEF @OUTDESC='DEFAULT HARDCOPY OPTIONS',
        CLASS=A
*
INVOICE $DRSNDEF @OUTDESC='COMPANY INVOICE',
        CLASS=A,
        FORMDEF=INV,
        PAGEDEF=INV
*
LAND    $DRSNDEF @OUTDESC='LANDSCAPE PRINT 132 CHARS x 66 LINES',*
        CLASS=A,
        FORMDEF=SIMPLX,
        PAGEDEF=LAND
*
PORT    $DRSNDEF @OUTDESC='PORTRAIT PRINT 80 CHARS x 72 LINES',
        CLASS=A,
        FORMDEF=SIMPLX,
        PAGEDEF=PORT
*
*
*      END

```

The above table contains some simple examples of how the output options can be specified using DRS/Natural.

The header section defines system options and identifies the default JES output attributes which should be used if no specific selection definition matches the current Natural print attributes.

The selection table then contains entries which identify specific Natural output options which will trigger the selection of the associated JES output characteristics defined at the bottom of the table. The selection table uses the NDEST, NPROF, NNAME and NFORM keywords to identify the Natural print attributes which should be checked during open processing. (If an attribute is not specified, then it is assumed to match any value).

For example, if a Natural report is generated with DEST=PRT1 and FORMS=INVOICE, the INVOICE selection will be triggered and the output would received a JES Destination of PRT1 and a FORMDEF and PAGEDEF of 'INV'.

Note: The Natural attributes are combined with the JES output options to generate the final SYSOUT attributes.

If the Natural report simply had DEST=PRT1 and no specific FORMS value, then the default selection for printer PRT1 will be selected, resulting in a JES destination of PRT1 and a PAGEDEF of 'PORT' and FORMDEF of 'SIMPLX'.

You will notice that the selection table can specify specific or generic values which are indicated by a '*' appended to the end of the value.

DRS/Natural Variable Substitution

To provide additional flexibility when defining output options DRS/Natural provides ten system variables that can be specified in any output field. These variable names are dynamically resolved during open processing with the appropriate values.

| Variable name | Variable Description | Natural Variable |
|---------------|----------------------|------------------|
| +NATDEST | NATURAL DESTINATION | |
| +NATFORM | NATURAL FORM NAME | |
| +NATPROF | NATURAL PROFILE NAME | |
| +NATRNAM | NATURAL REPORT NAME | |
| +NATUSER | NATURAL USERID | *USER |
| +CICSUSR | CICS USERID | *INIT-USER |
| +CICSTRN | CICS TRANSACTION ID | *INIT-PROGRAM |
| +CICSTRM | CICS TERMINAL ID | *INIT-ID |
| +NATPROG | NATURAL PROGRAM NAME | *PROGRAM |
| +NATLIBR | NATURAL LIBRARY NAME | *LIBRARY-ID |

The sample below illustrates the use of system variables in the output options table. In this example the SYSOUT TITLE is set to indicate the requesting user and terminal and the output WRITER name is assigned the value of the Natural Report name.

```

*=====*
*
*      DRS/NATURAL SYSOUT CHARACTERISTICS TABLE
*
*=====*
*
*      $DRSNDEF TYPE=INITIAL,      GENERATE TABLE HEADER
*      ICMPACT=DELETE,            DELETE INCOMPLETE REPORTS
*      NATDEST=JESDEST,           USE NATURAL DEST AS JES DEST
*      TRACE=YES,                 ENABLE TRACING
*      USEROPTS=00000000,        USER OPTION FLAGS
*      DEFAULT=DEFOUT             DEFAULT OUTPUT OPTIONS
*
*-----*
*      OUTPUT CHARACTERISTICS
*-----*
*
*      DEFOUT $DRSNDEF @OUTDESC='DEFAULT OUTPUT OPTIONS',
*              CLASS=A,
*              WRITER=+NATRNAM,
*              TITLE='REPORT CREATED BY +NATUSER ON TERMINAL +CICSTRM'
*

```

Controlling Hardcopy Attributes

The Natural hardcopy facility enables a user to request a hardcopy of the current screen image. These hardcopy requests can be directed to DRS/Natural via the HCAM=USER profile parameter and output directly to the JES spool.

The only print file attribute that can be specified for hardcopy requests is the destination name. The default hardcopy destination is defined via the HCDEST profile parameter, although the user can override this value by specifying the destination name on the hardcopy command.

To enable the SYSOUT attributes of hardcopy requests to be specified independently of the printer defaults, the PROFILE file attribute is assumed to contain a value of 'HARDCOPY'. This enables specific selection statements to be coded in the output characteristics table to assign default attributes for hardcopy requests.

Below is an example selection table definition for hardcopy requests.

```
*  
*   --- HARDCOPY SELECTION ---  
*  
*       $DRSNDEF NPROF=HARDCOPY ,OUTPUT=HCOPY  
*
```

The above definition assigns the default output options for all hardcopy requests.

If required, you can also define specific hardcopy options for individual printer destinations by specifying both the NDEST=dest and NPROF=HARDCOPY keywords. These destination specific entries must be defined before the general hardcopy default as the selection table is scanned from top down.

If the selection table does not contain a specific hardcopy selection, then either the default attributes for the destination printer or the global default attributes will be used.

Building the DRS/Natural Output Characteristics Table

The DRS/Natural output characteristics table is generated using the \$DRSNDEF macro which has three sets of keywords for the three sections in the table. The following pages will describe the keywords appropriate for each section of the table and the valid keyword values.

The output characteristics table is generated by performing the following steps:

1. Modify member DRSNSDEF in library LRS.DRS.V1R34.ASM, using the following pages to identify the required parameters.
2. Create the output characteristics module (DRSNSDEF) by assembling and link editing your modified version of the DRSNSDEF source. Sample JCL to assemble and link edit the output options module can be found in member NDEFASML or NDEFASMH of dataset LRS.DRS.V1R34.CNTL.

Output Characteristics Table Header

The following definitions describe the \$DRSNDEF keywords which are valid for the header section of the DRS/Natural output characteristics table.

| | |
|--|---|
| b \$DRSNDEF TYPE=INITIAL, DEFAULT=, {,ICMPACT=} {,NATDEST=} {,TRACE=} {,USEROPTS} | \$DRSNDEF must be preceded by one or more blanks |
|--|---|

Brackets, { }, are used to enclose optional parameters, which may or may not be specified. If a parameter is not coded, the default for that parameter will be used.

The parameters for the table header are explained below:

- Must be 'INITIAL' for the table header
- DEFAULT=** This parameter identifies the DRS/Natural default output options and must specify the name of an 'output options' definition defined in the last section of the table generation.
- ICMPACT=** Specifies action for incomplete reports. 'DELETE' indicates that incomplete reports should be deleted at system termination; 'KEEP' indicates that these reports should be kept. Default: DELETE
- NATDEST=** This parameter indicates whether the Natural print file destination should be mapped to the JES SYSOUT destination or WRITER attributes. Valid values are 'JESDEST' or 'JESWRTR'. Default: 'JESDEST'
- TRACE=** Indicates whether tracing should be activated. Valid values are YES or NO. Default: NO
- USEROPTS=** An 8-byte field which represents a 4-byte hex value with flags for special processing options
 - 80000000** - Do not use Natural print destination as JES destination or WRITER name
 - 40000000** - Do not use Natural print CLASS as JES SYSOUT class.
 - 20000000** - Do not use Natural FORMS name as JES SYSOUT FORMS name.
 - 10000000** - Do not use Natural COPIES as JES SYSOUT COPIES value.
 - 08000000** - Do not use Natural PRTY as JES SYSOUT priority value.
 - 04000000** - Do not use Natural DISP as JES output disposition.
 - 02000000** - The destination, specified via a 'define printer' statement, should be retained after the file is closed.
 - 01000000** - Bypass records passed from Natural with a length of zero.

Other values are currently unassigned.

Output Characteristics Selection Table

The following definitions describe the \$DRSNDEF keywords which are valid for the selection table section of the DRS/Natural output characteristics table. The selection table definitions must immediately follow the table header definition and any number of selection entries may be defined.

| | |
|------------------|---|
| b | \$DRSNDEF must be preceded by one or more blanks |
| \$DRSNDEF | |
| {NDEST=} | |
| {,NPROF=} | |
| {,NNAME=} | |
| {,NFORM=} | |
| ,OUTPUT= | |

Brackets, { }, are used to enclose optional parameters, which may or may not be specified. If a parameter is not coded, the default for that parameter will be used.

The parameters for the selection table section are explained below:

- NDEST=** Identifies the Natural destination value that should be compared during open requests for output option selection. This keyword can specify a specific value or a generic value terminated with an '*'.
Default: '*' (Match any value.)
- NPROF=** Identifies the Natural profile value that should be compared during open requests for output option selection. This keyword can specify a specific value or a generic value terminated with an '*'.
Default: '*' (Match any value.)
- NNAME=** Identifies the Natural report name that which should be compared during open requests for output option selection. This keyword can specify a specific value or a generic value terminated with an '*'.
Default: '*' (Match any value.)
- NFORM=** Identifies the Natural forms value that should be compared during open requests for output option selection. This keyword can specify a specific value or a generic value terminated with an '*'.
Default: '*' (Match any value.)
- OUTPUT=** This parameter identifies the output options that should be selected if the Natural output options match the selection criteria defined via the NDEST, NPROF, NNAME and NFORM keywords. The output name must match the label associated with the output options defined in this third section of this table.

Output Characteristics Table Output Options

The following definitions describe the \$DRSNDEF keywords which are valid for the output options section of the DRS/Natural output characteristics table. The output option definitions must follow all selection table definitions.

Each output option definition must specify a unique label name that can be referenced by one or more selection table entries.

| | |
|--------------|---|
| &LABEL | \$DRSNDEF must be preceded by a unique label name |
| \$DRSNDEF | |
| {@OUTDESC=} | |
| {,ADDR1=} | |
| {,ADDR2=} | |
| {,ADDR3=} | |
| {,ADDR4=} | |
| {,BUILDING=} | |
| {,BURST=} | |
| {,CHARS=} | |
| {,CKPTLINE=} | |
| {,CKPTPAGE=} | |
| {,CKPTSEC=} | |
| {,CLASS=} | |
| {,COLORMAP=} | |
| {,COMPACT=} | |
| {,COMSETUP=} | |
| {,CONTROL=} | |
| {,COPIES=} | |
| {,DATAACK=} | |
| {,DEPT=} | |
| {,DEST=} | |
| {,DPAGELBL=} | |
| {,DUPLEX=} | |
| {,FCB=} | |
| {,FLASH=} | |
| {,FORMDEF=} | |
| {,FORMLEN=} | |
| {,FORMS=} | |
| {,GROUPID=} | |
| {,INDEX=} | |
| {,LININDEX=} | |
| {,LINECT=} | |
| {,MODIFY=} | |
| {,NAME=} | |
| {,NODE=} | |
| {,NOTIFY=} | |

{,NOTIFY2=}
{,NOTIFY3=}
{,NOTIFY4=}
{,OFFSETXB=}
{,OFFSETXF=}
{,OFFSETYB=}
{,OFFSETYF=}
{,OUTBIN=}
{,OUTDISP=}
{,OVERLAYB=}
{,OVERLAYF=}
{,OVL=}
{,PAGEDEF=}
{,PIMSG=}
{,PORTNO=}
{,PRMODE=}
{,PRTERROR=}
{,PRTOPTNS=}
{,PRTQUEUE=}
{,PRTY=}
{,RESFMT=}
{,RETAINF=}
{,RETAINS=}
{,RETRYL=}
{,RETRYT=}
{,ROOM=}
{,SYSAREA=}
{,TITLE=}
{,TRC=}
{,UCS=}
{,USRDTA01=}
{,USRDTA02=}
{,USRDTA03=}
{,USRDTA04=}
{,USRDTA05=}
{,USRDTA06=}
{,USRDTA07=}
{,USRDTA08=}
{,USRDTA09=}
{,USRDTA10=}
{,USRDTA11=}
{,USRDTA12=}
{,USRDTA13=}

```
{,USRDTA14=}
{,USRDTA15=}
{,USRDTA16=}
{,USRLIB01=}
{,USRLIB02=}
{,USRLIB03=}
{,USRLIB04=}
{,USRLIB05=}
{,USRLIB06=}
{,USRLIB07=}
{,USRLIB08=}
{,WRITER=}
END
```

Brackets, {}, are used to enclose optional parameters, which may or may not be specified. If a parameter is not coded, the default for that parameter will be used.

The @OUTDESC keyword is provided for documentation purposes and allows 60 bytes of text to be associated with the output options to document the formatting options specified.

All of the remaining output option parameters refer to SYSOUT characteristics, which could be specified on a SYSOUT DD statement or an OUTPUT JCL statement. For a complete description of these parameters please refer to the MVS JCL Reference.

The parameters for the output options section are explained below:

| | |
|------------------|--|
| ADDR1= | A 60-byte field specifying the first address to be printed on separator pages. |
| ADDR2= | A 60-byte field specifying the second address to be printed on separator pages. |
| ADDR3= | A 60-byte field specifying the third address to be printed on separator pages. |
| ADDR4= | A 60-byte field specifying the fourth address to be printed on separator pages. |
| BUILDING= | A 60-byte field specifying the building to be printed on separator pages. |
| BURST= | A 1-byte field which directs output to a stacker on a 3800 Printing Subsystem. 'B' = burster-trimmer-stacker; 'C' = continuous forms stacker. |
| CHARS= | Four 4-byte fields specifying the names of character arrangement tables to be used. |
| CKPTLINE= | Checkpoint lines. Valid values are 0-32767. |
| CKPTPAGE= | Checkpoint pages. Valid values are 0-32767. |
| CKPTSEC= | Checkpoint seconds. Valid values are 0-32767. |
| CLASS= | A 1-byte field specifying the SYSOUT class. Valid values are 0-9 or A-Z. |
| COLORMAP= | An 8-byte field specifying the AFP resource for the print file which contains color translation information |
| COMPACT= | An 8-byte field specifying the name of a compaction table for JES to use. |
| COMSETUP= | An 8-byte field specifying the AFP resource for the print file this contains setup information. |
| CONTROL= | An 8-byte field specifying the type of spacing to be applied to the SYSOUT dataset. Valid values consist of "SINGLE", "DOUBLE", "TRIPLE" or "PROGRAM". |
| COPIES= | The copies or copy groups to be used to print the field. One copies field or up to 8 copy group values may be specified. Valid values are 0-255. |
| DATAACK= | An 8-byte field specifying action to be taken for AFP print errors; valid values are "BLOCK", "UNBLOCK", "BLKCHAR" or "BLKPOS". |
| DEPT= | A 60-byte field specifying the department to be printed on separator pages. |
| DEST= | An 8-character destination or userid. |

| | |
|---------------------|--|
| DEST (LONG)= | A 127-byte field specifying the destination for the SYSOUT dataset. The longer destination field is intended for a TCP/IP address in the format "IP:xxxxxxx" or "node.IP:xxxxxxx". This field and the 17-byte DEST field are mutually exclusive. |
| DPAGELBL= | A 1-byte field specifying whether the security label should be printed on each page. Valid values are "Y" or "N". |
| DUPLEX= | An 8-byte field specifying whether printing is to be done on both sides of the sheet. Valid values consist of "NO", "NORMAL" or "TUMBLE". |
| FCB= | A 4-byte field containing the FCB name. |
| FLASH= | Two fields to represent the forms overlay name and the number of copies on which the forms overlay is to be printed. Valid values for the flash name include any 4 character flash name. Valid values for the flash count are 0 to 255. |
| FORMDEF= | A 6-byte field representing the name of a FORMDEF for AFP processing. |
| FORMLEN= | A 10-byte field specifying the numeric length and unit type that will be used to change the physical paper length without reconfiguring the printer. Valid values are nn.nnnUU, where n is a digit 0-9, and UU represents one of the following units: IN (inches) or CM (centimeters). |
| FORMS= | An 8-byte field to specify the form name to be used for this dataset. The FORMS value may contain an '*' at any point to indicate that the current printer id should be inserted. |
| GROUPID= | An 8-byte field to specify the name of an OUTPUT GROUP to which this dataset belongs. |
| INDEX= | A field specifying the left margin on a printer with an indexing feature. Valid values are 1 to 31. |
| INTRAY= | A 4-byte binary field specifying the paper source when printing AFP files. Valid values are 1- 255. |
| LINDEX= | A field specifying the right margin on a printer with the indexing feature. Valid values are 1 to 31. |
| LINECT= | A field specifying the maximum number of lines JES is to print on each output page. Valid values are 0 to 255. |
| MODIFY= | Two values that specify the 4-byte name of a copy modification module and the 1-byte field, which indicates which table name in the CHARS parameter, should be used. Valid values for the first field are any 1-4 character name of a copy modification module. Valid values for the second field are 0-3. |
| NAME= | A 60-byte field to specify the name to be printed on the separator pages. |
| NODE= | An 8-byte field specifying the JES Node name to be used. |
| NOTIFY= | A 17-byte field specifying the first user to be notified when a job completes |
| NOTIFY2= | A 17-byte field specifying the second user to be notified when a job completes |
| NOTIFY3= | A 17-byte field specifying the third user to be notified when a job completes |

| | |
|------------------|---|
| NOTIFY4= | A 17-byte field specifying the fourth user to be notified when a job completes |
| OFFSETXB= | A 13-byte field specifying the offset in the x direction from the page origin for the back side of each page of output. Valid values are mmm.nnnUU, where m is a digit from 0 - 9, n is a digit from 0 - 9 and UU represents one of the following units: IN (inches), CM (centimeters), MM (millimeters), PELS or POINTS |
| OFFSETXF= | A 13-byte field specifying the offset in the x direction from the page origin for the front side of each page of output. Valid values are mmm.nnnUU, where m is a digit from 0 - 9, n is a digit from 0 - 9 and UU represents one of the following units: IN (inches), CM (centimeters), MM (millimeters), PELS or POINTS |
| OFFSETYB= | A 13-byte field specifying the offset in the y direction from the page origin for the back side of each page of output. Valid values are mmm.nnnUU, where m is a digit from 0 - 9, n is a digit from 0 - 9 and UU represents one of the following units: IN (inches), CM (centimeters), MM (millimeters), PELS or POINTS |
| OFFSETYF= | A 13-byte field specifying the offset in the y direction from the page origin for the front side of each page of output. Valid values are mmm.nnnUU, where m is a digit from 0 - 9, n is a digit from 0 - 9 and UU represents one of the following units: IN (inches), CM (centimeters), MM (millimeters), PELS or POINTS |
| OUTBIN= | A 4-byte binary field specifying the printer output bin identifier to be used. Valid values are 1 to 65535. |
| OUTDISP= | Two fields which represent the output disposition when the job ends NORMALLY or ABNORMALLY. Valid values are WRITE, HOLD, KEEP, LEAVE and PURGE. |
| OVERLAYB= | An 8-byte field specifying that the named medium overlay is to be placed on the back side of each sheet to be printed. |
| OVERLAYF= | An 8-byte field specifying that the named medium overlay is to be placed on the front side of each sheet to be printed. |
| OVFL | An 8-byte field specifying whether or not JES3 should test for page overflow on an output printer (JES3 only). Valid values are "ON" or "OFF". |
| PAGEDEF= | A 6-byte field specifying the name of a PAGEDEF member to be used for AFP processing. |
| PIMSG= | Two fields which specify whether messages should be printed on the output listing during AFP processing, and the number of errors which should be printed. Valid values for the first field are "Y" or "N"; valid values for the second field are 0 to 999. |
| PORTNO= | A 4-byte binary field specifying the TCP/IP port number at which the printing application connects to the printer. Valid values are 1 - 65535. |
| PRMODE= | An 8-byte field specifying the process mode required to print the dataset. Valid values are "LINE", "PAGE" or any valid installation-defined process mode. |
| PRERROR= | An 8-byte field specifying how a SYSOUT dataset that has had printing terminated by a functional subsystem is to be released by JES. Valid values are "DEFAULT", "HOLD" or "QUIT". |

| | |
|------------------|---|
| PRTOPTNS= | An 16- byte field specifying the named entity that contains additional print options for an IP-destined dataset that is being sent by a functional subsystem. |
| PRTQUEUE= | A 127-byte field specifying the print queue name used when printing the IP-destined data |
| PRTY= | Specifies the initial priority at which the SYSOUT dataset enters the output queue. Valid values are 0 to 255. |
| RESFMT= | An 8-byte field specifying the resolution used to format the print dataset. Valid values are "P240" or "P300". |
| RETAINF= | A 10-byte field specifying how long a functional subsystem will retain an IP-destined dataset after a failed transmission. |
| RETAINS= | A 10 byte field specifying how long a functional subsystem will retain an IP-destined dataset after a successful transmission. |
| RETRYL= | A 4-byte binary field specifying the number of attempts an FSS will try for transmission of an IP-destined dataset. Valid values are 0 - 32767. |
| RETRYT= | A 10-byte field specifying how much time a functional subsystem will wait between retries of transmission attempts of a dataset. |
| ROOM= | A 60-byte field specifying the room identification to be printed on separator pages. |
| SYSAREA= | Specifies whether the system should reserve an area for the security label on each page of printed output. Valid values are "Y" or "N". |
| TITLE= | A 60-byte field specifying the title to be printed on separator pages. |
| TRC= | A 1-byte field specifying whether or not the SYSOUT dataset has a TRC character in the second character of each record. Valid values are "Y" or "N". |
| UCS= | A 4-byte field specifying a universal character set, print train, or character-arrangement name. |
| USRDTA01= | Sixteen 60-byte fields containing user data values. |
| USRDTA02= | |
| USRDTA03= | |
| USRDTA04= | |
| USRDTA05= | |
| USRDTA06= | |
| USRDTA07= | |
| USRDTA08= | |
| USRDTA09= | |
| USRDTA10= | |
| USRDTA11= | |
| USRDTA12= | |
| USRDTA13= | |
| USRDTA13= | |
| USRDTA15= | |

USRDTA16=

USRLIB01= Eight 44-byte fields containing the dataset name(s) of user libraries for AFP processing.

USRLIB02=

USRLIB03=

USRLIB04=

USRLIB05=

USRLIB06=

USRLIB07=

USRLIB08=

WRITER= An 8-byte field specifying the writer name.

Including DRS/Natural in the Natural Nucleus

The normal installation procedure explains how to dynamically load the DRS/Natural interface during session initialization. This is the recommended method of implementing the product as it isolates the DRS/Natural interface from the Natural environment and simplifies problem determination. This also has the advantage that new versions of the interface can be implemented without the requirement to re-build the Natural nucleus.

If dynamic Natural profile statements can not be used the DRS/Natural interface can be statically linked into the Natural nucleus by amending the Natural linkedit JCL as indicated below.

```
//LKD2230 EXEC PGM=IEWL,
//   PARM=( 'RENT,REUS,XREF,LET,LIST,NCAL' ,
//   'SIZE=(1024K,256K)' ),
//   COND=(4,LT)
//SYSLMOD   DD DSN=SAGLIB.SMA123.LOAD,
//           DISP=SHR
//SYSLIN    DD DDNAME=SYSIN
//SYSUT1    DD UNIT=3390,SPACE=(1700,(500,100))
//SYSPRINT  DD SYSOUT=*,
//           DCB=(RECFM=FB,LRECL=121,BLKSIZE=1210)
/* LIBRARIES NEEDED BY NATURAL/CICS
//TPSLIB    DD DSN=CICSTS12.CICS.SDFHLOAD,DISP=SHR
//NCILIB    DD DSN=SAGLIB.NCI233.LOAD,DISP=SHR
/* LIBRARIES NEEDED BY NATURAL
//SMALIB    DD DSN=SAGLIB.SMA123.LOAD,DISP=SHR
//NATLIB    DD DSN=SAGLIB.NAT233.LOAD,DISP=SHR
/*
/* LIBRARIES NEEDED FOR DRS/NATURAL
//DRSLIB    DD DSN=DRS.V1R34.LOAD,DISP=SHR
/*
/* LIBRARIES NEEDED BY SAG-PRODUCTS
//ADALIB    DD DSN=SAGLIB.ADA622.LOAD,DISP=SHR
//SYSIN     DD *
MODE AMODE(31),RMODE(ANY)
INCLUDE TPSSLIB(DFHEAI)      CICS COMMAND LEVEL STUB
INCLUDE SMALIB(NCISTART)     NATURAL/CICS INTERFACE
INCLUDE TPSSLIB(DFHEAI0)     CICS INITIAL DSA GETMAIN STUB
INCLUDE SMALIB(NCIPARM)      NATCICS PARAMETER MODULE
INCLUDE NCILIB(NCINUC)       STORAGE CONTROL PROGRAM
INCLUDE SMALIB(PRM001CI)     GENERATED PARM.MODUL
CHANGE NATAM9EX(DN34MAIN)    CHANGE NATAM9EX 'V' CONSTANT TO DN34MAIN
INCLUDE NATLIB(NATAMUSR)     INCLUDE NATURAL USER ACCESS METHOD STUB
INCLUDE DRSLIB(DN34MAIN)     INCLUDE DRS/NATURAL ACCESS METHOD
ENTRY CMSTART                ENTRY (CICS)
NAME NC233RE(R)
```

The print file definitions can also be coded statically using the NTPRINT macro in the NATPARM module. For complete descriptions of the Natural profile macros please refer to the “Natural Installation and Operations” manual in the section entitled ‘Profile Parameters’.

```
*
      NTPRINT (1,2),AM=USER,DEST=PRT1
*
```

Note: This macro should be coded after the main NTPRM macro definitions.

Section 33

DRS/Natural - Problem Determination

This section contains hints about diagnosing problems with DRS/Natural. Any of the following may help in problem resolution:

- Natural file error messages
- DRS/Natural messages
- DRS/Natural and DRS/API return codes
- DRS/API SNAP dumps
- DRS/Natural trace data
- SYSUDUMP for any ABEND that may occur

If you find you need assistance to resolve any problem, LRS technical support is always ready to help you.

Natural messages

If an error occurs during an output operation to a DRS/Natural controlled file, the following Natural error message will be issued.

```
NAT1524 NATAMUSR:xxx FILE nn EXIT yyy ERROR RTC ccc REASON rrr
```

Where:

```
xxx  - NATURAL file type PRINT/WORK
nn   - NATURAL print file number
yyy  - Failing function ( OPENO, OPENI, READ, WRITE,
      CLOSR, CLOSE or SETUP )
ccc  - DRS/Natural or DRS/API return code
rrr  - Reason code
```

The DRS/Natural and DRS/API return codes are documented on page [24.1](#).

DRS/Natural Messages

DRS/Natural messages are written to the combined DRS/API and DRS/Natural log dataset. This dataset is dynamically allocated with a DDNAME of DRSLOG and contains a log of all activity. If the LOG dataset is not created, please check the logging options that have been specified in the DRS/API Options Module (DRSSOPTS). For a complete description of the DRS/API options keywords please refer to [“Installation Steps” on page 20.4](#).

DRS/Natural and DRS/API Return Codes

A unique DRS/Natural or DRS/API return code will be displayed in all error messages. These return codes are documented on page [24.1](#) and will be of assistance in determining the cause of the error.

Note: If Natural passes DRS a print record with a length of zero you will receive a NAT1524 error with RTC 220, which indicates 'variable length record too small'. To have DRS/Natural bypass these zero length records, set USEROPTS=x1xxxxxx in DRSNSDEF. See [page 32.10](#) for details.

DRS/API SNAP Dumps

If a DRS/API error is encountered, a SNAP dump will be created using the SNAP parameters from the DRSSOPTS module. For more information about defining these SNAP options, see "[Customizing the DRS System Options](#)" on page 20.9.

DRS/Natural Trace data

To help diagnose problems in the DRS/Natural interface you may be asked to enable tracing. DRS/Natural and the DRS/API share a common trace table that will be included in any SNAP dumps that are taken because of DRS/API request failures. The trace data can also be written externally to the MVS Generalized Trace Facility (GTF).

To enable tracing of DRS/Natural functions simply specify TRACE=YES in the Output Characteristics table header (DRSNSDEF). You must also ensure that the DRS/API options module defines an internal trace table size using the TRPAGES keyword and that DRS/API external tracing is enabled by specifying TRTYPES=01. For more information about defining these DRS/API options, see "[Customizing the DRS System Options](#)" on page 20.9.

SYSUDUMP from ABEND

If DRS/Natural abnormally terminates, a system dump will be created. These dumps will be extremely valuable for resolving problems where a DRS/Natural program has abended.

When you have a system dump from DRS/Natural, you should call LRS technical support for assistance. Some problems of this type can be resolved in a phone conversation. In most cases, you will be asked to send the dump by mail or e-mail. Please call LRS technical support before sending any dump.

Section 34

Introduction to DRS/OutputManager

DRS/OutputManager is the generic name for a group of products that will provide output management solutions for external hosts and applications running on multiple platforms. The DRS/OutputManager family of products will implement standard interfaces to external applications and will enable DRS and the LRS Enterprise Output Management range of products to act as a central print server for all hosts and applications in an organization.

DRS/OutputManager provides the following core functions that will be used to implement standard interfaces to OEM applications:

Report submission – LRS has developed a standard client that will enable reports to be submitted to DRS from most environments. This client enables the submitter to have complete control over the JES SYSOUT attributes assigned to the report and will return a unique tracking token that can be used to monitor and control the output.

Output tracking – All output requests will be tracked from creation to final delivery and the status will be continually monitored.

Status feedback – DRS/OutputManager will implement application specific interfaces to provide real-time status feedback of all output events.

Report cancellation – Remote applications and users can cancel previously submitted print requests.

The first product in the DRS/OutputManager family is an interface to the SAP R/3 application suite.

DRS/OutputManager for SAP R/3

DRS/OutputManager for SAP R/3 is a SAP certified external output management solution for the SAP R/3 application suite. This product implements the SAP BC-XOM (eXternal Output Management) interface that enables DRS to seamlessly integrate with the SAP R/3 environment and handle all printing and output delivery while providing full feedback and control to SAP R/3 users.

DRS/OutputManager implements the following features of the BC-XOM standard:

- Report submission.
- Callback Interface for Output status notification.
- Operations Supplement (Queue Query, Output query, and report cancellation).
- Multilingual support.

DRS/OutputManager for SAP R/3 has been designed to provide a single print server for the SAP R/3 environment supporting any number of SAP R/3 systems and servers. The product architecture enables SAP R/3 systems running on any platform to exploit the full power of the LRS Enterprise Output Management products without the requirement to install print management software on each server.

The only software requirement on the SAP R/3 servers is a single executable that is used to submit print requests to DRS/OutputManager and to process query and cancel requests. All communication back to the SAP R/3 environment is achieved remotely using the SAP R/3 client API. This enables DRS/OutputManager to directly update the status of each spool request in the SAP R/3 database.

Once a print request is submitted to DRS/OutputManager, no further processing is required on the SAP R/3 server. DRS will asynchronously update the status of all output requests in the SAP R/3 spool, and users can monitor the status of their print requests using the standard SAP R/3 output management interface (SP01). Users can also request pop-up status windows that will notify them when major events occur (output printed, error printing, output cancelled, etc.). These pop-up windows are independent of the application being used and will keep the users informed of the status of their print requests without having to access the output management interface.

Output submitted from the SAP R/3 environment can be monitored and delivered to the following destinations.

- TCP/IP printers and hosts via VPS/TCPIP.
- SNA printers via VPS/SNA.
- E-mail destinations via VPS/EMAIL.
- LAN Printers and files via AnyQueue.
- PageCenter Archive for viewing and distribution.
- JES system printers.

Installation Procedure

The steps required to install DRS/OutputManager for SAP R/3 are:

1. Install DRS SYSOUT tracking feature. (See [“Install SYSOUT Tracking Feature”](#) on page 34.4.)
2. Install SAP R/3 RFC communication API. (See [“Install SAP R/3 RFC Communication API”](#) on page 34.5.)
3. Define SAP R/3 userid for remote communication. (See [“Define a SAP R/3 Userid”](#) on page 34.6.)
4. Update DRSSTART system options. (See [“Update DRS System Options”](#) on page 34.7.)
5. Define DRS printer member. (See [“Define DRS Printer Member”](#) on page 34.8.)
6. Install LRS/Queue client on SAP R/3 server. (See [“Installing the LRS/Queue Client”](#) on page 34.9.)
7. Define DRS/OutputManager to SAP R/3. (See [“Define DRS/OutputManager to SAP R/3”](#) on page 34.10.)
8. Define SAP R/3 output device. (See [“Define SAP R/3 Output Device”](#) on page 34.21.)
9. Upload National Language message templates. (See [“Upload National Language Message Templates”](#) on page 34.23.)

Install SYSOUT Tracking Feature

DRS/OutputManager requires the facilities of the DRS SYSOUT tracking feature to enable it to monitor the status of output requests. If you have not already installed the tracking feature please refer to [“Introduction to DRS/VPI SYSOUT Tracking Feature”](#) on [page 3.220](#) for full details of the installation procedure.

Install SAP R/3 RFC Communication API

DRS/OutputManager implements the callback interface to asynchronously deliver status information back to the SAP R/3 environment. To enable callback communication, it is necessary to install the SAP R/3 Remote Function Call (RFC) communication API. This API is a SAP provided library of 'C' functions that enable advanced communication between DRS and SAP R/3 servers.

The installation material for the SAP RFC software development kit is provided on the 'Presentation' CD2 that is shipped with the SAP R/3 installation material. (For the latest details on the availability of the OS/390 RFC SDK software, please check SAP OSS note 119496.) The OS/390 version of the RFCSDK software can be found in the following directory:

`\SDK\UNIX\OS390_32\`

This directory will contain the following files:

- OS390RFC.PAX** Compressed archive containing RFC API library, header files, and samples.
OS390RFC.TXT Detailed installation instructions.

For the latest information on installing the RFC library, including OS/390 system requirements, please refer to the OS390RFC.TXT file provided.

Below is a summary of the installation steps:

1. Upload the OS390RFC.PAX file, using a binary transfer, into an OS/390 HFS directory.
2. Decompress and extract the RFC software using the following command issued from an OMVS command prompt:

```
pax -rzvf OS390RFC.PAX
```

This will create the following directories below your current working directory:

```
rfcsdk/bin    - Sample executable programs.  
/include     - 'C' header files.  
/lib         - DLL function library.  
/text        - Sample RFCAPI programs.
```

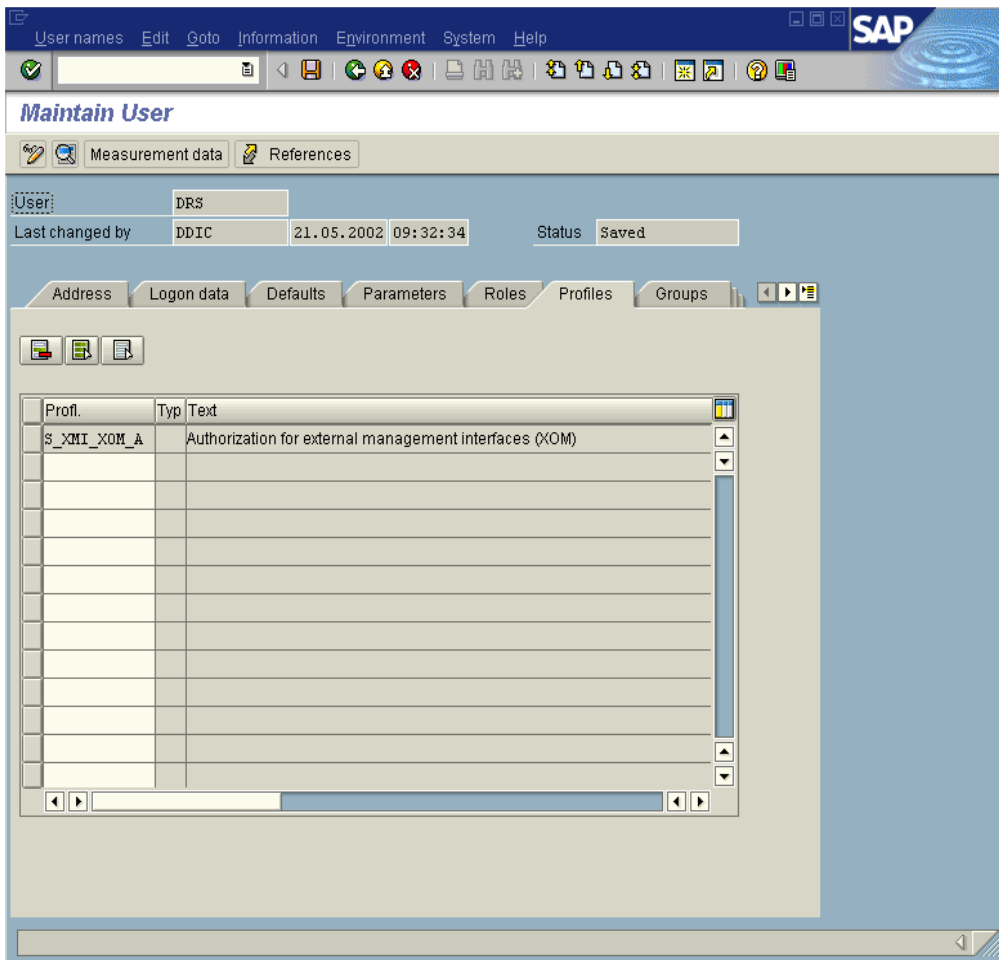
3. The **rfcsdk/lib** directory will contain a DLL library called '**librfc**'. To enable DRS/OutputManager to load this DLL library it is necessary to transfer this executable to a standard OS/390 load library. Sample JCL to linkedit the **librfc** DLL library into an MVS load library is supplied in member LINKSAP of dataset DRS.V1R34.CNTL.
4. APF authorize the new SAPRFC load library and add to the DRS started task STEPLIB concatenation.

Define a SAP R/3 Userid

DRS/OutputManager requires a SAP R/3 userid and password that can be used to remotely connect to the SAP R/3 servers to update the status of output requests in the SAP R/3 database. This userid must be authorized to establish an RFC connection to the SAP R/3 system and to logon to the System Management Interface XOM (External Output Management) application. The required permissions can be granted by adding the S_XMI_XOM_A security profile to the user.

To define a new SAP R/3 userid:

1. From the SAP R/3 main menu select:
 - > **Tools**
 - > **Administration**
 - > **User Maintenance**
 - > **Users (SU01)**
2. Enter a userid for DRS/OutputManager and press F8 to create a new user.
 - A. Enter DRS/OutputManager in the **Last Name** field.
 - B. Select the **Logon Data** tab and enter an initial password.
 - C. Select a **User Type** of **Service**.
 - D. Select the **Profiles** tab and add the S_XMI_XOM_A profile.



Update DRS System Options

DRS/OutputManager for SAP R/3 requires additional keywords in the DRS System Initialization Member (DRSSTART). Below is a summary of the system keywords that apply to DRS/OutputManager and a brief description of their function. For a complete description of each keyword, please refer to [“System Initialization Parameters” on page 3.18](#).

| | | |
|-----------------|----------|---|
| KEYOMGR | Required | This keyword specifies the trial or license code for the DRS/OutputManager product. |
| SAPUSER | Required | Specifies the SAP R/3 userid defined in step 2 on page 34.3 . This userid will be used to establish an RFC connection to the SAP R/3 system to deliver output status notifications. |
| SAPPSWD | Required | Password associated with the userid specified in the SAPUSER keyword. |
| SAPCLNT | Optional | Specifies the SAP R/3 client number associated with the SAP R/3 userid (default is 000). |
| SAPRETRY | Optional | Specifies the retry interval for failed connections to SAP R/3 callback servers (default is 5 minutes). |
| SAPTRACE | Optional | Specifies if SAP R/3 RFC API tracing should be enabled and identifies an output directory to receive trace data (default is N). |
| SAPOPTS | Optional | Specifies DRS/OutputManager for SAP R/3 option flags. |

After updating the DRS system options it will be necessary to restart DRS.

Define DRS Printer Member

A DRS printer member is required for each SAP R/3 printer that will receive print files from DRS/OutputManager. Below is an example of a DRS printer definition suitable for receiving output from a SAP R/3 client.

Member(DRSPRT1):

```
*-----*
* SAP R/3 PRINTER QUEUE                               *
*-----*
CLASS=T,                OUTPUT CLASS (VPS TRANSPARENT CLASS)
DEST=DRSPRT1,          OUTPUT DESTINATION
COMMTYPE=TCPIP         COMMUNICATION TYPE=TCP/IP
```

The above definition is a very simple example which will be suitable for use with the sample SAP R/3 printer definition described on the following pages. In this example, we have assumed that DRS will be receiving a binary PCL data stream from SAP R/3 and the output class (T) will need to be defined in the associated VPS printer definition as a transparent class (TRNCLASS=T).

DRS/OutputManager for SAP R/3 has been designed to allow a great deal of flexibility in assigning JES SYSOUT attributes. For complete details, please refer to [“Controlling SYSOUT Attributes” on page 34.25](#).

Note: A single DRS printer definition can be used for all TCP/IP connection types (LPR/LPD, LRSQUEUE, AnyQueue, and SAP R/3).

Installing the LRS/Queue Client

The LRS/Queue client is a general-purpose client that is used to communicate with DRS to process report submission, output queries and cancel requests. This is the only software component that must be installed on the SAP R/3 servers that will be using the DRS/OutputManager interface.

The LRS/Queue client is available for most execution platforms and is distributed on CD or can be downloaded from the LRS WEB site <http://www.lrs.com/eom>.

As the installation process for each supported platform is slightly different, please refer to the README file supplied with each version for details of the installation process. The installation procedure will extract the LRS/Queue executables to a user-specified directory that must be accessible to all SAP R/3 spool servers using the DRS/OutputManager interface. The LRSQ command must also be accessible to any server defined as a **Tasking Target** in the Logical OMS definition. Refer to the next section for details.

For complete details of the LRS/Queue client please refer to “LRS/Queue Client” on [page 13.15](#).

Define DRS/OutputManager to SAP R/3

The DRS/OutputManager for SAP R/3 interface is defined to SAP R/3 using the standard Spool Administration transaction (SPAD).

The SAP R/3 definitions for an external output managements system consist of:

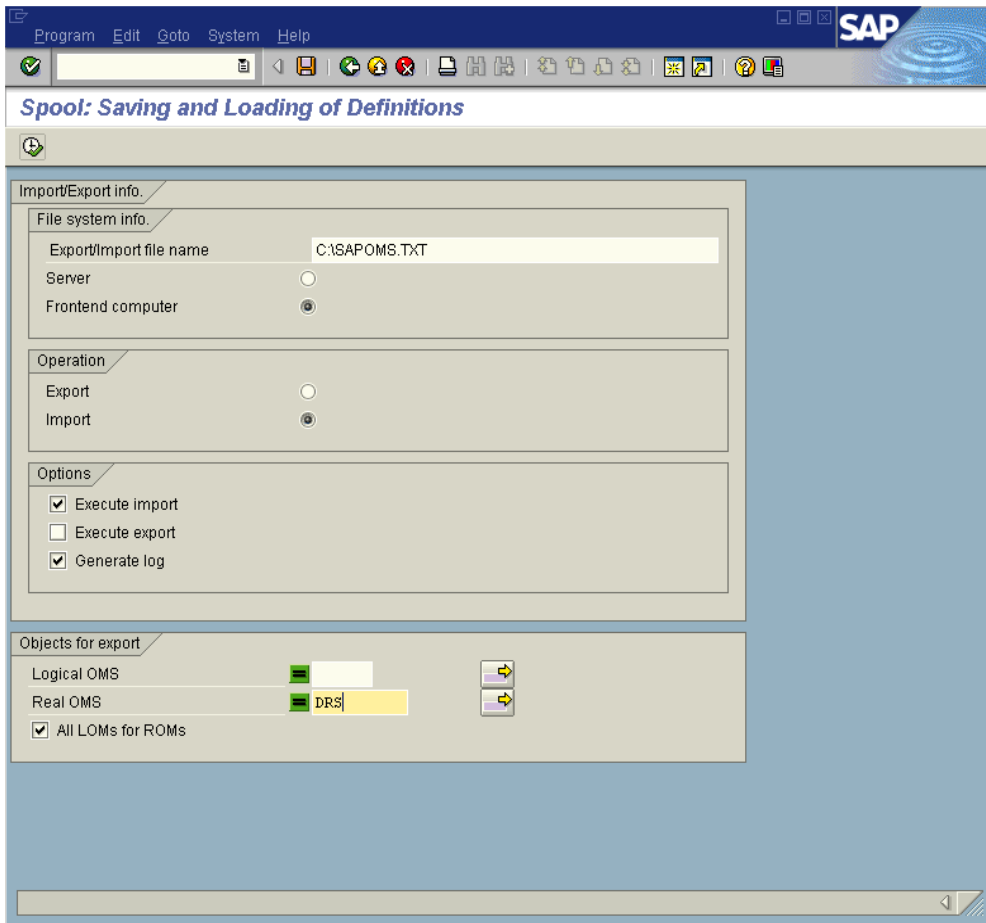
A single ROMS definition: This is a Real Output Management System definition and defines the basic characteristics of the external output management system. The definition details all the functions supported by the external output management system.

One or more LOMS definitions: The Logical Output Management System definitions are related to the ROMS definition but enable you to specify different sets of processing options for different groups of printers. For example, you may want to disable specific functions for a group of printers or use a different set of processing options when submitting the print requests for these devices.

To simplify the installation process, a sample set of OMS definitions is provided in the LRS.DRS.V1R34.CNTL dataset in member SAPOMS.

To import the sample definitions into SAP R/3:

1. Download the SAPOMS member onto a PC running the SAP R/3 GUI interface using a binary transfer.
2. Logon to SAP R/3 using an administrator userid.
3. Select:
 - > **Tools**
 - > **CCMS**
 - > **SPOOL**
 - > **SPOOL ADMINISTRATION (SPAD)**
4. On the command bar at the top of the window select:
 - > **UTILITIES**
 - > **FOR OUTPUT MANAGEMENT SYSTEMS**
 - > **IMPORT**
5. In the Import/Export utility transaction:
 - a. Enter the fully qualified name of the SAPOMS export file you downloaded from the host.
 - b. Select **Frontend Computer**.
 - c. Select **Import** in the Operation section.
 - d. Select **Execute Import** in the Options section.
 - e. Press **F8** to execute the import operation.



After importing the sample definitions, return to the **Spool Administration** initial screen and select **Full Administration** or press **F7**. Then select the **Output Management Systems** tab to access the Real (ROMS) and Logical (LOMS) output management definitions.

Real Output Management System Definition (ROMS)

The import process will have created a single ROMS definition called DRS that contains basic details of the functions supported by DRS/OutputManager for SAP R/3.

The diagram below shows the ROMS definition.

Real OMS: DRS
Description: DRS/OutputManager for SAP/R3

OMS attributes

| Tasking | Job status | Device status | Output types |
|---|--|--|------------------------------|
| <input checked="" type="checkbox"/> Command line <input type="checkbox"/> RFC server | <input checked="" type="checkbox"/> Query <input checked="" type="checkbox"/> Deletable <input type="checkbox"/> Polling <input checked="" type="checkbox"/> Callback | <input checked="" type="checkbox"/> Queue query <input type="checkbox"/> Callback | <input type="checkbox"/> Fax |

OMS configuration
 Reconfiguration required

SAP configuration

| | |
|-------------------------|---------|
| Initialization instance | |
| Initialization command | |
| Reconfiguration request | 300 sec |

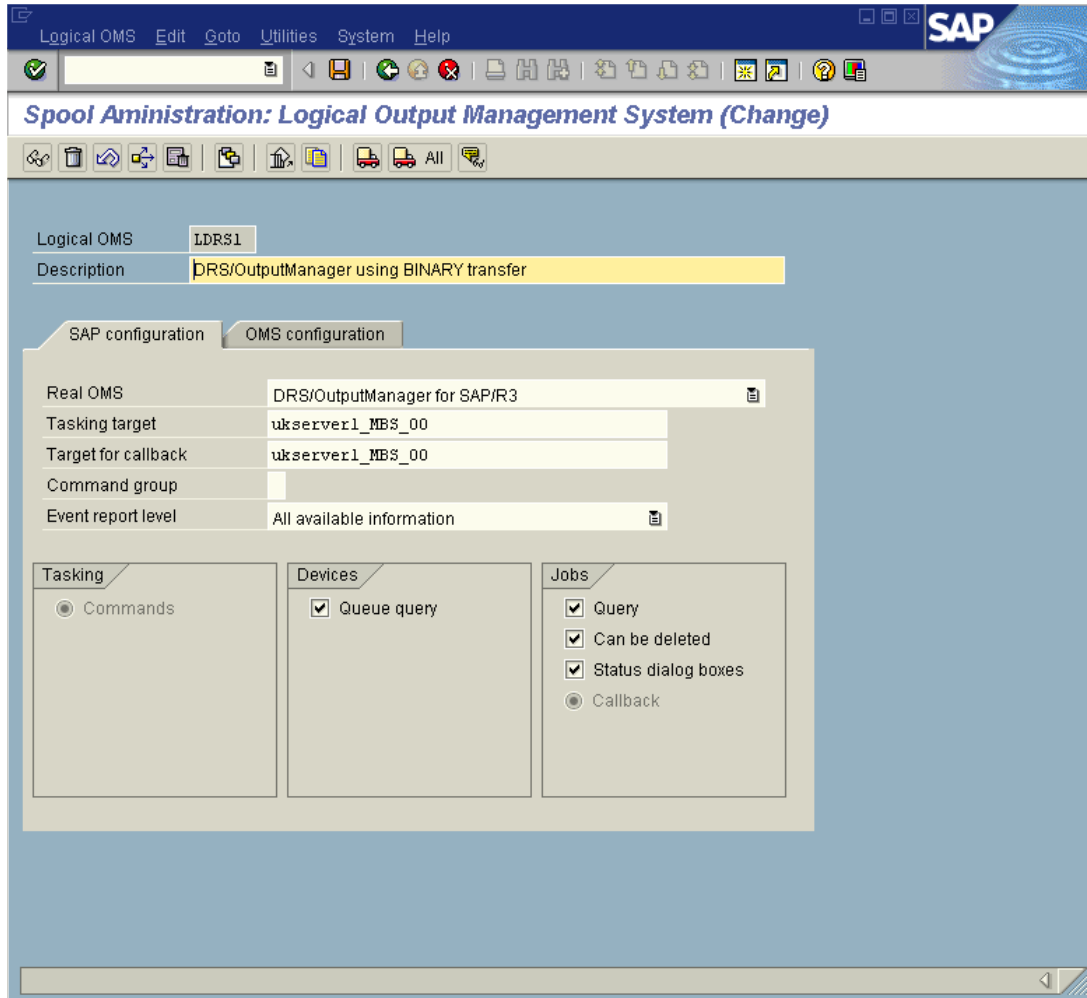
The **OMS Attributes** section should not be changed because this indicates the functions of the BC-XOM interface which DRS/OutputManager supports. If you want to disable any of these functions (for example, Deletable), this should be done in the Logical OMS definition.

The **Reconfiguration Request** field specifies the interval DRS/OutputManager should use to check if configuration options have been changed that require DRS/OutputManager to reconfigure itself. Whenever DRS/OutputManager executes a callback transaction to update the SAP R/3 spool status, it receives an indication whether reconfiguration is required. This interval applies when DRS/OutputManager is idle (no callbacks being processed) and specifies the period that DRS/OutputManager should send an empty callback request simply to check if reconfiguration is required.

Logical Output Management System Definition (LOMS)

The import process will create four Logical OMS definitions that contain examples of using different processing options when transferring print data to DRS/OutputManager.

The Logical OMS definitions consist of general processing options and an associated set of command templates which are used to define the commands that are used to Submit, Query, and Cancel requests to the external output management system.



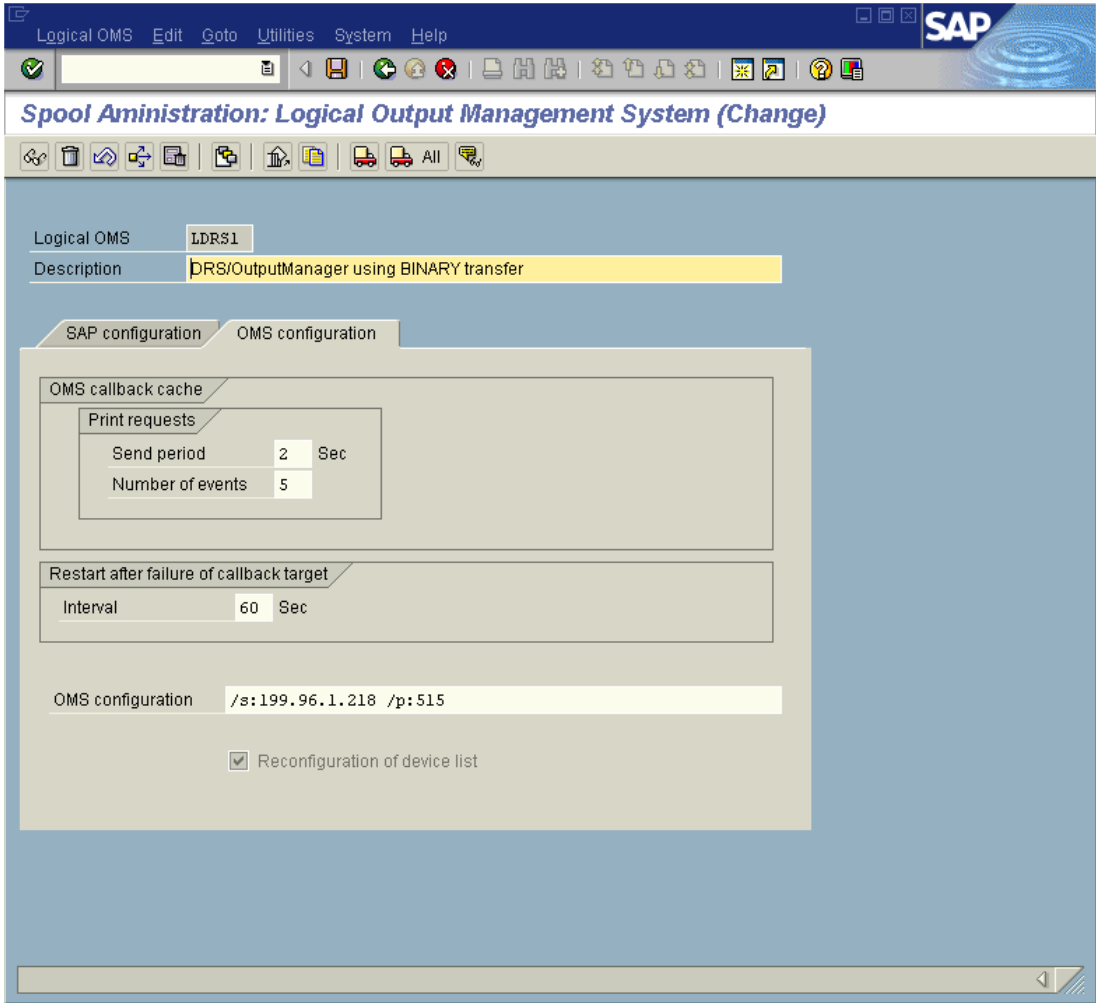
During the initial installation, the LDRS1 Logical OMS definition should be used as the basis for a starting configuration after reviewing the following configuration options:

- Tasking Target
- Target for Callback
- OMS Configuration string

| Field | Description |
|----------------------------|--|
| Real OMS | This field relates the Logical OMS definition to the associated Real OMS definition. |
| Tasking Target | <p>This field specifies the name of a SAP R/3 application server that will process the Query and Cancel commands issued by users. The Submit command will always be executed on the Spool server processing the print request.</p> <p>Note: The LRS/Queue client must be available on any server defined as a tasking target and all Spool servers using the DRS/OutputManager interface.</p> |
| Target for callback | <p>This field identifies a SAP R/3 server that should be used as the target for Output event callback notifications. This field does not need to specify the same host as the tasking target because callback events can be directed to any SAP R/3 application server within the same system. For recoverability it is a good idea to define two Logical OMS definitions that specify different callback targets. If one callback target is unavailable, DRS/OutputManager will attempt to route callback requests to another callback target for the same system.</p> <p>Note: The LRS/Queue client is not required on servers defined as callback targets unless they are also used as a spool server or tasking target for Query and Cancel requests.</p> |
| Command Group | This field is used to specify whether the command template definitions associated with this LOMS are specific to this host only (LOCAL). Normally SAP will select the command templates based on the execution platform (i.e AIX, HP-UX etc.) |
| Event Report Level | <p>This field specifies the level of detail that is required for output events for this Logical OMS. SAP R/3 supports 6 levels of events:</p> <p>Final Messages – This limits event notification to only completion events (i.e. printed, cancelled, etc.)</p> <p>Also Problems (Interaction Required) – Requests events defined above plus problems that require operator intervention.</p> <p>Also Warnings – Requests events defined above plus problems that don't require operator intervention.</p> <p>Also Status changes – Requests events defined above plus any event that changes the status of the output request.</p> <p>Also Information – Requests events defined above plus informational events.</p> <p>All Available Information – Requests all output events.</p> <p>Defining a lower report level will decrease the level of information available to SAP R/3 users but will reduce the number of callback transactions.</p> |

| Field | Description |
|----------------------------|--|
| Queue Query | Indicates whether the Queue Query option should be available for printers associated with this Logical OMS definition. The Queue Query enables users to query the external output queue for a specific printer and will display the status of all output requests (SAP and non-SAP) queued to this device. |
| Query | Indicates whether the output query option should be available for output requests associated with this Logical OMS. Normally, the output status displayed in the SAP R/3 spool will show the current status of all output requests. If a long callback delay has been specified, the status shown may be several seconds out of date. This option enables users to actively issue a query request to DRS/OutputManager to retrieve the current status. |
| Can be deleted | Indicates whether users can delete output requests associated with this Logical OMS after submission to DRS/OutputManager. |
| Status Dialog boxes | Indicates whether pop-up status messages should be issued to users for major output events (printed, cancelled, error, etc.). The status messages will appear in a pop-up window that is independent of the application the user is currently executing. |

The figure below shows the **Logical OMS Configuration** screen. **Note:** To display all configuration options shown, you may need to select the **Extended Config** icon or press **CTRL+F1**.

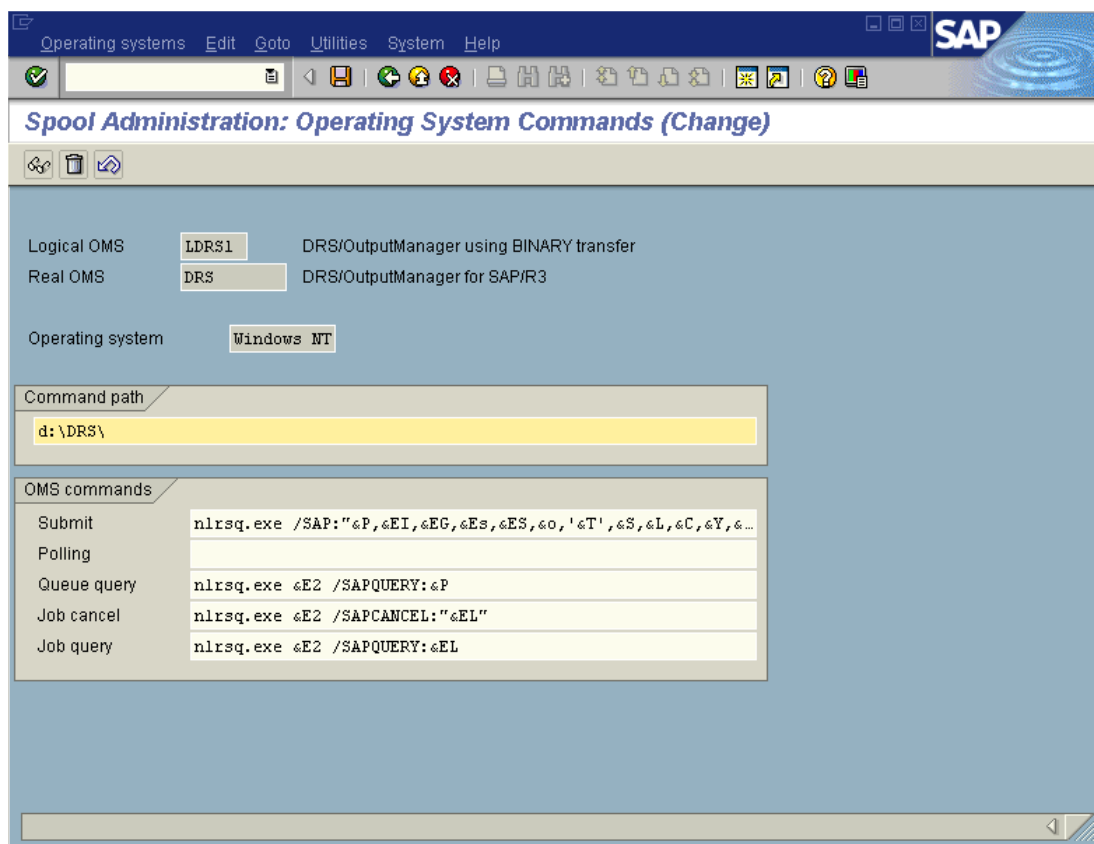


| Field | Description |
|--------------------------|---|
| Send Period | This field defines a delay period that should be applied to output event callback requests. When an output event occurs, DRS/OutputManager will delay the callback transaction by the delay specified in this field. Delaying the callback transaction enables DRS/OutputManager to accumulate additional event notifications and deliver these events with a single callback transaction, reducing the overhead on the callback server. A value must be chosen which balances the requirement for prompt event notification with the overhead of processing callback transactions. |
| Number of events | This field defines the maximum number of notification events that can accumulate before automatically triggering a callback transaction. The maximum queue depth will override the delay specified in the Send Period field and will trigger an immediate callback transaction. |
| Interval | This field defines the retry interval for failed callback servers. This configuration option is not used by DRS/OutputManager which will use the retry period specified via the SAPRETRY System Initialization keyword. |
| OMS Configuration | <p>This field specifies configuration keywords that are common to all DRS/OutputManager commands (Submit, Query, Cancel, etc.) This field is used to specify the DRS/OutputManager server IP address or host name and the TCP/IP port number used by DRS/OutputManager for connection requests (TCPPORT System Initialization parameter).</p> <p>Note: These keywords are substituted into the command templates using the &E2 variable</p> |

Logical OMS Command Templates

After reviewing the Logical OMS definitions, it is necessary to update the OMS command templates associated with this Logical OMS definition. The command templates define the DRS/OutputManager commands that are used to submit reports to DRS, query the output queue, cancel a previously submitted print, or query the status of a specific output request.

The command templates can be displayed by selecting the **Commands** icon in the logical OMS definition or by pressing **F6**. SAP R/3 will display a list of command definitions for each supported execution environment. You will need to review the command templates for all environments applicable to your installation. During the initial installation, the **Command Path** information should be the only configuration option that requires modification to specify the location of the LRS/Queue client executable.



Each command template consists of constant values and SAP R/3 system variables that are substituted when the command is issued to pass the required information to the command. All SAP R/3 system variables begin with a '&' character, and a complete list of available variables can be found in the following section.

| Field | Description |
|---------------------|---|
| Command Path | This field defines the fully qualified path to the directory that contains the LRS/Queue client executable. |
| Submit | This field defines the command template for the report submission command. This command accepts many keywords that enable you to control the host SYSOUT attributes assigned to output requests and also controls translation and formatting of the input file before submission to DRS/OutputManager. For a complete description of the keywords available, please refer to “Controlling SYSOUT Attributes” on page 34.25. |
| Polling | This command is not used by DRS/OutputManager which uses the callback interface for event notification. |
| Queue Query | This field defines the command template for the DRS/OutputManager Queue Query command. |
| Job Cancel | This field defines the command template for the DRS/OutputManager Cancel command. |
| Job Query | This field defines the command template for the DRS/OutputManager Job Query command. |

Define SAP R/3 Output Device

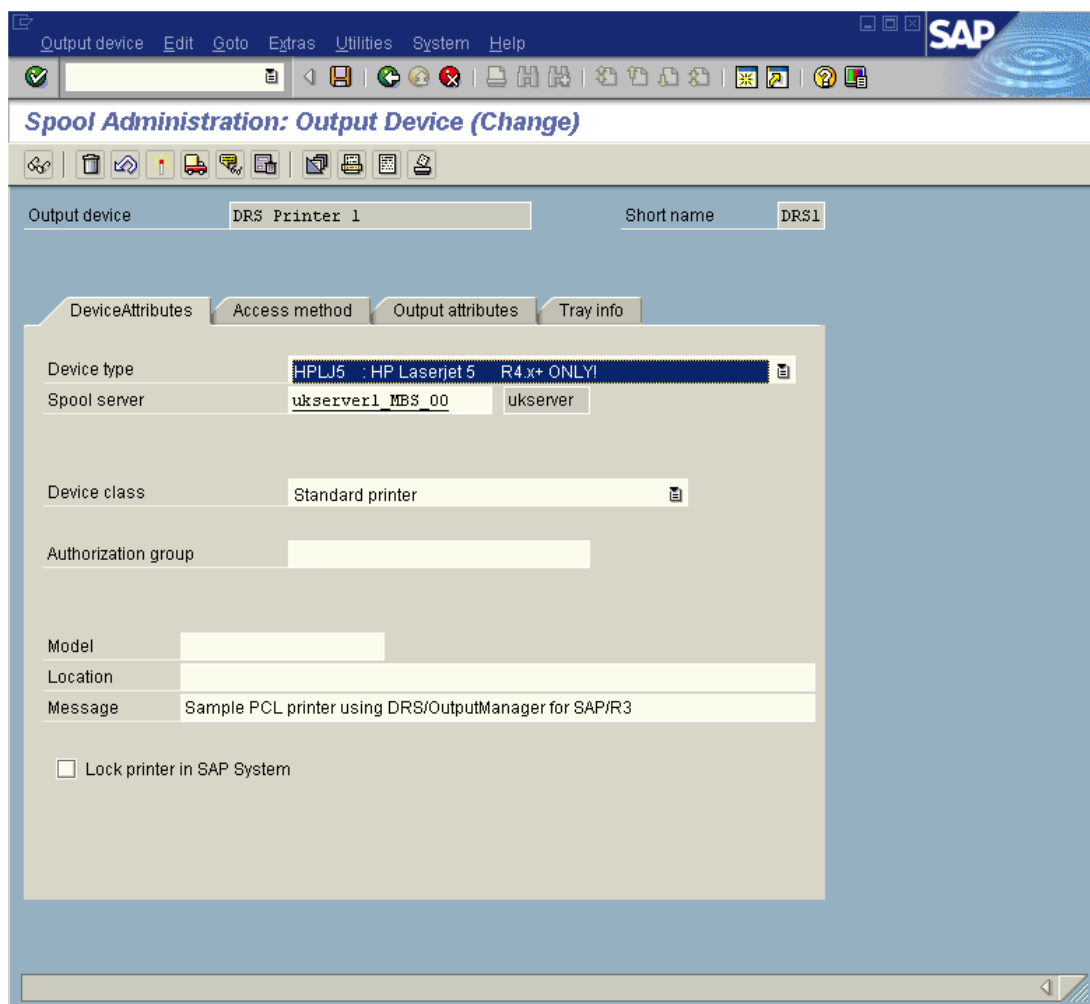
The final step in the installation of DRS/OutputManager is to define an Output device. To do this:

- Return to the **Spool Administration** initial screen.
- Select the **Devices/ Servers** tab.
- Select **Output Devices**.

This will display a list of currently defined output devices.

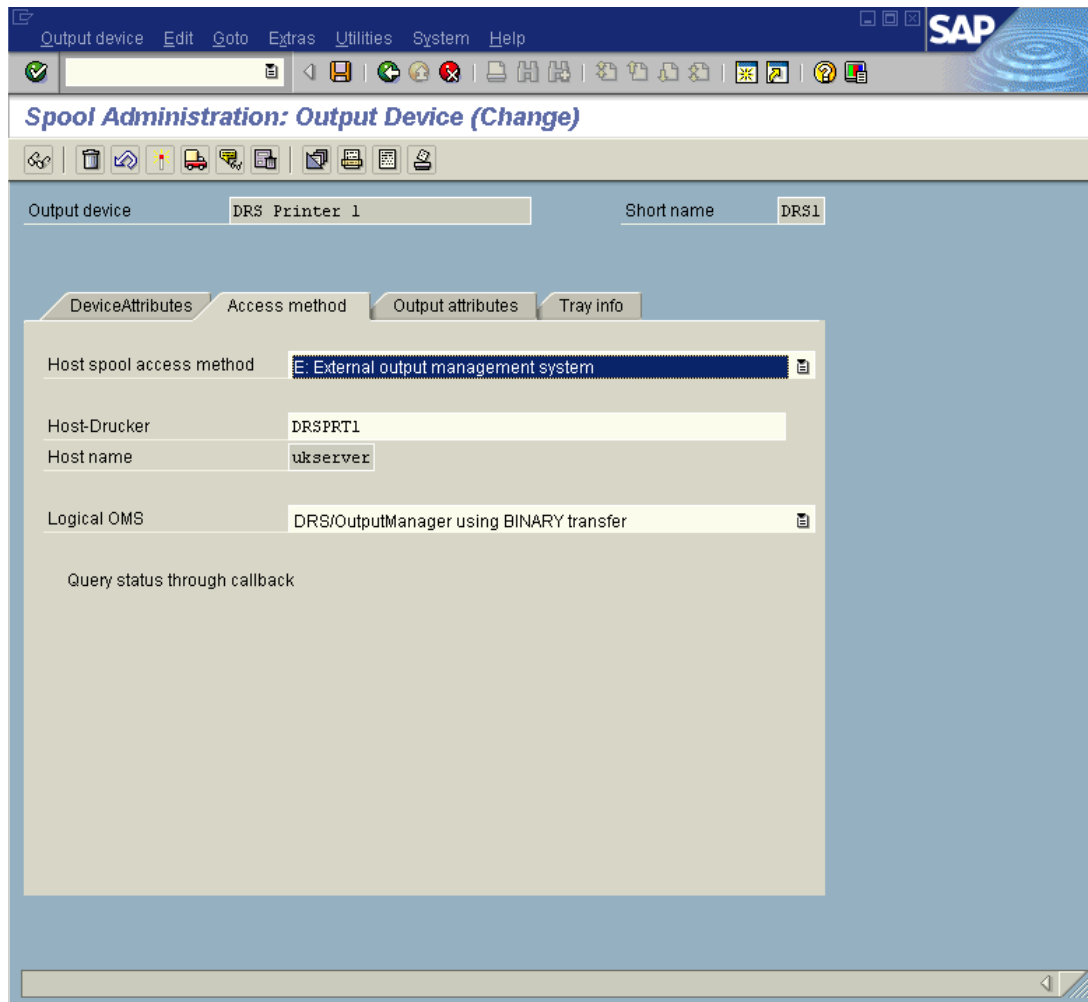
- Select the **Change** icon or press **F8** to enter update mode.
- Select the **Create** icon or press **Shift+F1** to create a new output device.

Below is an example output device definition which is suitable for HP PCL printer with printer name **DRS Printer 1**.



After specifying the printer name, select an appropriate **Device type** and specify the SAP R/3 spool server that should process print requests. Next select the **Access Method** tab.

The Output Device **Access Method** options define the connection between the SAP R/3 device and DRS/OutputManager. The **Host spool access method** field must specify **E:External output management system**. The Logical OMS field relates this device to the DRS/OutputManager Logical OMS definition that should be used for this device. Finally, the **Host-Drucker** field specifies the name of the DRS printer definition that should receive this output.



After completing the above definitions, it is now possible to print to this new output device, and the output will be routed to the specified DRS printer queue.

Upload National Language Message Templates

DRS/OutputManager for SAP R/3 supports the National Language feature of the BC-XOM standard. This feature enables the SAP R/3 GUI interface to display all DRS/OutputManager messages in the language selected by the user during logon.

All messages issued by DRS/OutputManager have a unique message ID as well as the default message text in English. When SAP displays these messages, it will first check the SAP R/3 database to see if a language specific version of the message text is available. If a message template is found that matches the user's logon language, then the appropriate message template will be substituted in place of the default English text.

To enable this feature, it is necessary to upload the DRS/OutputManager multi-lingual message templates into the SAP R/3 database. A sample job is provided in member MSGLOAD of the LRS.DRS.V1R34.CNTL dataset. This JCL will execute the message upload program that will remotely connect to a SAP R/3 server and upload the message templates into the SAP R/3 database.

Note: It is not necessary to execute this routine against all SAP R/3 servers that will be using the DRS/OutputManager interface. The message templates are held in the SAP R/3 database and are available to all SAP R/3 servers connected to this database.

The National Language message templates are supplied in member **SAPMSG**S of dataset LRS.DRS.V1R34.CNTL. The supplied member contains message templates for German and Spanish, although additional templates can be created for any supported language and uploaded using the message upload routine. (The default English message text can be found in member **SAPMDEF**.)

```

/*****/
/**
/** DV34MSGL - SAP R/3 Message Template upload routine
/**
/** Sample JCL to execute the SAP R/3 Message Upload routine.
/** This routine will upload National Language Message templates
/** into the SAP R/3 database.
/**
/** Parameters:
/**
/** -h hostname Specifies the host name or IP-Address of a
/** SAP R/3 application server.
/**
/** -f filename Specifies the name of the MVS dataset which
/** contains the message templates.
/**
/** -u userid SAP R/3 userid.
/**
/** -p password SAP R/3 password.
/**
/** -c client Client number (Default 000).
/**
/** -s sysnr SAP R/3 System number (Default 00).
/**
/** -t trace Tracing options (1 = Enabled).
/**
/** -d tracedir Trace Output directory (1 = Enabled).
/**
/** -k codepage SAP R/3 Host codepage (Default 0120).
/**
/** 0120 = EBCDIC 500 (Multilingual)
/** 0100 = EBCDIC 273 (German)
/** 0123 = EBCDIC 037 (USA)
/**
/*****/
//UPLOAD EXEC PGM=DV34MSGL,
// PARM='-h sapservers -f LRS.DRS.V1R34.CNTL(SAPMSG)
// -u userid -p password'
//STEPLIB DD DISP=SHR,DSN=LRS.DRS.V1R34.LOAD
//SYSPRINT DD SYSOUT=*
//SYSIN DD DUMMY

```

Controlling SYSOUT Attributes

The DRS/OutputManager interface has been design to provide a great deal of flexibility in assigning output attributes to reports submitted from the SAP R/3 environment. Reports are submitted from the SAP R/3 environment using the LRS/Queue client that supports an extensive number of keywords. These provide complete control of the JES SYSOUT attributes assigned to reports and the translation and formatting options. (For a complete list of keywords, see [“LRSQ Keywords” on page 13.20.](#))

The report submission options are defined in the SAP R/3 command templates that are associated with the Logical OMS definitions. These command templates specify the external commands which are used for report submission, Queue Query, Job Cancel and Job Query. Each command template consists of constant values and SAP R/3 system variables that are resolved when the command is issued to supply the required information to the command. The report submission command template can be customized to meet the installation requirements, and additional Logical OMS definitions can be created to specify different processing options for different groups of printers.

The DRS/OutputManager submission command has some required keywords that must always be specified and should not be changed. Additional processing options can be appended to the end of the command string. Below is an example of the standard submission command template:

```
nlrsp /SAP:"....." &E2 /file:&F /Queue:&P {installation specific options}
```

Where:

| | |
|----------------|--|
| /SAP | Specifies request specific information that is required by DRS/OutputManager. |
| &E2 | Includes the keywords specified in the LOMS configuration string. |
| /File | Specifies the name of the file that contains the SAP R/3 print data. |
| /Queue | Specifies the name of the DRS printer definition. The &P variable is taken from the SAP R/3 output device definition (Access method tab). |

Any number of keywords can be appended to the end of the fixed command template to specify additional processing options. Each keyword can specify a fixed value or can use one of the SAP R/3 system variables to dynamically insert request specific information. If a system variable contains embedded spaces, then the variable must be enclosed in double quotes.

A complete list of SAP R/3 system variables can be found on the following page. For details of the LRSQ keywords, see [“LRSQ Keywords” on page 13.20.](#)

SAP R/3 Command Variables

The following table contains a list of all available SAP R/3 command variables that can be used in the Logical OMS command templates.

| Attribute | Variable | Description |
|----------------------------|----------|---|
| SAP Spool id | &EI | Internal SAP R/3 spool identifier. |
| Reply Message Group | &EG | The reply message group relates directly to the originating Logical OMS definition and is used to group callback events with specific configuration values ready for delivery via a callback transaction. |
| Destination | &P | This value specifies the printer member name defined in DRS that should receive this output. This value is taken from the SAP R/3 Output device definition (Host-Drucker field). |
| Document | &F | This value specifies the name of the file that contains the print data. |
| System ID | &Es | System identification of the submitting SAP R/3 system. |
| SAP callback server | &ES | Specifies the name of the SAP R/3 callback server that will receive event notifications for this output request. |
| Interval | &ET | Specifies the callback delay interval that will be applied to events for this output request. |
| Amount | &EA | Specifies the maximum number of notification events that can accumulate before triggering a callback transaction. |
| SAP Client | &M | Client number of user who owns the job. |
| SAP Client | &m | Client number of user who is printing. |
| SAP User | &O | SAP R/3 user who owns the output request. |
| SAP User | &o | SAP R/3 user who created the output request. |
| SAP User | &R | SAP R/3 user defined as recipient of the output request. |
| Department | &D | Department of user defined as recipient for the output request. |
| Job Name | &I | Job name (SAP Internal) without Database ID. |
| Job Name | &J | Job name (SAP Internal) including Database ID. |
| Title | &T | Report title. |
| SAP Printer | &S | SAP internal name for the printer. |
| Format | &L | SAP format name associated with the output request. |
| Copy count | &C | Number of copies. |

| Attribute | Variable | Description |
|----------------------------|-----------------|---|
| Priority | &Y | SAP priority (1-99) (1 meaning high). |
| Title page | &U | Title page (X=Yes, N=No). |
| Fax number | &t | Valid telephone number for LOMS. |
| Fax Person | &EP | Name of fax recipient (future enhancement). |
| R3LOMS Flags | &E1 | R/3 flags of LOMS. |
| LOMS config options | &E2 | Logical OMS configuration options. |
| R3ROMS Flags | &E3 | R/3 flags for ROMS. |
| ROMS config options | &E4 | Real OMS configuration options. |

Sample Logical OMS Definitions

The sample Logical OMS definitions supplied by LRS demonstrate how the submission command template can be altered to specify different processing options. LRS provides the following four Logical OMS definitions:

| |
|--|
| LDRS1 – DRS/OutputManager using Binary transfer |
| <p>This logical OMS definition is suitable for output devices that will generate printer formatted or Binary data (PCL, Postscript, etc.).</p> <p>Additional Keywords:</p> <p>/BINARY=Y This indicates that the print data should be transferred to DRS without translation.</p> <p>/CC=N Specifies that the output SYSOUT dataset has no carriage control characters.</p> <p>/DRSMERGE=Y Indicates that the SYSOUT attributes should be taken from the DRS printer definition.</p> |
| LDRS2 – DRS/OutputManager using Text transfer & Smart Tag |
| <p>This logical OMS definition is suitable for output devices that will generate ASCII text output. In this example, the SAP R/3 FORMAT name is used to specify the Smart Tag output options that should be associated with this report. This could select an AFP PAGEDEF/FORMDEF combination to control the presentation of the output.</p> <p>Additional Keywords:</p> <p>/STOutref=&L Specifies that the SAP R/3 format name should be used as the Smart Tag output reference.</p> |
| LDRS3 – DRS/OutputManager using Binary transfer & Smart Tag |
| <p>This logical OMS definition is suitable for output devices that will generate binary output. In this example, the SAP R/3 RECIPIENT name is used to specify the Smart Tag output options that should be associated with this report. This definition can be used with an output device generating PDF data (R4.6D+ only), and the Recipient name (specified on the print dialogue) can be used to set the e-mail attributes to route the PDF file to an e-mail recipient via VPS/Email.</p> <p>Additional Keywords:</p> <p>/STOutref=&R Specifies that the SAP R/3 recipient name should be used to select the SYSOUT attributes.</p> <p>/BINARY=Y Indicates that the data should not be translated.</p> |
| LDRS4 – DRS/OutputManager using Text Transfer |
| <p>This logical OMS definition is suitable for output devices that will generate ASCII text data.</p> <p>Additional Keywords:</p> <p>/CC=C Specifies that LRS/Queue should translate the data to standard line mode output with ASA carriage control.</p> <p>/DRSMERGE=Y Indicates that the SYSOUT attributes should be taken from the DRS printer definition.</p> |

For advice on controlling output attributes from SAP R/3, contact LRS technical support.

Section 35

DRS/Secure

Overview

DRS/Secure allows users to receive output over TCP/IP networks, including the Internet, while maintaining confidentiality and integrity of sensitive data.

Encrypted output can be received from AnyQueue, DRS/OutputManager, LRS/Queue, or VPS.

Installation

The steps required to install DRS/Secure are:

1. Install DRS. (See [“DRS/VPI Installation” on page 3.1.](#))
2. Add the KEYDSECR keyword to the DRS Start Member. (See [“Adding System Keywords for DRS/Secure” on page 35.4.](#))
3. Build the DRS printer definition members for the DRS/Secure printers. (See [“Building DRS/Secure Printer Definitions” on page 35.5.](#))
4. Add the DKEY and DECRYPT keywords to the printer definition member. (See [“Building the Printer Definition Members” on page 3.63.](#))
5. Add the DRS/Secure printer to the Printer Activation Inclusion List (optional). (See [“Adding DRS/Secure Printers to the Printer Activation Inclusion List” on page 35.6.](#))

DRS/Secure System Requirements

- DRS V1 R3.4 or higher

Adding System Keywords for DRS/Secure

The KEYDSECR system keyword specifies the trial/license code for the DRS/Secure product. This keyword **MUST** be added to the DRS Start Member in order to use the DRS/Secure product. This key is generated by LRS and is supplied in file 28 of the DRS distribution cartridge (LRS.DRS.V1R34.CNTL).

Building DRS/Secure Printer Definitions

The following keywords are used when defining DRS/Secure printers:

- DECRYPT=** Specifies whether decrypting should be performed for this printer, the type of decrypting, and the type of device that will do the encrypting.
- DKEY=** Specifies the decrypting key to be used if DECRYPT=Y is specified for this printer. This key must match the encrypting key used for the sending device.

Adding DRS/Secure Printers to the Printer Activation Inclusion List

If you are using the Printer Activation Inclusion list (MLISTMEM) to automatically activate DRS printers at system initialization, you should add the member name of the DRS/Secure printers to that list. For more information, see [“Building the Printer Activation Inclusion List” on page 3.60](#).

If you are simply adding the DRS/Secure keywords to an existing DRS printer definition, this step is not needed.

Operation

DRS/Secure executes as an extension of the base DRS product. DRS/Secure uses standard DRS facilities to route reports from local area networks and remote TCP/IP hosts to the JES spool, or to a DASD file, or HFS file on the MVS host system. As the SYSOUT is received, it is decrypted using the Rijndael decrypting algorithm and the decrypting key provided. Note that the key used for encryption **MUST** match the DKEY= value in the DRS/Secure printer definition.



Section 36

Messages and Codes

DRS/API Messages

Each of the DRS/API messages is listed below, with a brief explanation of its meaning and the action that DRS will take or that the user should take. The “Yes” or “No” after “WTO:” indicates if this message will be issued as a WTO, in addition to appearing in the DRS log dataset.

| | |
|---------------|---|
| DRS000 | stcname DRS INITIALIZATION SUCCESSFUL VERSION=V1R3.4.fff CUSTID=custid fff: DRS distribution fix level. custid: Six character customer ID. Message Meaning: DRS has been successfully initialized. System Action: DRS is ready to accept additional calls. Required Action: None. WTO: No. |
| DRS001 | stcname GETMAIN FAILURE (IWA) Message Meaning: DRS is unable to acquire storage for the interface work area. System Action: DRS returns to the caller with RC=12. Required Action: Retry the request. If the request fails consistently, contact DRS technical support. WTO: Yes. |
| DRS002 | stcname GETMAIN FAILURE (RIB) Message Meaning: DRS is unable to acquire storage in order to locate the main DRS system control block. System Action: DRS returns to the caller with RC=1 2. Required Action: Retry the request. If the request fails consistently, contact DRS technical support. WTO: Yes. |
| DRS003 | stcname GETMAIN FAILURE (SYS) Message Meaning: DRS is unable to acquire storage for the main DRS system control block. System Action: DRS initialization is terminated. If DRS is executing under CICS, DRS abends with code DR05. Otherwise, DRS returns to the caller with RC=12. Required Action: Retry the request. If the request fails consistently, contact DRS technical support. WTO: Yes. |

| | |
|---------------|---|
| DRS004 | <p>stcname ERROR READING DRS SYSTEM RECORD - RC=nn</p> <p>nn: The return code from the read.</p> <p>Message Meaning: DRS has encountered an error attempting to read the main DRS system control block.</p> <p>System Action: If DRS is executing under CICS, DRS abends with code DR01. Otherwise, DRS returns to the caller with RC=12.</p> <p>Required Action: Contact DRS technical support.</p> <p>WTO: Yes.</p> |
| DRS005 | <p>stcname ERROR WRITING DRS SYSTEM RECORD - RC=nn</p> <p>nn: The return code from the write.</p> <p>Message Meaning: DRS has encountered an error attempting to write the main DRS system control block.</p> <p>System Action: If DRS is executing under CICS, DRS abends with code DR02. Otherwise, DRS returns to the caller with RC=12.</p> <p>Required Action: Contact DRS technical support.</p> <p>WTO: Yes.</p> |
| DRS006 | <p>stcname ERROR ACQUIRING CONTROL OF DRS SYSTEM RECORD - RC=nn</p> <p>nn: The return code from ENQ macro.</p> <p>Message Meaning: DRS could not obtain control of the system record.</p> <p>System Action: DRS returns to caller with RC=12.</p> <p>Required Action: Contact DRS technical support.</p> <p>WTO: Yes.</p> |
| DRS007 | <p>stcname INVALID DRS SYSTEM RECORD</p> <p>Message Meaning: DRS has encountered invalid data in the main DRS system control block.</p> <p>System Action: If DRS is executing under CICS, DRS abends with code DR03. Otherwise, DRS returns to the caller with RC=12.</p> <p>Required Action: Contact DRS technical support.</p> <p>WTO: Yes.</p> |

| | | |
|---------------|---|--|
| DRS008 | <p>stcname ERROR LOADING DRS SUPPORT MODULE xxxxxxxx xxxxxxx:</p> <p>Message Meaning:</p> <p>System Action:</p> <p>Required Action:</p> <p>WTO:</p> | <p>The name of DRS support module.</p> <p>At the time of the first call to DRS, DRS is unable to load the DRS support module.</p> <p>If DRS is executing under CICS, DRS abends with code DR07. Otherwise, DRS returns to the caller with RC=12.</p> <p>Make the DRS support module available for an OS LOAD in the steplib or linklist library.</p> <p>Yes.</p> |
| DRS009 | <p>stcname ERROR LOADING DRSSOPTS MODULE - RC=nn nn:</p> <p>Message Meaning:</p> <p>System Action:</p> <p>Required Action:</p> <p>WTO:</p> | <p>The return code from the load.</p> <p>DRS is unable to load the DRS options module.</p> <p>The default DRS system option values are used.</p> <p>Ignore the message or assemble and linkedit the DRS system options module.</p> <p>Yes.</p> |
| DRS010 | <p>stcname INVALID DRSSOPTS MODULE DETECTED</p> <p>Message Meaning:</p> <p>System Action:</p> <p>Required Action:</p> <p>WTO:</p> | <p>The DRS options module is invalid.</p> <p>The default DRS system option values are used.</p> <p>Ensure that the DRSSOPTS module is valid and retry the request.</p> <p>Yes.</p> |
| DRS011 | <p>stcname DRSSOPTS MODULE SUCCESSFULLY LOADED - VERSION= (ddddddd,tttttt)</p> <p>ddddddd:</p> <p>tttttt:</p> <p>Message Meaning:</p> <p>System Action:</p> <p>Required Action:</p> <p>WTO:</p> | <p>The date that the options module was assembled.</p> <p>The time that the options module was assembled.</p> <p>DRS has successfully loaded the DRS options module.</p> <p>None.</p> <p>None.</p> <p>No.</p> |
| DRS012 | <p>stcname DRS OPTIONS - LOG=(ENABLED DISABLED,HOLD NOHOLD, class,dest,form,writer,fc,ucs)</p> <p>Message Meaning:</p> <p>System Action:</p> <p>Required Action:</p> <p>WTO:</p> | <p>DRS has successfully loaded the DRS options module, and is displaying the logging options specified in that module.</p> <p>None.</p> <p>None.</p> <p>No.</p> |

| | |
|---------------|---|
| DRS013 | <p>stcname DRS OPTIONS - SNAP=(HOLD NOHOLD,class,dest,form,writer, fcb,ucs) SYSLOG=YES/NO TCB=aaa TRACE=(X'bb',cccK,dd)</p> <p>aaa: The number of TCBs to be used to process DRS calls.</p> <p>bb: The trace options.</p> <p>ccc: The size of the trace table.</p> <p>dd: The GTF format appendage id to be used for trace entries recorded in the system trace file.</p> <p>Message Meaning: DRS has successfully loaded the DRS options module, and is displaying the SNAP, TCB, and trace options specified in that module.</p> <p>System Action: None.</p> <p>Required Action: None.</p> <p>WTO: No.</p> |
| DRS014 | <p>stcname ERROR ALLOCATING DRS TRACE TABLE</p> <p>Message Meaning: DRS is unable to allocate the storage for the DRS trace table.</p> <p>System Action: The DRS tracing facility is disabled.</p> <p>Required Action: None.</p> <p>WTO: Yes.</p> |
| DRS015 | <p>stcname ERROR ALLOCATING DRS SUBTASK CONTROL AREA TABLE</p> <p>Message Meaning: DRS is unable to allocate the subtask control area table.</p> <p>System Action: If DRS is executing under CICS, DRS abends with code DR06. Otherwise, DRS returns to the caller with RC=12.</p> <p>Required Action: Increase the region size and retry the request.</p> <p>WTO: Yes.</p> |
| DRS016 | <p>stcname xxxxxxxx ATTACHED - TCB=yyyyyyyyy</p> <p>xxxxxxx: The DRS module name (DRSSMAIN or DRSSLOG).</p> <p>yyyyyyyyy: The TCB address.</p> <p>Message Meaning: DRS has attached a support subtask.</p> <p>System Action: None.</p> <p>Required Action: None.</p> <p>WTO: No.</p> |

| | |
|---------------|---|
| DRS017 | <p>stcname xxxxxxxx ATTACH FAILURE - R15=nn xxxxxxx: The DRS module name (DRSSMAIN or DRSSLOG). nn: The return code from the ATTACH. Message Meaning: DRS' attempt to attach a subtask has failed. System Action: If DRS is executing under CICS, DRS abends with code DR08. Otherwise, DRS returns to the caller with RC=12. Required Action: Contact DRS technical support. WTO: Yes.</p> |
| DRS018 | <p>stcname SUCCESSFULLY ATTACHED nnn SUPPORT SUBTASK(S) nnn: The number of subtasks attached. Message Meaning: DRS has completed attaching the requested number of subtasks. System Action: None. Required Action: None. WTO: No.</p> |
| DRS019 | <p>stcname xxxxxxxx DETACHED - TCB=yyyyyyyyy xxxxxxx: The DRS module name (DRSSMAIN or DRSSLOG). yyyyyyyyy: The TCB address. Message Meaning: DRS has detached a subtask. System Action: None. Required Action: None. WTO: No.</p> |
| DRS020 | <p>stcname xxxxxxxx DETACH FAILURE - R15=nn xxxxxxx: The DRS module name (DRSSMAIN or DRSSLOG). nn: The return code from DETACH. Message Meaning: DRS' attempt to detach a subtask has failed. System Action: None. Required Action: Contact DRS technical support. WTO: Yes.</p> |
| DRS021 | <p>stcname DRS INITIALIZATION FAILURE Message Meaning: Due to one or more errors, DRS initialization has failed. System Action: If DRS is executing under CICS, DRS abends with a code indicating the cause of the failure. Otherwise, DRS returns to the caller with RC=12. Required Action: Refer to messages in the DRS log to determine the cause of the failure. WTO: Yes.</p> |

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- DRS022** stcname DRS PRODUCT WILL EXPIRE IN nn DAYS
Message Meaning: The trial copy of DRS that is being executed is due to expire in nn days.
System Action: None.
Required Action: If you have received a non-trial key for DRS, change the DRSSKEY module to use that key value, as explained in [“Installing the DRSSKEY Module” on page 20.13](#). If you will not be done with your trial version of DRS in the amount of time remaining, contact your marketing representative at LRS.
WTO: Yes.
- DRS023** stcname DRS PRODUCT HAS EXPIRED
Message Meaning: The trial copy of DRS that is being executed has reached or passed its expiration.
System Action: DRS initialization will fail.
Required Action: If you have received a non-trial key for DRS, change the DRSSKEY module to use that key value, as explained in [“Installing the DRSSKEY Module” on page 20.13](#).
WTO: Yes.
- DRS025** stcname DRS PRODUCT KEY IS INVALID
Message Meaning: The DRS Product Key (KEYDRS=) was either not specified in the DRSSKEY module or was specified incorrectly.
System Action: DRS will reject all attempts to initialize new reports with error code 998.
Required Action: Ensure that the product key has been entered correctly in the DRSSKEY module. If you are unable to locate the product key, contact your marketing representative at LRS.
WTO: Yes.
- DRS026** stcname DRSSKEY MODULE VERSION=nn ASSEMBLED ON MM/DD/YY AT HH:MM
nn: DRSSKEY version.
Message Meaning: DRS has successfully loaded the DRSSKEY module.
System Action: None.
Required Action: None.
WTO: Yes.

DRS027 stcname aaaaaaaaaaaaaaaaa KEY - CUSTID(bbbbb,ccccc) COPY(d)
CPUCHK(DISABLED|ENABLED)
aaaaaaaaaaaaaaaa KEY - CUID(eeee) STATUS(ffffff) ggg...ggg
aaa...aaa: Name of product represented by key.
bbbbbb: Customer ID from the product.
ccccc: Customer ID from the key.
d: Number of copies from the key (if any).
eeee: CPU serial number from the key or "ANY" if
CPU checking is disabled in the key.
ffffff: Status of the key (TRAP, LICENSE, INVALID).
ggg...ggg: Any error or warning message pertaining to the
key.
Message Meaning: A product key was processed by DRS at DRS
initialization.
System Action: None.
Required Action: None.
WTO: Yes.

DRS028 stcname aaaaaaaaaaaaaaaaa KEY WAS SELECTED FROM DRSSKEY
KEYWORD bbbbbbb
aaa...aaa: Name of product represented by key.
bbbbbbb: Keyword from the DRSSKEY module.
Message Meaning: Identifies the product key that was selected from
the DRSSKEY module.
System Action: None.
Required Action: None.
WTO: Yes.

DRS030 stcname UNIX SYSTEM SERVICES MODULES SUCCESSFULLY
LOADED
Message Meaning: DRS has successfully loaded the modules
necessary to perform Unix System Services
requests.
System Action: None.
Required Action: None.
WTO: No.

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| DRS031 | <p>stcname UNABLE TO LOAD UNIX SYSTEM SERVICES MODULE XXXXXXXX - HFS SUPPORT DISABLED XXXXXXXX: Name of module that could not be loaded.</p> <p>Message Meaning: DRS was not able to load the named module. DRS will disable requests that require Unix System Services requests, including HFS file allocation.</p> <p>System Action: None.</p> <p>Required Action: None.</p> <p>WTO: No.</p> |
| DRS050 | <p>stcname CPUID(cpuid) cpuid: CPU ID where DRS is executing.</p> <p>Message Meaning: DRS displays the CPU ID.</p> <p>System Action: None.</p> <p>Required Action: None.</p> <p>WTO: No.</p> |
| DRS051 | <p>stcname PRODUCT IS EXECUTING ON UNAUTHORIZED CPU</p> <p>Message Meaning: The product key is not correct for the current CPU.</p> <p>System Action: DRS will issue warning messages.</p> <p>Required Action: Obtain a proper key from LRS.</p> <p>WTO: Yes.</p> |
| DRS099 | <p>stcname DRS TERMINATION COMPLETE</p> <p>Message Meaning: DRS has terminated.</p> <p>System Action: None.</p> <p>Required Action: None.</p> <p>WTO: No.</p> |
| DRS100 | <p>stcname report-id ALLOCATION SUCCESSFUL - I=nnnn JOBNAME=jobname DD=ddname SYSOUT=(class,dest,form,writer)</p> <p>nnnn: The attribute group number assigned to this dataset.</p> <p>jobname: Name of job as specified using DRIB jobname field.</p> <p>Message Meaning: DRS has allocated a SYSOUT dataset, due to an INIT call.</p> <p>System Action: None.</p> <p>Required Action: None.</p> <p>WTO: No.</p> <p>Note: JOBNAME=jobname will only be present if the DRIB jobname field was used to change the job name associated with the SYSOUT dataset.</p> |

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| DRS101 | <p>stcname report-id UNALLOCATION SUCCESSFUL - I=nnnn DD=ddname SYSOUT=(class,dest,HOLD NOHOLD) DISP=KEEP DELETE</p> <p>nnnn: The attribute group number assigned to this dataset.</p> <p>Message Meaning: DRS has unallocated a SYSOUT dataset, due to a TERM call.</p> <p>System Action: None.</p> <p>Required Action: None.</p> <p>WTO: No.</p> |
| DRS102 | <p>stcname OUTADD SUCCESSFUL - NAME=xxxxxxx SYSOUT=(class,dest,form,writer,pagedef,formdef)</p> <p>Message Meaning: DRS has added an OUTPUT JCL statement, due to an "OUTP ADD" call.</p> <p>System Action: None.</p> <p>Required Action: None.</p> <p>WTO: No.</p> |
| DRS103 | <p>stcname OUTDEL SUCCESSFUL - NAME=xxxxxxx SYSOUT=(class,dest,form,writer,pagedef,formdef)</p> <p>Message Meaning: DRS has deleted an OUTPUT JCL statement, due to an "OUTP DEL" call.</p> <p>System Action: None.</p> <p>Required Action: None.</p> <p>WTO: No.</p> |
| DRS104 | <p>stcname report-id ALLOC SUCCESSFUL - I=nnnn DD=ddname DS=dsname</p> <p>nnnn: The attribute group number assigned to this dataset.</p> <p>ddname: The ddname assigned to this dataset.</p> <p>dsname: The dataset name assigned to this dataset.</p> <p>Message Meaning: DRS has allocated a DASD dataset, due to an INIT call.</p> <p>System Action: None.</p> <p>Required Action: None.</p> <p>WTO: No.</p> |

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| DRS105 | <p>stcname report-id UNALLOC SUCCESSFUL - I=nnnn DD=ddname DS=dsname DISP=disp</p> <p>nnnn: The attribute group number assigned to this dataset.</p> <p>ddname: The ddname assigned to this dataset.</p> <p>dsname: The dataset name assigned to this dataset.</p> <p>disp: The dataset disposition.</p> <p>Message Meaning: DRS has unallocated a DASD dataset, due to a TERM call.</p> <p>System Action: None.</p> <p>Required Action: None.</p> <p>WTO: No.</p> |
| DRS106 | <p>stcname report-id NON-TERMINATING DYNAMIC ALLOCATION ERROR ENCOUNTERED, I=nnnn EC=eeee IC=iiii</p> <p>nnnn: The attribute group number assigned to this dataset.</p> <p>eeee: The error code from dynamic allocation.</p> <p>iiii: The info code form dynamic allocation.</p> <p>Message Meaning: DRS encountered a non-terminating error while allocating or unallocating a DASD dataset.</p> <p>System Action: None.</p> <p>Required Action: None.</p> <p>WTO: No.</p> |
| DRS110 | <p>stcname xxxxxxxx xxxxxxxxxxxxxx ERROR - I=nnnn R15=nn EC=eeee IC=iiii text</p> <p>nnnn: The attribute group number assigned to this dataset.</p> <p>nn, eeee, iiii: Return code and error codes from dynamic allocation.</p> <p>text: Description of error, if available.</p> <p>Message Meaning: An error occurred while attempting to allocate or unallocate a SYSOUT dataset.</p> <p>System Action: If the error occurred during allocation, DRS deletes all the datasets associated with the report id and returns an error code to the caller. If the error occurred during unallocation, DRS returns an error code to the caller and suspends further activity on all datasets associated with the report id.</p> <p>Required Action: Contact DRS technical support.</p> <p>WTO: Yes.</p> |

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| DRS111 | <p>stcname xxxxxxxx K=#### N=#### xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</p> <p>Message Meaning: Identifies the SVC99 text unit that caused the allocation/unallocation request to fail.</p> <p>System Action: Same as message DRS110.</p> <p>Required Action: Contact DRS technical support.</p> <p>WTO: Yes.</p> |
| DRS112 | <p>stcname OUTADD ERROR - R15=aa R0=bbbbbbb R1=ccccccc</p> <p>aa: OUTADD return code.</p> <p>bbbbbbb: OUTADD reason code.</p> <p>ccccccc: Text unit key causing the failure (or zero, if no text unit involved).</p> <p>Message Meaning: An error occurred while attempting to create an OUTPUT JCL statement.</p> <p>System Action: None.</p> <p>Required Action: Contact DRS technical support.</p> <p>WTO: Yes.</p> |
| DRS113 | <p>stcname xxxxxxxx K=#### N=#### xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</p> <p>Message Meaning: Identifies the OUTPUT JCL text unit that caused the OUTADD request to fail.</p> <p>System Action: None.</p> <p>Required Action: Contact DRS technical support.</p> <p>WTO: Yes.</p> |
| DRS114 | <p>stcname xxxxxxxx OUTDEL ERROR - R15=aa R0=bbbbbbb</p> <p>aa: OUTDEL return code.</p> <p>bbbbbbb: OUTDEL reason code.</p> <p>Message Meaning: An error occurred while attempting to delete an OUTPUT JCL statement.</p> <p>System Action: None.</p> <p>Required Action: Contact DRS technical support.</p> <p>WTO: Yes.</p> |

DRS115 stcname report-id OBTAIN ERROR - I=nnnn R15=nn DSNAME=dsname
VOLSER=volser

nnnn: The attribute group number assigned to the dataset.

nn: The CAMLST OBTAIN return code.

dsname: The dataset name assigned to the dataset.

volser: The primary volume serial number assigned to the dataset.

Message Meaning: DRS has allocated a DASD dataset and attempted to obtain the format-1 DSCB for the dataset in order to determine the dataset attributes. However, the attempt to obtain the format-1 DSCB failed.

System Action: DRS unallocates all the datasets associated with the report ID and returns an error code to the caller. Any datasets associated with the report ID that were created by DRS are deleted.

Required Action: Ensure that the volume assigned to the dataset is a valid DASD volume and is mounted. If unable to resolve the problem, contact DRS Technical Support.

WTO: Yes.

DRS116 stcname report-id DUPLICATE DS EXISTS - I=nnnn DSNAME=dsname
VOLSER=volser

nnnn: The attribute group number assigned to the dataset.

dsname: The dataset name assigned to the dataset.

volser: The primary volume serial number assigned to the dataset.

Message Meaning: DRS was invoked to allocate a DASD dataset. The attribute group for the dataset specified an initial disposition of either NEW or MOD and a normal disposition of CATLG. However, an existing dataset with the same name is already cataloged.

System Action: DRS unallocates all the datasets associated with the report ID and returns an error code to the caller. Any datasets associated with the report ID that were created by DRS are deleted.

Required Action: Specify a dataset name for a dataset that does not exist or change the disposition to overwrite or extend the existing dataset.

WTO: Yes.

DRS117 stcname report-id INCOMPAT DS ATTRS - I=nnnn DSNAME=dsname
VOLSER=volser

nnnn: The attribute group number assigned to the dataset.

dsname: The dataset name assigned to the dataset.

volser: The primary volume serial number assigned to the dataset.

Message Meaning: DRS has allocated a DASD dataset and determined that the attributes of the dataset are incompatible with the report attributes. This can be caused by any of the following situations:

- Specifying a partitioned dataset without providing a member name.
- Specifying a sequential dataset and providing a member name.
- Specifying a logical record length that is not identical to that of the dataset.
- Specifying a block size that is not identical to that of the dataset.
- Specifying a record format (fixed, variable or undefined) that is not identical to that of the dataset.
- Specifying a carriage control (ANSI, machine, or none) that is not identical to that of the dataset.

System Action: DRS unallocates all the datasets associated with the report ID and returns an error code to the caller. Any datasets associated with the report ID that were created by DRS are deleted.

Required Action: Specify compatible report attributes and dataset allocation attributes.

WTO: Yes.

DRS130 stcname report-id ALLOCATION SUCCESSFUL - I=nnnn
DDNAME=ddname PATH=pathname

nnnn: The attribute group assigned to this dataset.

Message Meaning: DRS has allocated an HFS file, due to an INIT call.

System Action: None.

Required Action: None.

WTO: No.

DRS131 stcname report-id UNALLOCATION SUCCESSFUL - I=nnnn
DDNAME=ddname PATH=pathname
nnnn: The attribute group assigned to this dataset.
Message Meaning: DRS has unallocated an HFS file, due to a TERM call.
System Action: None.
Required Action: None.
WTO: No.

DRS132 stcname report-id ACCESS DENIED - I=nnnn DDNAME=ddname
PATH=pathname
nnnn: The attribute group assigned to this dataset.
Message Meaning: DRS cannot update the HFS file because access was denied.
System Action: None.
Required Action: Ensure access to the file is allowed for DRS.
WTO: No.

DRS600 stcname LOG INITIALIZATION SUCCESSFUL
Message Meaning: DRS has successfully initialized the logging function.
System Action: None.
Required Action: None.
WTO: No.

DRS601 stcname LOG ALLOCATION FAILURE - R15=nn EC=eeee IC=iiii
nn, eeee, iiiii: The return code and error codes from dynamic allocation.
Message Meaning: Allocation of the DRS log dataset has failed.
System Action: DRS logging is disabled.
Required Action: Contact DRS technical support.
WTO: Yes.

DRS602 stcname I/O ERROR WRITING TO LOG DATASET
Message Meaning: DRS encountered an I/O error while attempting to write a record in the DRS log dataset.
System Action: DRS logging is disabled.
Required Action: Contact DRS technical support.
WTO: Yes.

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| DRS603 | stcname synad-error-message |
| | Message Meaning: DRS encountered an I/O error while attempting to write a record in the DRS log dataset. This message is preceded by message DRS602. This message contains the synad error message returned to DRS by the access method. |
| | System Action: DRS logging is disabled. |
| | Required Action: Contact DRS technical support. |
| | WTO: Yes. |
| DRS604 | stcname LOG DCB ABEND - CODE=aaa-rc OPT=oo |
| | aaa: The abend code. |
| | rc: The return code. |
| | oo: The DCB recovery options. |
| | Message Meaning: An error occurred during OPEN, CLOSE, or EOV processing of the DRS log dataset. |
| | System Action: DRS logging is disabled. |
| | Required Action: Contact DRS technical support. |
| | WTO: Yes. |
| DRS605 | stcname LOG OPEN FAILURE |
| | Message Meaning: DRS' attempt to open the log dataset has failed. |
| | System Action: DRS logging is disabled. |
| | Required Action: Contact DRS technical support. |
| | WTO: Yes. |
| DRS606 | stcname LOG CLOSE FAILURE |
| | Message Meaning: DRS' attempt to close the log dataset has failed. |
| | System Action: DRS logging is disabled. |
| | Required Action: Contact DRS technical support. |
| | WTO: Yes. |
| DRS607 | stcname LOG CLOSE COMPLETE |
| | Message Meaning: DRS has successfully closed the log dataset in response to a CLOSELOG command. |
| | System Action: A new log dataset is opened. |
| | Required Action: None. |
| | WTO: No. |

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| DRS608 | stcname LOG DATASET IS FULL; LOGGING CONTINUES AT START OF DATASET |
| | Message Meaning: The pre-allocated dataset being used for the DRS log is full. |
| | System Action: DRS will continue logging at the beginning of the dataset. |
| | Required Action: None. |
| | WTO: No. |
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| DRS609 | stcname ERROR ALLOCATING DRSSLOG WORKAREA |
| | Message Meaning: The GETMAIN failed attempting to allocate storage for the DRS log processor workarea. |
| | System Action: DRS logging is disabled. |
| | Required Action: Contact DRS technical support. |
| | WTO: Yes. |
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| DRS610 | stcname LOGGING DISABLED |
| | Message Meaning: DRS logging was disabled either because of an error condition or in response to a DRS SSET command. |
| | System Action: DRS continues processing calls without recording messages in the log dataset. |
| | Required Action: Contact DRS technical support. |
| | WTO: No. |
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| DRS615 | stcname LOG TERMINATION COMPLETE |
| | Message Meaning: The DRS log processor has terminated. |
| | System Action: None. |
| | Required Action: None. |
| | WTO: No. |
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| DRS650 | stcname report-id SNAP ALLOCATION FAILURE - R15=rc EC=eeee IC=iiii |
| | rc, eeee, iiii: The return code and error codes from dynamic allocation. |
| | Message Meaning: Allocation of the SNAP dataset has failed. |
| | System Action: The snap dump is not taken. |
| | Required Action: Contact DRS technical support. |
| | WTO: Yes. |

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| DRS651 | <p>stcname report-id SNAP DCB ABEND - CODE=aaa-rc OPT=oo</p> <p>aaa: The abend code.</p> <p>rc: The return code.</p> <p>oo: The DCB recovery options.</p> <p>Message Meaning: An error occurred during OPEN, CLOSE, or EOV processing of the DRS snap dataset.</p> <p>System Action: The snap dump is not taken.</p> <p>Required Action: Contact DRS technical support.</p> <p>WTO: Yes.</p> |
| DRS652 | <p>stcname report-id SNAP OPEN FAILURE</p> <p>Message Meaning: DRS' attempt to open a SNAP dataset has failed.</p> <p>System Action: The snap dump is not taken.</p> <p>Required Action: Contact DRS technical support.</p> <p>WTO: Yes.</p> |
| DRS653 | <p>stcname report-id SNAP CLOSE FAILURE</p> <p>Message Meaning: DRS' attempt to close a SNAP dataset has failed.</p> <p>System Action: The snap dataset remains allocated.</p> <p>Required Action: Contact DRS technical support.</p> <p>WTO: Yes.</p> |
| DRS654 | <p>stcname report-id I/O ERROR ISSUING SNAP</p> <p>Message Meaning: DRS encountered an I/O error while attempting to write to the DRS snap dataset. This message is followed by message DRS655. This message contains the synad error message returned to DRS by the access method.</p> <p>System Action: The snap dataset is closed.</p> <p>Required Action: Contact DRS technical support.</p> <p>WTO: Yes.</p> |
| DRS655 | <p>stcname report-id synad-error-message</p> <p>Message Meaning: DRS encountered an I/O error when issuing a SNAP. This message is preceded by message DRS654. This message contains the synad error message returned to DRS by the access method.</p> <p>System Action: The snap dataset is closed.</p> <p>Required Action: Contact DRS technical support.</p> <p>WTO: Yes.</p> |

DRS659 stcname report-id SNAP DUMP COMPLETE

Message Meaning: DRS has successfully created a SNAP dump for the report identified by report-id.

System Action: None.

Required Action: None.

WTO: No.

DRS800 stcname DRSSMAIN SUBTASK ABEND - SYS=sss USR=uuu

sss: System abend code.

uuu: User abend code.

Message Meaning: The main DRS subtask has abended with the system or user abend code identified in the message.

System Action: Processing continues with the next DRS request.

Required Action: If the error was caused by passing invalid data to DRS then this message can be ignored. Otherwise, contact DRS technical support.

WTO: Yes.

DRS802 stcname DRSSLOG SUBTASK ABEND - SYS=sss USR=uuu

sss: System abend code.

uuu: User abend code.

Message Meaning: The DRS log subtask has abended with the system or user abend code identified in the message.

System Action: DRS logging is disabled.

Required Action: Contact DRS technical support.

WTO: Yes.

DRS804 stcname DRSSVSST SUBTASK ABEND - SYS=sss USR=uuu

sss: System abend code.

uuu: User abend code.

Message Meaning: The DRS VSAM I/O interface subtask has abended with the system or user code identified in the message.

System Action: Processing continues, if possible, with the next DRS VSAM I/O request. This message can be ignored if the DRS/STI interface is not being used.

Required Action: Contact DRS technical support.

WTO: Yes.

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| DRS808 | <p>stcname USER EXIT ABEND - EXITID=nn SYS=sss USR=uuu, EXIT DISABLED</p> <p>nn: Exit number.</p> <p>sss: System abend code.</p> <p>uuu: User abend code.</p> <p>Message Meaning: The DRS user exit identified by EXITID nn has abended with the system or user abend code identified in the message.</p> <p>System Action: DRS continues processing without the exit. (The exit is disabled).</p> <p>Required Action: Correct the user exit.</p> <p>WTO: Yes.</p> |
| DRS809 | <p>stcname PSW=xxxxxxxx xxxxxxxx</p> <p>Message Meaning: A DRS module has abended. This message contains the PSW at the time of the abend.</p> <p>System Action: See messages DRS800, DRS802, and DRS808.</p> <p>Required Action: See messages DRS800, DRS802, and DRS808.</p> <p>WTO: Yes.</p> |
| DRS810 | <p>stcname R0-R7 rrrrrrrr rrrrrrrr</p> |
| DRS810 | <p>stcname R8-R15 rrrrrrrr rrrrrrrr</p> <p>Message Meaning: A DRS module has abended. This message contains the register contents at the time of the abend.</p> <p>System Action: See messages DRS800, DRS802, and DRS808.</p> <p>Required Action: See messages DRS800, DRS802, and DRS808.</p> <p>WTO: Yes.</p> |
| DRS820 | <p>stcname report-id SYSOUT DATASET ABEND - I=nnnn CODE=aaa-rc OPT=oo</p> <p>nnnn: The attribute group assigned to this dataset.</p> <p>aaa: The abend code.</p> <p>rc: The return code.</p> <p>oo: The DCB recovery options.</p> <p>Message Meaning: An error occurred during OPEN, CLOSE, or EOV processing of the SYSOUT dataset.</p> <p>System Action: DRS returns an error code to the caller and suspends further activity on all datasets associated with the report id.</p> <p>Required Action: Contact DRS technical support.</p> <p>WTO: Yes.</p> |

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| DRS821 | <p>stcname report-id I/O ERROR PROCESSING DATASET - I=nnnn RECNUM=rrr,rrr,rrr</p> <p>nnnn: The attribute group assigned to this dataset.</p> <p>rrr,rrr,rrr: The number of records processed successfully before the I/O error was encountered.</p> <p>Message Meaning: An I/O error was encountered while processing a DRS dataset.</p> <p>System Action: DRS returns an error code to the caller and suspends further activity on all datasets associated with the report id.</p> <p>Required Action: Contact DRS technical support.</p> <p>WTO: Yes.</p> |
| DRS822 | <p>stcname report-id synad-error-message</p> <p>Message Meaning: DRS encountered an I/O error while processing a DRS dataset. This message is preceded by message DRS821. This message contains the synad error message returned to DRS by the access method.</p> <p>System Action: DRS returns an error code to the caller and suspends further activity on all datasets associated with the report id.</p> <p>Required Action: Contact DRS technical support.</p> <p>WTO: Yes.</p> |
| DRS830 | <p>stcname INTERNAL LOGIC ERROR - MESSAGE ID nnn IS UNDEFINED</p> <p>nnn: The invalid message id number.</p> <p>Message Meaning: DRS tried to issue a message with a message number that is not defined in DRS' message table.</p> <p>System Action: The message is ignored.</p> <p>Required Action: Contact DRS technical support.</p> <p>WTO: Yes.</p> |
| DRS831 | <p>stcname ERROR ALLOCATING LOG QUEUE ELEMENT - LOGGING DISABLED</p> <p>Message Meaning: DRS' allocation of a log queue element failed.</p> <p>System Action: DRS logging is disabled.</p> <p>Required Action: Contact DRS technical support.</p> <p>WTO: Yes.</p> |

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| DRS900 | <p>stcname QUIESCE COMMAND ACKNOWLEDGED</p> <p>Message Meaning: DRS has acknowledged receiving a QUIESCE command.</p> <p>System Action: DRS will no longer accept INIT calls.</p> <p>Required Action: None.</p> <p>WTO: No.</p> |
| DRS901 | <p>stcname DRS SYSTEM QUIESCED</p> <p>Message Meaning: DRS has processed a QUIESCE command.</p> <p>System Action: DRS will no longer accept INIT calls.</p> <p>Required Action: None.</p> <p>WTO: Yes.</p> |
| DRS902 | <p>stcname DRS SYSTEM RESTARTED</p> <p>Message Meaning: DRS has processed a RESTART command.</p> <p>System Action: DRS will now accept INIT calls.</p> <p>Required Action: None.</p> <p>WTO: Yes.</p> |
| DRS903 | <p>stcname DRS SHUTDOWN REQUEST ACKNOWLEDGED</p> <p>Message Meaning: DRS has acknowledged receiving a shutdown request.</p> <p>System Action: DRS will begin termination processing.</p> <p>Required Action: None.</p> <p>WTO: Yes.</p> |
| DRS904 | <p>stcname DRS SHUTDOWN REQUEST COMPLETE DRSRC=rc OSRC=osrc</p> <p>rc: DRS return code.</p> <p>osrc: OS return code.</p> <p>Message Meaning: DRS has acknowledged receiving a shutdown request.</p> <p>System Action: None.</p> <p>Required Action: None.</p> <p>WTO: Yes.</p> |
| DRS910 | <p>stcname DRS OPTIONS - LOG=(ENABLED DISABLED,HOLD NOHOLD, class,dest,form,writer,fc,ucs)</p> <p>Message Meaning: Displays the current status of the DRS log options.</p> <p>System Action: None.</p> <p>Required Action: None.</p> <p>WTO: No.</p> |

DRS911 stcname DRS OPTIONS - SNAP=(HOLD|NOHOLD,class,dest,form,writer,fc,
ucs) SYSLOG=YES/NO TCB=aaa TRACE=(X'bb',cccK,dd)

aaa: The number of TCBs to be used to process DRS
calls.

bb: The trace options.

ccc: The size of the trace table.

dd: The GTF format appendage id to be used for
trace entries recorded in the system trace file.

Message Meaning: Displays the current status of the DRS snap and
trace options.

System Action: None.

Required Action: None.

WTO: No.

DRS/VPI Messages

DRS/VPI messages are issued via OS/MVS WTO with the routing code specified in the fourth positional parameter value of the WTO parameter in the DRSSTART System Initialization Member. If the message is in response to a DRS/VPI command, the message will be issued to the console from which the command was issued.

Error or Action messages will be displayed with a WTO Descriptor Code of 2 (MVS Action), unless "N" is specified in the second positional parameter value of the WTO parameter in the DRSSTART System Initialization Member.

Informational messages will be bypassed if "N" is specified in the third positional parameter value of the WTO parameter in the DRSSTART System Initialization Member.

DRS/VPI Message Format

All DRS/VPI messages will begin with an eight character message identifier formatted as follows:

Characters 1-4 - Always DRSV

Characters 5-7 - Message number uniquely identifying the message

Character 8 - One character identifying the message importance level

The possible message importance levels (the last character of the message identifier) are as follows:

I - Informational Message

N - Normal Message

E - Error or Action Message

R - Responding Message (responses to DRS/VPI Commands)

The DRS/VPI started task name will follow the message identifier, unless "N" is specified in the first positional parameter value of the WTO parameter in the DRSSTART System Initialization Member.

DRS/VPI Message Text

The DRS/VPI messages use some or all of the following in the message text:

For printer related messages:

prtrid - the member name of the DRS/VPI virtual printer.

For VTAM related messages:

r0 - the value in Register 0 at the time of the error.
r15 - the value in Register 15 at the time of the error.
ac - the ACB error code field ACBERFLG
rc - the RPL return code field "RPLRTNCD"
f2 - the RPL feedback 2 field "RPLFDB2"
sense - the RPL sense code.

DRSV000N DRS/VPI INITIALIZATION SUCCESSFUL VERSION=V1R3.4.fff
CUSTID=xxxxxx

fff: DRS/VPI distribution fix level.

xxxxxx: Six character customer ID

Message Meaning: The DRS/VPI System has been successfully initialized.

System Action: None.

Required Action: None.

DRSV001N USER EXITnn LOADED NAME=aaaaaaaa LENGTH=lllll
EP=eeeeeee ENABLED|DISABLED RECOVERY=ON|OFF

nn: Exit number.

aaaaaaaa: Name of the user exit module.

lllll: Length of the user exit module.

eeeeeee: Entry point of the user exit module.

Message Meaning: The DRS/VPI System has successfully loaded a user exit module.

System Action: None.

Required Action: None.

DRSV002E DRS OPTIONS MODULE SPECIFIES UNSUPPORTED VALUE -
TCBBTCH=0

Message Meaning: When the DRS/VPI system loaded the DRS system options module, the value for the TCBBTCH keyword was zero.

System Action: DRS/VPI will terminate.

Required Action: Update the DRS system options to specify a non-zero value for TCBBTCH (for example, TCBBTCH=1), re-assemble and linkedit the DRS system options module (DRSSOPTS), and restart DRS/VPI.

DRSV003N CPUID(sssss)

ssss: CPU serial number.

Message Meaning: Identifies the CPU serial number of the machine where DRS is running.

System Action: None.

Required Action: None.

DRSV004N aaaaaaaaa KEY - CUSTID(bbbbbbb,cccccc) COPY(d)
 CPUCHK(ENABLED|DISABLED)
 aaaaaaaaa KEY - CPUID(eeeeeee) STATUS(fffff) gggggggg

aaaaaaa: Name of product represented by key.
 bbbbbbb: Customer ID from the product.
 ccccccc: Customer ID from the key.
 d: Number of copies from key (if any).
 eeeeeee: CPU serial number from key or ‘ANY’ if CPU
 checking is disabled in the key.
 ffffff: Status of the key (TRAP, LICENSE, INVALID).
 gggggggg: Any error or warning message pertaining to the
 key.

Message Meaning: A product key was processed by DRS/VPI at
 system initialization.

System Action: None.

Required Action: If the message indicates an invalid or expired key,
 correct the key and restart DRS/VPI.

DRSV005E DRSVLIB DCB ABEND CODE=xxx-xx
 xxx-xx: Abend/return codes.

Message Meaning: An error occurred during OPEN/CLOSE/EOV
 processing for the DRSVLIB dataset.

System Action: DRS/VPI will abend with a U005 abend.

Required Action: Determine the reason for the abend. If the reason
 cannot be determined, contact DRS technical
 support.

DRSV006E DRSVLIB I/O ERROR xxxxxxxxxxx
 xxxxxxxxxxx: SYNAD message text.

Message Meaning: I/O error while reading the DRSVLIB dataset.

System Action: DRS/VPI will abend with a U005 abend.

Required Action: Determine the cause of the I/O error and correct it.

DRSV007E DRS/VPI TERMINATED - ATTACH ERROR modulnm RC=rc
 modulnm: The name of the module DRS/VPI attempted to
 attach.

rc: Return code from attach macro (see OS/VS2
 MVS Supervisor Services).

Message Meaning: DRS/VPI failed attempting to attach a support
 subtask.

System Action: DRS/VPI will abend with a U005 abend.

Required Action: Contact DRS technical support.

-
- DRSV008E** INVALID listtyp LIST MEMBER (mbrname) VALUE: keywordval
listtyp: INCLUDE or EXCLUDE.
mbrname: Name of inclusion or exclusion list member.
keywordval: Invalid member name specification within member.
Message Meaning: The contents of either the MLISTMEM or XLISTMEM member is invalid. An example would be a member name in the list that is longer than 8 characters.
System Action: DRS/VPI will abend with a U005 abend.
Required Action: Correct the member name in the MLISTMEM or XLISTMEM.
- DRSV009E** MUTUALLY EXCLUSIVE KEYWORDS SPECIFIED: MLISTMEM/XLISTMEM
Message Meaning: Both MLISTMEM and XLISTMEM keywords were specified in the DRSSTART member. Since the keywords are mutually exclusive, only one of the keywords can be specified.
System Action: DRS/VPI will abend with a U005 abend.
Required Action: Specify either MLISTMEM or XLISTMEM as desired.
- DRSV010E** DRS/VPI INITIALIZATION FAILURE
Message Meaning: DRS/VPI initialization has failed. This message will be preceded by a message giving the reason that initialization failed.
System Action: DRS/VPI will terminate.
Required Action: Refer to the preceding message(s) to determine the cause of the initialization failure.
- DRSV011N** *SYSTEM STORAGE(REGN(aaaaaa,bbbbbb) (PRIV(cccccc,dddddd))
aaaaaa: Region requested below the 16M line.
bbbbbb: Region requested above the 16M line.
cccccc: Private area available below the 16M line.
dddddd: Private area available above the 16M line.
Message Meaning: This message gives information pertaining to the storage requested and available after DRS/VPI initialization is complete.
System Action: None.
Required Action: None.

| | |
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| DRSV012E | <p>SYSTEM TERMINATED - ERROR LOADING mmmmmmmm R1=xxxxxxx R15=r15</p> <p>mmmmmmm: The name of a DRS/VPI load module. xxxxxxx: The contents of Register 1. r15: The contents of Register 15.</p> <p>Message Meaning: DRS/VPI attempted to LOAD a DRS/VPI module, but the LOAD macro gave a non-zero return code.</p> <p>System Action: DRS/VPI will terminate.</p> <p>Required Action: Verify that all necessary DRS/VPI load modules are in either a linklist library or a library named in the STEPLIB DD in the DRS/VPI JCL.</p> |
| DRSV013I | <p>SSI INITIALIZED - NAME=aaaa SSCVT=bbbbbbb SSVT=ccccccc USR1=ddddddd USR2=eeeeeee</p> <p>aaaa: DRS subsystem name. bbbbbbb: DRS SSCVT address. ccccccc: DRS SSVT address. ddddddd: DRS SSCVT user word 1. eeeeeee: DRS SSCVT user word 2.</p> <p>Message Meaning: DRS has been successfully initialized as a subsystem.</p> <p>System Action: None.</p> <p>Required Action: None.</p> |
| DRSV014E | <p>REQUIRED KEYWORD KEYDRS WAS NOT SPECIFIED, WAS INVALID OR HAS EXPIRED - DRS WILL TERMINATE</p> <p>Message Meaning: The DRS product key was either not specified in the DRS initialization member or it was specified incorrectly. The DRS product key is supplied in file 1 of the distribution cartridge.</p> <p>System Action: DRS/VPI will terminate.</p> <p>Required Action: Correct the DRS product key and restart DRS/VPI. If you are unable to locate the DRS product key, contact LRS marketing personnel.</p> |
| DRSV015E | <p>SAP R/3 CALLBACK NOTIFICATION DISABLED - SAP INTERFACE MODULE LIBRFC NOT FOUND</p> <p>Message Meaning: The SAP R/3 Remote Function Call (RFC) interface module (LIBRFC) was not found during initialization of the DRS/OutputManager product.</p> <p>System Action: Execution will continue but SAP R/3 callback notification will be disabled.</p> <p>Required Action: The LIBRFC module contains functions that are required to enable DRS/OutputManager to communicate status information with the SAP R/3 environment. This module is provided by SAP and should have been uploaded into an MVS load library as part of the installation process. Refer to “Install SAP R/3 RFC Communication API” on page 34.5 for details.</p> |

DRSV018E stcname aaaaaaaa WAS SPECIFIED, BUT DRS/VPI LIBRARIES ARE NOT AUTHORIZED; bbbbbbbb SUBSTITUTED

aaaaaaa: Original parameter value, such as:
DESTVAL=Y
SWAPABLE=N

bbbbbbbb: Substituted value, such as:
DESTVAL=N
SWAPABLE=Y

Message Meaning: DRS/VPI cannot support the requested function because the DRS/VPI libraries are not authorized.

System Action: DRS/VPI will substitute values which do not require authorization.

Required Action: Authorize the DRS/VPI libraries to obtain the requested capabilities.

DRSV019I aaaaaaaa INITIALIZATION ERROR - LOAD FAILED FOR MODULE bbbbbbbb R1=ccccccc R15=ddddddd

aaaaaaa: The name of the product for which the LOAD failed.

bbbbbbbb: The name of the load module for which the LOAD failed.

ccccccc: The contents of Register 1.

ddddddd: The contents of Register 15.

Message Meaning: DRS attempted to LOAD a module, but the LOAD macro gave an unexpected return code.

System Action: The product will be disabled.

Required Action: Verify that the necessary load modules are in either a linklist library or a library named in the STEPLIB DD in the DRS JCL.

DRSV022E aaaaaaaa PRODUCT WILL EXPIRE IN nn DAYS

aaaaaaa: The name of the product which is about to expire (DRS/OutputManager, DRS/PC, DRS/Secure, DRS/STI, or DRS/TCPIP).

nn: The number of days before the product will expire (1 to 30).

Message Meaning: The copy of the product which is being executed will reach its expiration date in “nn” days. At that time, the product will terminate, and attempts to start the product will fail. This message will begin to appear fourteen days before the expiration date.

System Action: DRS will continue processing.

Required Action: Contact LRS marketing personnel.

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| DRSV023E | aaaaaaa PRODUCT HAS EXPIRED |
| | aaaaaaa: The name of the product which has expired (DRS/PC, DRS/TCPIP, or DRS/STI). |
| | Message Meaning: The copy of the product which is being executed has reached its expiration date. |
| | System Action: The product will terminate. Attempts to start the product will fail. |
| | Required Action: Contact LRS marketing personnel. |
| | |
| DRSV025E | aaaaaaa PRODUCT KEY INVALID |
| | aaaaaaa: The name of the product containing the invalid product key (DRS/OutputManager, DRS/PC, DRS/Secure, DRS/STI, or DRS/TCPIP). |
| | Message Meaning: The product key, identified in the message, was either not specified in the DRS Initialization member or was specified incorrectly. The DRS product keys are supplied in file # 1 of the distribution cartridge. |
| | System Action: DRS will disable the product. Attempts to activate printers that require the product will fail. |
| | Required Action: Ensure that the product key has been entered correctly in the DRS initialization member. If you are unable to locate the product key, contact LRS marketing personnel. |
| | |
| DRSV027E | req REQUEST FAILED FOR FILE file(DDNAME=ddname), RC=rc |
| | req: The type of request that failed (OPEN or CLOSE). |
| | file: The name of the file on which the error occurred. |
| | ddname: The DDNAME of the file on which the error occurred. |
| | rc: Return code information. |
| | Message Meaning: An unexpected error occurred attempting to either OPEN or CLOSE the DRS/STI rules dataset. |
| | System Action: Processing continues, but the DRS/STI rules dataset is unavailable. As a result, the Smart Tag control buffer will not be recognized by the DRS/VPI virtual printers. |
| | Required Action: Ensure that the DRS/STI rules dataset is properly defined in the DRS/VPI startup JCL. If unable to resolve the problem, contact DRS technical support. |

DRSV028E nnnnnnnn PRODUCT WILL EXPIRE tttttttt DUE TO UNAUTHORIZED CPU

nnnnnnnn: The name of the product which will expire.
tttttttt: Time interval when product will expire.
Message Meaning: The product key has an invalid CPU id.
System Action: The product will expire when the warning interval expires.
Required Action: Obtain a proper key for the product and re-start DRS/VPI.

DRSV029E nnnnnnnn PRODUCT HAS EXPIRED DUE TO UNAUTHORIZED CPU

nnnnnnnn: The name of the product which has expired.
Message Meaning: The product key has an invalid CPU id.
System Action: The CPU warning interval has expired. All DRS/VPI printers which use this product will be inactivated.
Required Action: Obtain a proper key for the product and re-start DRS/VPI.

DRSV030E CSVINFO REQUEST FAILED R15=rc

rc: Return code from CSVINFO macro
Message Meaning: DRS encountered an error executing the CSVINFO macro to retrieve information about the active load module for a DRS system task.
System Action: DRS will continue execution and information for the requested module will be unavailable.
Required Action: Contact LRS technical support.

DRSV031E SYSOUT TRACKING INITIALIZATION FAILED - reason

reason: REQUIRES APF AUTHORIZATION
DRSTRACK DD STATEMENT MISSING
ERROR OPENING DRSTRACK DATASET
ERROR READING CONTROL RECORD
ERROR OPENING DRSTRACK (LOAD)
ERROR WRITING CONTROL RECORD
OS/390 LEVEL INSUFFICIENT
DATASPACE CREATION FAILED
ERROR OBTAINING SYSTEM EXTENSION
Message Meaning: Initialization of the DRS/VPI SYSOUT tracking feature has failed for the indicated reason.
System Action: DRS/VPI initialization will continue with the tracking feature disabled.
Required Action: Correct the reason for the error and restart DRS/VPI. If problem persists contact LRS technical support.

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| DRSV032E | SYSOUT TRACKING FACILITY DISABLED |
| | Message Meaning: The DRS/VPI SYSOUT tracking facility has been disabled due to an unrecoverable error. Refer to previous messages for a description of the error. |
| | System Action: DRS/VPI will continue with the tracking feature disabled. |
| | Required Action: Correct the reason for the error and restart DRS/VPI. If problem persists contact LRS technical support. |
| | |
| DRSV033I | ADDRESS SPACE STATUS CHANGED TO NON-SWAPABLE FOR TRACKING FACILITY |
| | Message Meaning: The DRS/VPI SYSOUT tracking feature requires DRS to execute Non-Swapable. Although SWAPABLE=Y was specified or allowed to default, this has been overridden to enable the tracking feature to initialize successfully. |
| | System Action: None. |
| | Required Action: None. Specifying SWAPABLE=N will suppress this message. |
| | |
| DRSV034I | INITIALIZING DRSTRACK DATASET |
| | Message Meaning: DRS/VPI detected an empty dataset when opening the SYSOUT tracking VSAM file (DRSTRACK). The dataset will now be opened in LOAD mode and the initial control record written. After initializing the tracking dataset, it will be closed and re-opened for normal processing. |
| | System Action: None. |
| | Required Action: None. |
| | |
| DRSV035I | ddname DATASET SUCCESSFULLY action |
| | ddname: DDNAME of the dataset. |
| | action: OPENED CLOSED |
| | Message Meaning: DRS/VPI has successfully open or closed the indicated system file. |
| | System Action: None. |
| | Required Action: None. |

DRSV036E DSPSERV action FAILED RC=X'return_code' RSN=X'reason_code'
action: CREATE data space.
return_code: Return code from DSPSERV macro.
reason_code: Reason code from DSPSERV macro.
Message Meaning: An error occurred attempting to create a data space using the DSPSERV macro.
System Action: Initialization will continue with the SYSOUT tracking facility disabled.
Required Action: Check the return code from the DSPSERV macro for the cause of the error and restart DRS/VPI. Details of DSPSERV return & reason codes can be found in the "MVS Programming: Assembler Services Reference" GC28-1910-nn.

DRSV037E ALESERV ADD FAILED RC=X'return_code'
return_code: Return code from ALESERV macro.
Message Meaning: DRS/VPI encountered an error trying to add an access list entry using the ALESERV macro.
System Action: Initialization will continue with the SYSOUT tracking facility disabled.
Required Action: Check the return code from the ALESERV macro for the cause of the error and restart DRS/VPI. Details of the ALESERV return codes can be found in the "MVS Programming: Assembler Services Reference" GC28-1910-nn.

DRSV038E CELL POOL SERVICE REQUEST FAILED ROUTINE=routine
RC=return_code
routine: Cell Pool callable services routine name.
return_code: Return code from the Cell pool callable service.
Message Meaning: DRS/VPI encountered an error calling the indicated Cell Pool callable service routine. The cell pool callable service routines are used to manage and manipulate the storage in the DRS/VPI data space.
System Action: The DRS/VPI SYSOUT tracking facility will be disabled.
Required Action: Contact LRS technical support. Details of the callable service routines and their return codes can be found in the "MVS Programming: Assembler Services Reference" GC28-1910-nn.

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| DRSV039E | ENFREQ action REQUEST FAILED RC=X'return_code' |
| action: | LISTEN or DELETE |
| return_code: | Return code from ENFREQ macro. |
| Message Meaning: | DRS/VPI encountered an error trying to enable or disable an Event Notification Facility exit using the ENFREQ macro. An Event Notification Facility exit is required to enable DRS/VPI to track the status of datasets created with a JES Client Token. |
| System Action: | DRS/VPI will continue processing with the SYSOUT tracking facility disabled. |
| Required Action: | Check the return code from the ENFREQ macro for the cause of the error and restart DRS/VPI. Details of the ENFREQ return codes can be found in the "Authorized Assembler Services Reference" GC28-1765-nn. |
| | |
| DRSV040I | SYSOUT EVENT NOTIFICATION status |
| status: | ENABLED OR DISABLED |
| Message Meaning: | DRS/VPI has successfully enabled or disabled the SYSOUT Event Notification listener exit. The Event Notification Listen exit enables JES to communicate SYSOUT status events to the DRS/VPI tracking feature. |
| System Action: | None. |
| Required Action: | None. |
| | |
| DRSV041I | SYSOUT TRACKING INITIALIZATION COMPLETE |
| Message Meaning: | DRS/VPI has successfully initialized the SYSOUT tracking feature. This enables DRS to maintain real-time status information for all SYSOUT datasets created as a result of client requests. |
| System Action: | None. |
| Required Action: | None. |
| | |
| DRSV042E | TRACKING REQUEST FAILED - reason |
| reason: | ERROR READING CONTROL RECORD ERROR WRITING CONTROL RECORD ERROR WRITING TRACKING RECORD INVALID REQUEST CODE |
| Message Meaning: | DRS/VPI encountered an error attempting to save tracking details for the current SYSOUT dataset to the tracking dataset. |
| System Action: | Processing for the current dataset will continue but tracking data for this dataset will not be available. |
| Required Action: | Check previous messages for details of the tracking dataset file access error and contact LRS technical support. |

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| DRSV043I | prtid SYSOUT track_no tracking_status |
| track_no: | Unique SYSOUT tracking number assigned at allocation |
| tracking_status: | SYSOUT status details. For example. PRINTING DEVICE=vps.prtid SYSTEM=jesid PRINTED DEVICE=vps.prtid SYSTEM=jesid PURGED SYSTEM=jesid |
| status codes: | PURGED - Dataset has been purged from JES PRINTING - Dataset has been selected for processing by device indicated. PRINTED - Dataset has been de-selected after successful processing. PRINTING ERROR - Dataset has been de-selected after unsuccessful processing. ERROR PRINTING(HELD) - Dataset has been de-selected after unsuccessful processing and held. ERROR PRINTING(SYSHOLD) - Dataset has been de-selected after processing error and placed in system hold. END-OF-DATASET(NORMAL) - Dataset processed to end of dataset normally. END-OF-DATASET(ERROR) - Dataset processed to end of dataset with errors. CTOKEN CHANGE - Client Token associated with tracking data has changed. NOT FOUND - STATUS UNKNOWN - Dataset was not found during restart and status has been changed to UNKNOWN. TRACKING DATA EXPIRED - Dataset tracking data retained after completion has now expired and been removed. |
| Device: | PRTn for JES defined printers Ln.STn for JES NJE connections vps.prtid for VPS systems running SAPI interface PRSYSOUT for VPS or other applications using PSO Interface. |
| jesid: | This is the system id of the JES that originated the SYSOUT event. |
| Message Meaning: | The message is issued each time a SYSOUT event notification is received from JES for a DRS managed dataset. The status information will indicate the current status of the SYSOUT dataset, the device associated with the status change and the JES system ID originating the status event. |
| System Action: | None. |
| Required Action: | None. |

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| DRSV044E | ERROR REBUILDING TRACKING DATABASE |
| | Message Meaning: During initialization of the SYSOUT tracking feature, DRS/VPI will read the tracking dataset and rebuild the status information for all active SYSOUT datasets. This message indicates an error occurred while trying to rebuild and resynchronize the tracking data. |
| | System Action: Initialization will continue with the SYSOUT tracking facility disabled. |
| | Required Action: Check previous messages for the exact reason for the error and contact LRS technical support. |
| | |
| DRSV045 | UNSUPPORTED JOB LEVEL EVENT - EVENT REASON=reason |
| | reason: This field will contain the JES JOB level event reason code. |
| | Message Meaning: DRS/VPI has received a JOB level SYSOUT event notification with an unsupported event reason code. The only currently supported JOB level event is "PURGED". |
| | System Action: The event notification is ignored and processing will continue. |
| | Required Action: Contact LRS technical support. |
| | |
| DRSV046E | ERROR PROCESSING SYSOUT JOB LEVEL EVENT |
| | Message Meaning: DRS/VPI has encountered an error while processing a SYSOUT JOB level status event. |
| | System Action: The event notification is ignored and processing continues. |
| | Required Action: Check previous messages for the cause of the error and contact LRS technical support. |
| | |
| DRSV047I | SAP R/3 SERVER server CALLBACK SUBTASK action SYSTEM=system |
| | server: SAP R/3 callback server host name. |
| | action: Attached or detached. |
| | system: SAP R/3 system identifier |
| | Message Meaning: This message indicates that a new notification subtask has been attached or detached to process external notification events for the indicated SAP R/3 callback server. This subtask will establish a connection to the SAP R/3 server and will remotely update that SAP R/3 spool status using callback requests. |
| | System Action: None. |
| | Required Action: None. |

DRSV048I SAP R/3 SERVER server RECONFIGURATION REQUESTED
SYSTEM=system

server: SAP R/3 callback server host name.

system: SAP R/3 system identifier.

Message Meaning: The server identified in the message has indicated that the SAP R/3 Output Management Definitions for DRS have changed and that reconfiguration is required. DRS will execute a remote query to retrieve the new configuration information and will update the configuration data for this SAP R/3 system.

System Action: None.

Required Action: None.

DRSV049I SAP R/3 SERVER server CONNECTION ESTABLISHED

server: SAP R/3 callback server name host name.

Message Meaning: DRS has successfully established an RFC connection to the indicated SAP R/3 callback server.

System Action: None.

Required Action: None.

DRSV099N DRS/VPI TERMINATION COMPLETE

Message Meaning: DRS/VPI has completed termination processing.

System Action: The DRS/VPI address space will terminate.

Required Action: None.

DRSV100N prtrid SYSOUT ALLOCATION SUCCESSFUL jobname ddname
SYSOUT(c,ddddddd,ffff,wwwwwww)

jobname: Job name, if specified using JOBNAME= keyword.

ddname: DDNAME, if specified using DDNAME= keyword.

c: SYSOUT class.

ddddddd: SYSOUT destination.

ffff: SYSOUT form.

wwwwwww: SYSOUT writer name.

Message Meaning: The DRS INIT call was successful to allocate the SYSOUT dataset.

System Action: None.

Required Action: None.

DRSV101N prtrid SYSOUT track_no UNALLOCATED jobname ddname
 SYSOUT(c,dddd,ffff,www)

track_no: DRS/VPI SYSOUT tracking Number.

jobname: Job name, if specified using JOBNAME=
 keyword.

ddname: DDNAME, if specified using DDNAME=
 keyword.

c: SYSOUT class.

dddd: SYSOUT destination.

ffff: SYSOUT form.

www: SYSOUT writer name.

Message Meaning: The DRS TERM call was successful to
 unallocate the
 SYSOUT dataset.

System Action: None.

Required Action: None.

DRSV102I prtrid SYSOUT track_no request_type request_info

track_no: DRS/VPI SYSOUT tracking Number or
 DDNAME if tracking disabled.

request_type: Print request type (LPR, SNA, APPC, SAP,
 LRSQ, etc.).

request_info: Print request information and attributes
 provided by client.

Message Meaning: This message will be issued one or more times
 after unallocation of a SYSOUT dataset to
 display information about the client print
 request. The request information displayed is
 built dynamically based on information
 provided by the client and will vary depending
 on the communication protocol being used.
 Only attributes explicitly specified by the client
 will be displayed.

System Action: None.

Required Action: None.

DRSV104N prtrid DASD ALLOCATION SUCCESSFUL ddname DSN=dsname

ddname: DDNAME, if specified using DDNAME=
 keyword.

dsname: The dataset name assigned to this dataset.

Message Meaning: The DRS INIT call was successful to allocate
 the DASD dataset.

System Action: None.

Required Action: None.

DRSV105N prtrid DASD UNALLOCATION SUCCESSFUL ddname DSN=dsname
ddname: DDNAME, if specified using DDNAME= keyword.
dsname: The dataset name assigned to this dataset.
Message Meaning: The DRS TERM call was successful to unallocate the DASD dataset.
System Action: None.
Required Action: None.

DRSV130N HFS ALLOCATION SUCCESSFUL - ddname PATH=pathname
ddname: DDNAME, if specified using DDNAME= keyword.
pathname: PATH name of HFS file.
Message Meaning: The DRS INIT call was successful to allocate an HFS file.
System Action: None.
Required Action: None.

DRSV131N HFS UNALLOCATION SUCCESSFUL - ddname PATH=pathname
ddname: DDNAME, if specified using DDNAME= keyword.
pathname: PATH name of HFS file.
Message Meaning: The DRS TERM call was successful to unallocate an HFS file.
System Action: None.
Required Action: None.

DRSV200I prtrid INACTIVATED
Message Meaning: Response to DRS/VPI INACTIVATE command.
System Action: None.
Required Action: None.

DRSV201E prtrid ATTACH FAILED FOR modulenm R15=r15
modulenm: The name of the module DRS/VPI attempted to attach.
r15: Return code from attach macro (see OS/VS2 MVS Supervisor Services).
Message Meaning: DRS/VPI failed attempting to attach a support subtask for the specified printer.
System Action: DRS/VPI will put this printer in EDRAINED status.
Required Action: Contact DRS technical support.

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| DRSV209N | DRS/SECURE DECRYPTING - TYPE=type type: Decryption type. Message Meaning: DRS/Secure has located an encrypted buffer and will begin decryption. System Action: None. Required Action: None. |
| DRSV210E | prtrid LOGIC ERROR FORMATTING OUTPUT BUFFER - pgm pgm: Name of DRS/VPI program encountering the error. Message Meaning: DRS/VPI encountered a logic error while formatting the output buffer from the data received. System Action: DRS/VPI will put this printer in EDRAINED status. Required Action: Contact DRS technical support. |
| DRSV211E | prtrid OUTPUT BUFFER OVERRUN - pgm pgm: Name of DRS/VPI program encountering the error. Message Meaning: DRS/VPI received more data than would fit into the output buffer. System Action: DRS/VPI will put this printer in EDRAINED status. Required Action: Contact DRS technical support. |
| DRSV212E | prtrid DSC 3270 WRITE COMMAND IS MISSING Message Meaning: DRS/VPI expected a 3270 WRITE command in the first byte of the buffer received, but it was not present in the buffer. System Action: DRS/VPI will put this printer in EDRAINED status. Required Action: Contact DRS technical support. |
| DRSV213E | prtrid ERROR PROCESSING SPANNED DSC 3270 COMMAND Message Meaning: DRS/VPI encountered an error processing a 3270 command which spanned buffers received. System Action: DRS/VPI will put this printer in EDRAINED status. Required Action: Contact DRS technical support. |
| DRSV214E | prtrid WRITE STRUCTURED FIELD 3270 COMMAND NOT SUPPORTED Message Meaning: DRS/VPI virtual printer received a Write Structured Field command from the sending application, but the command is not supported by DRS/VPI. System Action: DRS/VPI will put this printer in EDRAINED status. Required Action: Define MODETAB and DLOGMOD in the VTAM definition for the virtual printer, or define the printer in more detail to the sending application. If the error continues, contact DRS technical support. |

DRSV216E prtrid RECORD LIMIT EXCEEDED WHEN PROCESSING RECEIVED PRINT FILE

Message Meaning: The print file which was received had more records than were specified in the RECLIMIT keyword.

System Action: DRS/VPI will put this printer in EDRAINED status and the records of the file already received will be held, kept or purged based on the ERRACTN keyword.

Required Action: If files of this size should be accepted in the future, set the RECLIMIT keyword value to a higher value or to 0.

DRSV217E prtrid LOGIC ERROR IN DVSSVPRT - xxxxxxxx
xxxxxxx

The type of logic error detected.

Message Meaning: DRS detected an invalid condition (e.g., invalid LUTYPE) while processing.

System Action: DRS/VPI will put this printer in EDRAINED status.

Required Action: Contact DRS technical support.

DRSV218E prtrid RECEIVED RECORD LENGTH llll INVALID - xxxxxxxx

llll: Length of record received.

xxxxxxx: The specific type of error or the name of the program which encountered the error.

Message Meaning: A record was received by DRS/VPI which is zero or which exceeds the length of the receive buffer.

System Action: DRS/VPI will put this printer in EDRAINED status.

Required Action: Contact DRS technical support.

DRSV219E prtrid LOGIC ERROR FORMATTING PRINT BLOCK - MODULE
pgm text

pgm: Name of DRS/VPI program encountering the error.

text: The type of logic error encountered.

Message Meaning: DRS/VPI encountered an error while formatting the print line workarea.

System Action: DRS/VPI will put this printer in EDRAINED status.

Required Action: Contact DRS technical support.

DRSV220E prtrid SCS CONTROL CODE SPANS RECEIVE BUFFERS

Message Meaning: DRS/VPI received part of the SCS control code in the buffer, but the SCS control code was not complete.

System Action: DRS/VPI will put this printer in EDRAINED status.

Required Action: Contact DRS technical support.

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| DRSV221E | prtrid INVALID SCS CONTROL CODE |
| | Message Meaning: DRS/VPI received an SCS control code in the buffer which was invalid. |
| | System Action: DRS/VPI will put this printer in EDRAINED status. |
| | Required Action: Contact DRS technical support. |
| DRSV227E | prtrid req REQUEST FAILED FOR FILE file, RETCODE=rc |
| | req: The type of request that failed (e.g., READ). |
| | file: The name of the file on which the error occurred. |
| | rc: Return code information. |
| | Message Meaning: An unexpected error occurred attempting to access the DRS/STI rules dataset. |
| | System Action: Processing continues, but the Smart Tag control buffer is not used to determine the attributes of the resulting spool dataset. |
| | Required Action: Ensure that the DRS/STI rules dataset is properly defined in the DRS/VPI startup JCL. If unable to resolve the problem, contact DRS technical support. |
| DRSV228E | SMART TAG aaaaaaaa RECORD FOR bbbbbbbb NOT FOUND IN ccccccc FILE |
| | aaaaaaa: The type of record to be obtained, such as: APPL OUTPUT PRINTER PROFILE |
| | bbbbbbbb: The name of the record to be obtained, such as the printer name. |
| | ccccccc: File type (DRSRULES). |
| | Message Meaning: The record requested was not found in the file. |
| | System Action: Processing continues, but the Smart Tag buffer information requested will be ignored. |
| | Required Action: Add the record to the Smart Tag Rules dataset. |
| DRSV230E | IPDS PRINT BLOCK IS INVALID |
| | Message Meaning: DRS/VPI encountered a logic error processing the IPDS print line workarea. |
| | System Action: DRS/VPI will put this printer in EDRAINED status. |
| | Required Action: Contact DRS technical support. |

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| DRSV231E | prtrid IPDS DATA LENGTH ERROR |
| | Message Meaning: DRS/VPI encountered an error processing IPDS data because the length of the data was invalid. |
| | System Action: DRS/VPI will put this printer in EDRAINED status. |
| | Required Action: Contact DRS technical support. |
| DRSV232E | prtrid IPDS PRINT BLOCK OVERFLOW |
| | Message Meaning: DRS/VPI received IPDS data which was longer than the workarea available for print lines to be stored. |
| | System Action: DRS/VPI will put this printer in EDRAINED status. |
| | Required Action: Contact DRS technical support. |
| DRSV233E | prtrid IPDS UNKNOWN COMMAND DETECTED CMD=cmd cmd: |
| | The value detected in the IPDS command field. |
| | Message Meaning: DRS/VPI received an IPDS command which was not recognized. |
| | System Action: DRS/VPI will put this printer in EDRAINED status. |
| | Required Action: Contact DRS technical support. |
| DRSV240E | prtrid HEADER IGNORED TYPE=type REASON=reason type: |
| | The type of header being processed; for example DRS/PC. |
| | reason: |
| | The reason the header is considered invalid. |
| | Message Meaning: An error was encountered while processing a header located in the input data. |
| | System Action: The header keywords will be ignored and the header will be retained in the print data. |
| | Required Action: Ensure that the header included in the data has the correct values. |
| DRSV241E | prtrid HEADER KEYWORD ERROR TYPE=type KWD=kwd reason type: |
| | The type of header being processed; for example, DRS/PC. |
| | kwd: |
| | The keyword which is in error. |
| | reason: |
| | The reason for the error. |
| | Message Meaning: An error was encountered while processing a keyword located in the header. The keyword is a valid keyword, but the value specified is in error. |
| | System Action: The header keywords will be ignored and the header will be retained in the print data. |
| | Required Action: Ensure that the header included in the data has the correct keyword values. |

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| DRSV250E | <p>prtrid ACB OPEN FAILED R15=r15 EC=ec ec: ACB error flag Message Meaning: DRS/VPI was unable to open the VTAM ACB for the specified printer. System Action: DRS/VPI will put this printer in EDRAINED status. Required Action: Correct the error based upon R15 and AC. See the appropriate VTAM programming manual.</p> |
| DRSV251E | <p>prtrid ACB OPEN FAILED,(5C) VTAM NOT ACTIVE. REPLY R TO RETRY, E TO END Message Meaning: VTAM is not active. System Action: If reply is R, DRS/VPI will retry the ACB open. If reply is E, DRS VPI will terminate. Required Action: Wait for VTAM and its application configurations to come active and reply R, or reply E to terminate DRS/VPI.</p> |
| DRSV252E | <p>ACB CLOSE FAILED R15=r15 EC=ec ec: ACB error flag Message Meaning: DRS/VPI had an error closing its VTAM ACB. System Action: Printer termination will continue. Required Action: Correct the error based upon R15 and AC values. See the appropriate VTAM programming manual.</p> |
| DRSV253E | <p>prtrid OPNSEC FAILED R15=r15 R0=r0 RTNCD=rc FDBK2=f2 SENSE=sense OPTCD=xxxxxxx Message Meaning: VTAM OPNSEC for the specified printer failed. System Action: DRS/VPI will put this printer in EDRAINED status. Required Action: Correct the error based upon R15, R0, RTNCD, FDBK2 and SENSE. See the appropriate VTAM programming manual.</p> |
| DRSV254E | <p>TERMSESS FAILED R15=r15 R0=r0 RTNCD=rc FDBK2=f2 SENSE=sense OPTCD=xxxxxxx Message Meaning: VTAM TERMSESS for the specified printer failed. System Action: DRS/VPI will put this printer in EDRAINED status. Required Action: Correct the error based upon R15, R0, RTNCD, FDBK2 and SENSE. See the appropriate VTAM programming manual.</p> |

DRSV255E prtrid SETLOGON FAILED R15=r15 R0=r0 RTNCD=rc FDBK2=f2
SENSE=sense OPTCD=START|STOP|HOLD

Message Meaning: DRS/VPI was unable to inform VTAM that the printer is ready to accept logons.

System Action: DRS/VPI will put this printer in EDRAINED status.

Required Action: Correct the error based upon R15, R0, RTNCD, FDBK2 and SENSE. See the appropriate VTAM programming manual.

DRSV256E prtrid SESSIONC FAILED R15=r15 R0=r0 RTNCD=rc FDBK2=f2
SENSE=sense OPTCD=optcd CONTROL=cntl

optcd: Option code on SESSIONC VTAM macro.

cntl: Control value from SESSIONC VTAM macro.

Message Meaning: DRS/VPI was unable to issue a session control macro for the designated printer.

System Action: DRS/VPI will put this printer in EDRAINED status.

Required Action: Correct the error based upon R15, R0, RTNCD, FDBK2 and SENSE. See the appropriate VTAM programming manual.

DRSV257E prtrid RECEIVE FAILED R15=r15 R0=r0 RTNCD=rc FDBK2=f2
SENSE=sense OPTCD=optcd

optcd: Option code on RECEIVE VTAM macro.

Message Meaning: VTAM RECEIVE for this printer failed.

System Action: DRS/VPI will put this printer in EDRAINED status.

Required Action: Correct the error based upon R15, R0, RTNCD, FDBK2 and SENSE. See the appropriate VTAM programming manual.

DRSV258E prtrid INQUIRE FAILED R15=r15 R0=r0 RTNCD=rc FDBK2=f2
SENSE=sense OPTCD=optcd

optcd: Option code on INQUIRE VTAM macro.

Message Meaning: VTAM INQUIRE for this printer failed.

System Action: DRS/VPI will put this printer in EDRAINED status.

Required Action: Correct the error based upon R15, R0, RTNCD, FDBK2 and SENSE. See the appropriate VTAM programming manual.

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| DRSV259E | <p>SEND FAILED R15=r15 R0=r0 RTNCD=rc FDBK2=f2 SENSE=sense OPTCD=optcd STYPE=REQ +RESP -RESP SHUTC</p> <p>optcd: Option code on SEND VTAM macro.</p> <p>Message Meaning: VTAM SEND for this printer failed.</p> <p>System Action: DRS/VPI will put this printer in EDRAINED status.</p> <p>Required Action: Correct the error based upon R15, R0, RTNCD, FDBK2 and SENSE. See the appropriate VTAM programming manual.</p> |
| DRSV260E | <p>prtrid RESETSR FAILED R15=r15 R0=r0 RTNCD=rc FDBK2=f2 SENSE=sense OPTCD=optcd</p> <p>optcd: Option code on RESETSR VTAM macro.</p> <p>Message Meaning: VTAM RESETSR for this printer failed.</p> <p>System Action: DRS/VPI will put this printer in EDRAINED status.</p> <p>Required Action: Correct the error based upon R15, R0, RTNCD, FDBK2 and SENSE. See the appropriate VTAM programming manual.</p> |
| DRSV261E | <p>prtrid CHECK FAILED R15=r15 R0=r0 RTNCD=rc FDBK2=f2 SENSE=sense REQUEST=req</p> <p>req: RPL request type for which the CHECK failed.</p> <p>Message Meaning: VTAM CHECK for this printer failed.</p> <p>System Action: DRS/VPI will put this printer in EDRAINED status.</p> <p>Required Action: Correct the error based upon R15, R0, RTNCD, FDBK2 and SENSE. See the appropriate VTAM programming manual.</p> |
| DRSV262E | <p>prtrid RECEIVE FAILED RTNCD=rc FDBK2=f2 SENSE=sense</p> <p>Message Meaning: VTAM RECEIVE for this printer failed.</p> <p>System Action: DRS/VPI will put this printer in EDRAINED status.</p> <p>Required Action: Correct the error based upon R15, R0, RTNCD, FDBK2 and SENSE. See the appropriate VTAM programming manual.</p> |
| DRSV263E | <p>GENCB FAILED R15=r15 R0=r0 BLK=block</p> <p>block: VTAM control block which was being generated.</p> <p>Message Meaning: GENCB macro for a VTAM control block failed.</p> <p>System Action: DRS/VPI will terminate or DRS/VPI will put this printer in EDRAINED status.</p> <p>Required Action: Correct the error based upon R15 and R0. See the appropriate VTAM programming manual.</p> |

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- DRSV264E** MODCB FAILED R15=r15 R0=r0 BLK=block FIELDS=(f1,f2,.....)
block: VTAM control block which was being modified.
f1,f2,... The fields in the control block which were to be modified.
- Message Meaning:** MODCB macro for a VTAM control block failed.
System Action: DRS/VPI will terminate or DRS/VPI will put this printer in EDRAINED status.
Required Action: Correct the error based upon R15 and R0. See the appropriate VTAM programming manual.
- DRSV265E** SHOWCB FAILED R15=r15 R0=r0 BLK=block FIELDS=(f1,f2,.....)
block: VTAM control block whose fields were being displayed.
f1,f2,... The fields in the control block which were to be displayed.
- Message Meaning:** SHOWCB macro for VTAM control block failed.
System Action: DRS/VPI will terminate or DRS/VPI will put this printer in EDRAINED status.
Required Action: Correct the error based upon R15 and R0. See the appropriate VTAM programming manual.
- DRSV266E** TESTCB FAILED R15=r15 R0=r0 BLK=block FIELDS=(f1,f2,.....)
block: VTAM control block whose fields were being tested.
f1,f2,... The fields in the control block which were to be tested.
- Message Meaning:** TESTCB macro for VTAM control block failed.
System Action: DRS/VPI will terminate or DRS/VPI will put this printer in EDRAINED status.
Required Action: Correct the error based upon R15 and R0. See the appropriate VTAM programming manual.
- DRSV267E** prtrid CLSDST FAILED R15=r15 R0=r0 RTNCD=rc FDBK2=fb SENSE =sns
Message Meaning: CLSDST macro for this printer failed.
System Action: DRS/VPI will put this printer in EDRAINED status.
Required Action: Correct the error based upon R15, R0, RTNCD, FDBK2 and SENSE. See the appropriate VTAM programming manual.

DRSV268E prtrid SESSION REJECTED - SENSE=sense BECAUSE reason
reason: Reason that DRS/VPI rejected the session.

Message Meaning: An application attempted to establish a session with DRS/VPI for the specified prtrid and the session was rejected because the session (BIND) parameters were incorrect for the printer or because the printer was not currently available for session establishment.

System Action: The session is rejected by DRS/VPI.

Required Action: If the printer is EDRAINED, issue a START command for the printer.
If the DRS/VPI is terminating, try to establish the session after DRS VPI is restarted and the printer is activated.
If a session is already active for the printer with another application, issue a command to release the session from that application.
If the session parameters are invalid, use a different logon mode table entry (DLOGMOD) for the virtual printer (on the APPL statement) or change the definition for the printer in the primary application to indicate different session parameters.

Note: Message DRSV269N showing the session parameters will also be issued if the session parameters are invalid.

| REASON: | COMMENTS: |
|------------------------|---|
| BRACKET FLAGS INVALID | For TERMRPT=BRACKET, the BIND parms must specify that brackets are used. |
| CHAINING FLAGS INVALID | For TERMRPT=CHAIN or TERMRPT=BRACKET, the BIND parms must specify that the session will use chain protocol. |
| DRS/VPI IS TERMINATING | If DRS/VPI is terminating, all session requests will be rejected. |
| IN SESSION W/pluname | If the virtual printer is already in session with another application, all additional BIND requests will be rejected. The message will display the name of the current session partner (pluname). This error will occur if SESSLIM=YES was not specified on the VTAM APPL definition for the printer. |
| LU TYPE IS INVALID | LU type in BIND is not 0, 1, 3, or 6. |

| | |
|------------------------|---|
| PACING VALUE IS ZERO | Both primary send pacing and secondary receive pacing values are zero. |
| PRINTER IS EDRAINED | If the printer has been drained due to an error, any session requests will be rejected. |
| RUSIZE INVALID | Primary send RU size is greater than 3840 or secondary send RU size is smaller than 256. |
| LOGON NOT ALLOWED | A non-APPC device attempted to log on to DRS/VPI. Logon is only valid for LU type 6. |
| TERMRPT INVALID FOR LU | TERMRPT=APPC was specified for a virtual printer with LU type 0, 1, or 3. TERMRPT=APPC is only valid for COMMTYPE=(APPC,DRSP C) |

DRSV269N prtrid SESSION PARAMETERS sess parms
 sess parms: Session parameters in hex.

Message Meaning: When message DRSV268E is issued for invalid BIND parms, the session parameters are displayed in this message.

System Action: DRS/VPI will put this printer in EDRAINED status.

Required Action: Correct the error based upon SENSE from corresponding DRSV268E message.

DRSV270E

prtrid APPCCMD FAILED CONT=aaaaaaaa QUAL=bbbbbbbb
 RCPRI=cccc RCSEC=dddd RTNCD=rc FDBK2=f2 R15=r15 R0=r0

aaaaaaaa: CONTROL= value on VTAM APPCCMD macro.

bbbbbbbb: QUALIFY= value on VTAM APPCCMD macro.

cccc: Primary return code from RPL extension.

dddd: Secondary return code from RPL extension.

Message Meaning: VTAM APPCCMD macro for this printer failed.

System Action: DRS/VPI will put this printer in EDRAINED status.

Required Action: Correct the error based on the CONTROL, QUALIFY, RCPRI, RCSEC, R15, R0, RTNCD, and FDBK2. See the appropriate VTAM programming manual. If the problem cannot be resolved, contact DRS technical support.

Possible values for the error message variables are:

| CONT= | QUAL= | Function= |
|---------|----------|---------------------------------------|
| CHECK | N/A | Check RPL after macro completion |
| OPRCNTL | ACTSESS | Accept session with APPC device |
| OPRCNTL | DACTSESS | Reject session with APPC device |
| RCVFMH5 | N/A | Receive FMH5 to allocate conversation |
| RECEIVE | SPEC | Receive data on specific conversation |
| REJECT | N/A | Termination conversation and session |
| SEND | CONFRMD | Send confirmation/positive response |
| SEND | ERROR | Send error information to partner LU |
| SEND | FLUSH | Flush send buffer |

Primary and Secondary return codes for the APPCCMD macros are described in the VTAM Programming for LU6.2 manual. The most common return codes received by DRS when operating with DRS/PC are described below:

| RCPRI | RCSEC | Description/Possible Reasons/Action |
|-------|-------|--|
| 0004 | 0000 | ALLOCATION ERROR; NO RETRY |
| | | Path error; check physical connections |
| | | Device not defined or not active |
| | | Device not ready; start DRS/PC |
| 0004 | 0001 | ALLOCATION ERROR; RETRY IS ALLOWED |
| | | Device not ready; start DRS/PC |
| 0010 | 0004 | PARTNER LU STARTING SESSION |
| | | DRS/PC has issued CNOS |
| 0020 | 0000 | CNOS FAILIURE, RETRY IS ALLOWED |
| | | Device not ready; start DRS/PC |
| 002C | 0000 | INVALID LU NAME |
| | | LUNAME incorrect or not active |

| RCPRI | RCSEC | Description/Possible Reasons/Action |
|--------------|--------------|--|
| 002C | 0001 | INVALID MODE |
| | | Mode name unknown or misspelled |
| | | Mode name not in logon mode table |
| 002C | 0002 | INVALID CONVERSATION |
| | | Conversation has terminated abnormally |
| 002C | 0003 | INVALID LL |
| | | Invalid record length (logic error) |
| 002C | 0013 | NO CORRESPONDING MODE IN LM TABLE |
| | | Mode name unknown or misspelled |
| 002C | 0014 | INVALID BIND PARAMETERS |
| | | Mode name does not specify LU6 session parameters |
| 002C | 001E | CID INVALID |
| | | ACTSESS specified unknown session ID |
| | | DACTSESS specified unknown session ID |
| 0048 | 0000 | RESOURCE FAILURE, NO RETRY |
| | | DRS/PC was terminated; restart DRS/PC |
| 0054 | 0000 | UNRECOGNIZED MODE NAME |
| | | Mode name not in logon mode table |
| 0064 | 0000 | ACTIVATION FAILURE |
| | | APPC remote device not available |
| | | DRS/PC APPC software not active; start DRS/PC |
| | | DRS/PC using invalid mode name |
| 0088 | 0000 | CANCELLED BY REJECT/ABNORMAL DEALLOC |
| | | DRS/PC terminated abnormally; restart DRS/PC |
| 0090 | 0000 | APPLICATION NOT APPC CAPABLE |
| | | APPL definition does not allow APPCCMD; check DRS APPL |

DRSV271E VTAM CONTROL BLOCK name LENGTH RETURNED IS INVALID - X'nnnnnnnn'

name: Name of VTAM control block.

nnnnnnnn: Length returned.

Message Meaning: The control block length returned on the SHOWCB instruction was invalid.

System Action: DRS/VPI initialization will terminate.

Required Action: Contact DRS technical support.

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| DRSV281E | <p>prtrid TPEND type RECEIVED</p> <p>type: The type of TPEND request received (QUICK or CANCEL).</p> <p>Message Meaning: VTAM has been terminated with Z NET,QUICK/CANCEL, or the DRS virtual printer applid has been varies inactivate with immediate or force.</p> <p>System Action: DRS/VPI will put this printer in EDRAINED status.</p> <p>Required Action: Either vary the applid active or wait for VTAM to be restarted. Then start the DRS virtual printer.</p> |
| DRSV282E | <p>prtrid UNSUPPORTED UNKNOWN REQUEST RECEIVED IN VTAM ATTN EXIT FOR REQUEST TYPE=aaaa</p> <p>aaaa: APPC request received in VTAM ATTN exit.</p> <p>Message Meaning: DRS/VPI encountered an unknown or unexpected request in the VTAM ATTN exit.</p> <p>System Action: DRS/VPI will ignore the request.</p> <p>Required Action: Contact DRS technical support.</p> |
| DRSV283E | <p>prtrid RPL EXIT UNKNOWN REQUEST=req R15=r15 R0=r0 RTNCD=rc FDBK2=f2 SENSE=sense</p> <p>req: Request code received in RPL EXIT from VTAM.</p> <p>Message Meaning: VTAM RPL exit was scheduled for an unexpected request type.</p> <p>System Action: DRS/VPI will put this printer in EDRAINED status.</p> <p>Required Action: Correct the error based upon R15, R0, RTNCD, FDBK2 and SENSE. See the appropriate VTAM programming manual.</p> |
| DRSV284E | <p>prtrid type FUNCTION MANAGEMENT HEADER FMH=fmh reason</p> <p>type: Type of FMH received (UNKNOWN or UNSUPPORTED).</p> <p>fmh: Function management header value.</p> <p>reason: Indicates the reason the FMH is not supported, as follows:</p> <ul style="list-style-type: none"> • FMH LENGTH IS ZERO • STRUCTURED FIELD RECEIVED • NOT BEGIN OR END DEST • SESSION NOT LUTYPE 6 • MULTIPLE FMHS CONCATENATED <p>Message Meaning: DRS received an unknown or unsupported function management header.</p> <p>System Action: DRS/VPI will put this printer in EDRAINED status.</p> <p>Required Action: Correct the primary application, based on the reason listed in the message.</p> |

DRSV285E prtrid INVALID comm REQUEST req
comm: The communication protocol in use (TCPIP, VTAM or VTAM APPC).
req: The type of request that failed.
Message Meaning: DRS/VPI received an unrecognized request code.
System Action: DRS/VPI will put this printer in EDRAINED status.
Required Action: This is a logic error within the DRS/VPI programs. Contact DRS technical support.

DRSV286E UNKNOWN REQUEST RECEIVED IN NETWORK SERVICES EXIT
Message Meaning: DRS/VPI encountered an unknown or invalid request in the VTAM network services exit.
System Action: DRS/VPI will ignore the request.
Required Action: Contact DRS technical support.

DRSV287E prtrid UNEXPECTED DFSYN REQUEST=req CONTROL=cntl
req: VTAM request code
cntl: VTAM control code
Message Meaning: DRS/VPI encountered an unexpected data flow control request.
System Action: DRS/VPI will put this printer in EDRAINED status.
Required Action: Contact DRS technical support.

DRSV288E prtrid UNKNOWN|UNSUPPORTED REQUEST RECEIVED IN VTAM SCIP EXIT WITH CONTROL=cntl
cntl: VTAM control code
Message Meaning: DRS/VPI encountered an unknown or unsupported control request in the VTAM SCIP exit.
System Action: DRS/VPI will put this printer in EDRAINED status.
Required Action: Contact DRS technical support.

DRSV289E prtrid SNA CANCEL RECEIVED
Message Meaning: DRS/VPI encountered the SNA CANCEL command to end the current report.
System Action: The report will be terminated according to the ERRACTN parameter in the printer definition.
Required Action: Contact DRS technical support.

DRSV290E prtrid INVALID DRS CALL REQUEST req
req: The request code used for the DRS call.
Message Meaning: DRS call module received an unknown request code.
System Action: DRS/VPI will put this printer in EDRAINED status.
Required Action: There is a logic error within the DRS/VPI programs. Contact DRS technical support.

DRSV291E prtrid DRS CALL ERROR FUNC=func DRSRC=rc OSRC=osrc
ATTR=attr text
func: The DRS function code
drsrc: The DRS return code
osrc: The DRS OS return code
attr: The DRS attribute number in error
text: The reason for the failure, if available. For example:

- DEVICE UNAVAILABLE
- DDNAME NOT SPECIFIED
- DDNAME WAS NOT FOUND
- INVALID FUNCTION CODE
- INVALID SYSOUT PROGRAM NAME
- INVALID SYSOUT FORM NUMBER
- INVALID SYSOUT CLASS
- MUTUALLY EXCLUSIVE KEYWORDS
- INVALID PARM IN TEXT UNIT
- INVALID KEY IN TEXT UNIT
- INVALID PARM LIST FORMAT
- MUTUALLY EXCLUSIVE KEY
- MUTUALLY INCLUSIVE KEY ERROR
- REQUIRED KEY NOT FOUND
- REACHED ALLOCATION LIMIT
- JES DESTINATION INVALID
- USER UNAUTHORIZED FOR JES
- CANNOT PROCESS JES REQUEST
- UNABLE TO ESTABLISH ESTAE

Message Meaning: DRS call module received an error processing a request.
System Action: DRS/VPI will put this printer in EDRAINED status.
Required Action: Determine the reason for the failure based on the DRS return code, OS return code, DRS attribute number, and error text in the message. If the reason cannot be determined, contact DRS technical support.

DRSV292E prtrid DRS INIT CALL RE-ISSUED USING DEFAULT SPOOLING ATTRIBUTES

Message Meaning: DRS/VPI will re-issue the DRS INIT call using the default spooling attributes (DRIB) specified in the virtual printer definition. This message will follow a DRSV291E message. If the default spooling attributes have not been modified, the second INIT call will not be made. Spooling attributes can be modified by information obtained from DRS/PC or by DRS/VPI User Exit 07.

System Action: DRS/VPI will attempt the DRS INIT call using the default spooling attributes defined at virtual printer activation.

Required Action: Correct the spooling attributes sent from DRS/PC or specified in DRS/VPI User Exit 07.

Note: It may be necessary to issue a JES command to re-route this report on the spool from the default spooling attributes (e.g., CLASS, DESTINATION, FORM, WRITER, etc.) to the correct spooling attributes.

DRSV380I TCPIP CONNECTION SUCCESSFUL HOST=host,PORT=port

host: Indicates the name of the local host for TCP/IP.

port: Indicates the PORT obtained to connect to TCP/IP.

Message Meaning: DRS has successfully connected to TCP/IP.

System Action: None.

Required Action: None.

DRSV381E prtrid TCPIP IBM MACRO ERROR TYPE=aaaa R15=r15
SOCKET=bbbb FUNCTION=cccc

aaaa: Indicates the 16-byte descriptor provided for the IBM TCP/IP request.

bbbb: Indicates the current socket value.

cccc: Indicates the function requested or zero.

Message Meaning: An error occurred when a TCP/IP IUCV macro was issued.

System Action: DRS/VPI will put this printer in EDRAINED status.

Required Action: Contact DRS technical support if you are unable to determine the cause of the error.

DRSV382E prtrid TCPIP ERR=reason TYPE=aaa..aaa FUNCTION=bbbb ANS=ans1 ans2
reason: The reason for the error, such as:

- CONNECTION TO TCPIP FAILED
- NO PORT CURRENTLY AVAILABLE
- PC NUMBER INIT FAILED
- REJECT ERROR DETECTED

aaa..aaa: Indicates the 16-byte descriptor provided for the IBM TCP/IP request.

bbbb: Indicates the function code requested or zero.

ans1: The first word of the answer back area.

ans2: The second word of the answer back area.

Message Meaning: A TCP/IP request failed due to an error condition.

System Action: DRS/VPI will put this printer in EDRAINED status.

Required Action: Contact DRS technical support if you are unable to determine the cause of the error.

DRSV383E prtrid TCPIP CONNECTION SERVERED - REASON=reason text
reason: The reason code supplied by MVS TCP/IP, if applicable.

text: A description of why the connection was severed.

- IUCVCHECKRC = IUCV error detected before initial send
- SHUTTINGDOWN = TCP/IP service is being shut down (during connect)
- KILL-9 = Fatal error in IUCV communications
- KILL-37 = A software error occurred in MVS TCP/IP
- KILL-38 = TCP/IP service is being shut down (after connect)

Message Meaning: The MVS TCP/IP address space has severed the connection with the DRS virtual printer.

System Action: DRS/VPI will put this printer in EDRAINED status.

Required Action: Contact DRS technical support if you are unable to determine the cause of the error.

DRSV384E

prtrid TCPIP PROCESSING LOGIC ERROR - reason

reason:

A description of the logic error, such as:

- ALL TPLS IN USE
- API OPTIONS LENGTH ZERO
- CANNOT LOCATE TPL
- CONFIRM/DISCONNECT MISSING
- DATA INDICATION MISSING
- DIRSRV - HOST NAME ZERO LENGTH
- DIRSRV - INVALID ADDR LENGTH
- ENDPOINT STATE ERROR
- ERROR IN TCP SUPPORT MODULE
- ERROR OBTAINING HOST ADDRESS
- ERROR OBTAINING SOCKET NUMBER
- LOCAL HOST ADDR LEN IS ZERO
- MAXIMUM SOCKET NOT ALLOWED
- PENDING CONNECTION MISSING
- REQUESTED SOCKET NOT OBTAINED
- SEND BUFFER NOT ALLOCATED
- TINFO RETURNED ZERO LENGTH
- TP OPTIONS LENGTH ZERO
- TPL NOT READY FOR TCHECK
- UNKNOWN TCPIP TYPE

Message Meaning:

A logic error has occurred when processing a dataset for a DRS/TCPIP virtual printer.

System Action:

DRS/VPI will put this printer in EDRAINED status.

Required Action:

Contact DRS technical support.

DRSV385EUNKNOWN|UNSUPPORTED|INVALID INTERRUPT TYPE aa
RECEIVED IN TCPIP IUCV EXIT UWORD=bbbbbbbb
EXTB=ccccccc

aa:

The interrupt type received in the exit.

bbbbbbbb:

The value of the user word passed to the exit.

ccccccc:

The value of the first 8 bytes of the external interrupt buffer.

Message Meaning:

The interrupt type received in the IUCV exit was unknown to DRS, was unsupported by DRS, or the external interrupt buffer contained invalid data.

System Action:

The interrupt is ignored.

Required Action:

Contact DRS technical support.

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| DRSV386E | DRS/TCPIP INTERFACE DISABLED - TCPIP type REQUEST TERMINATED ABNORMALLY |
| type: | “IBM IUCV” or “IBM V3 API” or “IBM HPNS” or “ICS API” |
| Message Meaning: | An abend occurred while a system request to TCP/IP was in progress. The TCP/IP interface will be disabled. |
| System Action: | All active TCP/IP virtual printers are EDRAINED. |
| Required Action: | Contact DRS technical support if you are unable to determine the cause of the error. |
| | |
| DRSV387E | TCPIP CONNECTION NOT AVAILABLE - REASON=aaa |
| reason: | The reason code supplied by MVS TCP/IP, such as: <ul style="list-style-type: none"> • TIMEOUT ON SELECT CALL • EXCEPTION MASK NOT SET |
| Message Meaning: | An error occurred during the connection process with the remote host. |
| System Action: | DRS/VPI will put this printer in EDRAINED status. |
| Required Action: | Contact DRS technical support. |
| | |
| DRSV388I | MAXIMUM TCPIP CONNECTIONS IN INITIALIZATION STATUS - ADDITIONAL CONNECTION REQUESTS DELAYED |
| Message Meaning: | DRS has reached the maximum number of concurrent initialization connection requests. |
| System Action: | DRS will queue further connection requests until a current pending connection request is completed. |
| Required Action: | None. |
| | |
| DRSV389I | prtridLPD CONTROL RECORD IGNORED WARNING - TYPE=type REASON=reason VALUE=value |
| type: | Control record type. |
| reason: | The reason the control record is invalid, such as: <ul style="list-style-type: none"> • RECORD LENGTH ERROR • VALUE EXCEEDS MAX • VALUE NOT NUMERIC • VALUE LESS THAN 0 |
| value: | The first 28 bytes of the control record. |
| Message Meaning: | DRS detected an invalid control record while processing the control file. |
| System Action: | DRS will either ignore the control record or adjust its value to the maximum allowed. |
| Required Action: | None. |

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| DRSV390I | prtrid POSITIVE NEGATIVE ACK SENT - text |
| | text: The text returned to the remote host. |
| | Message Meaning: DRS/VPI has returned error text to a remote host. If a negative acknowledgement was sent, the file or command was rejected. If a positive acknowledgement was sent, error text was returned to the remote host to indicate that the command received is not supported. |
| | System Action: The connection with the remote host will be terminated. |
| | Required Action: The command or file being sent by the remote TCP/IP host should be corrected. If the problem cannot be eliminated, contact DRS technical support for assistance. |
| | |
| DRSV391E | TCPMRD INTERVAL EXPIRED - TCP/IP CONNECTION TIMED OUT |
| | Message Meaning: No response was returned to an outstanding TCP/IP request during the interval specified by the TCPMRD keyword. DRS/VPI terminates the connection with the TCP/IP remote host. |
| | System Action: DRS/VPI will put this printer in EDRAINED status. |
| | Required Action: Determine the reason the remote host stopped responding to DRS/VPI. |
| | |
| DRSV392E | DRS/TCPIP TIMER IRB EXIT UNABLE TO LOCATE DRS PRINTER CONTROL BLOCKS |
| | Message Meaning: The DRS/TCPIP timer IRB exit was unable to locate the DRS printer control blocks. |
| | System Action: DRS/VPI will put this printer in EDRAINED status. |
| | Required Action: This is a logic error within the DRS/VPI programs. Contact DRS technical support. |

DRSV393E aaaa EXIT PARAMETER RECEIVED IN TCPIP ASYNCHRONOUS
EXIT - TYPE=type EVENT=event

aaaa: The type of asynchronous exit parameter
received.

bbbbbbb: The event for which the exit was scheduled,
such as:

| Type | Type Description | Event | Event Description |
|------|---------------------|-------|----------------------------|
| 0001 | Protocol event | 00 | Connect indication |
| 0001 | Protocol event | 04 | Confirm indication |
| 0001 | Protocol event | 08 | Data indication |
| 0001 | Protocol event | 12 | Expedited data indication |
| 0001 | Protocol event | 16 | Datagram error indication |
| 0001 | Protocol event | 20 | Disconnect indication |
| 0001 | Protocol event | 24 | Release indication |
| 0002 | Endpoint completion | | |
| 0003 | TPEND (shutdown) | 00 | Operator drained subsystem |
| 0003 | TPEND (shutdown) | 04 | Operator stopped subsystem |
| 0003 | TPEND (shutdown) | 08 | Subsystem abended |
| 0004 | Synchronous error | | |
| 0005 | APEND (shutdown) | 04 | Operator drained subsystem |
| 0003 | APEND (shutdown) | 04 | Operator stopped subsystem |
| 0003 | APEND (shutdown) | 08 | Subsystem abended |

Message Meaning: DRS/VPI has received an unknown request in
the ICS asynchronous event exit.

System Action: The request will be ignored.

Required Action: Contact DRS technical support.

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| DRSV394E | prtrid TCPIP ICS ERROR=reason TYPE=aaa..aaa R15=r15 R0=r0 RTNCD=rc |
| | reason: The reason for the error, such as: <ul style="list-style-type: none"> • API NOT CONFIGURED • API NOT ACTIVE • API NOT READY FOR SERVICE • API SUBSYSTEM STOPPED • API SUBSYSTEM DRAINING • TIME LIMIT EXCEEDED • REQUEST EXCEEDED TIME LIMIT • HOST DOES NOT EXIST • INSUFFICIENT DATA: NO HOST • SUBSYSTEM NOT INITIALIZED • DISCONNECT RECEIVED • TCONNECT: ADDRESS IN USE |
| | aaa..aaa: The type of macro issued (AOPEN, TCLOSE, etc.) |
| | Message Meaning: An ICS macro failed due to an error condition. |
| | System Action: DRS/VPI will put this printer in EDRAINED status. |
| | Required Action: If unable to determine the cause of the error, contact DRS technical support. |
| DRSV395E | prtrid TCPIP ICS ERROR MESSAGE errmsg |
| | errmsg: Error text supplied by Interlink Computer Sciences. |
| | Message Meaning: An error was detected while attempting to use an ICS macro. Multiple DRSV395E messages will be issued to display the error text supplied by ICS. The DRSV394E message will also be issued for the error. |
| | System Action: DRS/VPI will put this printer in EDRAINED status. |
| | Required Action: If unable to determine the cause of the error, contact DRS technical support. |
| DRSV396E | ERROR PROCESSING LPR QUERY REQUEST FOR HOST=host PORT=port |
| | host: IP address of host originating query request. |
| | port: TCP/IP port number of client. |
| | Message Meaning: An error was encountered processing a remote client query request (LPQ). |
| | System Action: The client connection will be terminated. |
| | Required Action: Check previous messages for the cause of the error. If the cause cannot be determined, contact LRS technical support. |

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| DRSV397I | <p>printer SYSOUT track# PURGE REQUESTED BY USER userid HOST host</p> <p>printer: DRS printer name track#: Tracking number of SYSOUT dataset. userid: Requesting userid. host: Originating host name.</p> <p>Message Meaning: The indicated remote user has issued a purge request for the specified SYSOUT dataset.</p> <p>System Action: DRS will process the purge request.</p> <p>Required Action: None.</p> |
| DRSV398I | <p>prtrid TCPIP CONNECTION ACCEPTED FROM REMOTE HOST IP ADDRESS=addr PORT=port</p> <p>addr: IP address of the remote host. port: The port number used by the remote host to connect to DRS/VPI.</p> <p>Message Meaning: Indicates a connection has been established between the remote host and DRS/VPI.</p> <p>System Action: None.</p> <p>Required Action: None.</p> |
| DRSV399I | <p>prtrid TCPIP PRINT JOB REQUEST ACCEPTED FROM REMOTE HOST IP ADDRESS=addr PORT=port</p> <p>addr: IP address of the remote host port: The port number used by the remote host to connect to DRS/VPI</p> <p>Message Meaning: DRS/VPI has accepted a “receive print job” request from a remote host.</p> <p>System Action: None.</p> <p>Required Action: None.</p> |
| DRSV520E | <p>prtrid TCPIP QUEUE DYNAMIC ALLOCATION FAILURE RC=rc EC=eeee IC=iiii</p> <p>rc: Dynamic allocation return code. eeee: Dynamic allocation error code. iiii: Dynamic allocation inf code.</p> <p>Message Meaning: Dynamic allocation for the TCPIP staging dataset has failed. See OS/VS2 SPL: Job Management.</p> <p>System Action: DRS will put this printer in EDRAINED status.</p> <p>Required Action: Correct error causing the dynamic allocation failure.</p> |

DRSV521E prtrid TCPIP QUEUE DYNAMIC UNALLOCATION FAILURE
RC=rc EC=eeee IC=iiii

rc: Dynamic allocation return code.
eeee: Dynamic allocation error code.
iiii: Dynamic allocation inf code.

Message Meaning: Dynamic unallocation of the TCPIP staging dataset has failed. See OS/VS2 SPL: Job Management.

System Action: DRS will put this printer in EDRAINED status.

Required Action: Correct error causing the dynamic unallocation failure.

DRSV522E prtrid TCPIP QUEUE OPEN|CLOSE FAILURE DDNAME=aaaaaaaa
aaaaaaaa: DDNAME of the TCPIP staging dataset.

Message Meaning: OPEN or CLOSE of the TCPIP staging dataset has failed.

System Action: DRS will put this printer in EDRAINED status.

Required Action: Contact DRS technical support.

DRSV523E prtrid TCPIP QUEUE DCB ABEND CODE=sss-ss
sss-ss: System abend code - reason code.

Message Meaning: An abend occurred during OPEN/CLOSE/EOV processing for the TCPIP staging dataset.

System Action: DRS will put this printer in EDRAINED status.

Required Action: If the abend is an S213 or S214, the TCPIP staging dataset has been deleted while DRS is executing. This is generally caused when a "clean-up" job is run on a CPU other than the one on which DRS is running, in a shared DASD environment.

DRSV524E prtrid I/O ERROR DURING TCPIP QUEUE PROCESSING

Message Meaning: An I/O error occurred while writing to the TCPIP staging dataset. Message DRSV525E will follow.

System Action: DRS will put this printer in EDRAINED status.

Required Action: If possible, correct the problem which caused the I/O error. Then issue a START command for the printer.

DRSV525E prtrid i/o error synad message

Message Meaning: This is the I/O error synad message for DRSV524E.

System Action: See message DRSV524E.

Required Action: See message DRSV524E.

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| DRSV526E | <p>INSUFFICIENT VIRTUAL STORAGE FOR TCPIP QUEUE BUFFERS</p> <p>Message Meaning: There is insufficient virtual storage in the DRS address space for staging dataset buffers.</p> <p>System Action: DRS will put this printer in EDRAINED status.</p> <p>Required Action: Increase the REGION parameter in the DRS execution JCL and reinitiate DRS.</p> |
| DRSV528E | <p>prtrid TCPIP QUEUE INVALID DATASET DETECTED</p> <p>Message Meaning: DRS/TCPIP detected that the staging dataset for the printer has been corrupted.</p> <p>System Action: DRS will put this printer in EDRAINED status.</p> <p>Required Action: Determine if the staging dataset was deleted or overwritten by another CPU in the configuration. If not, contact DRS technical support.</p> |
| DRSV529E | <p>prtrid TCPIP QUEUE OUTPUT BUFFER OVERRUN</p> <p>Message Meaning: DRS/TCPIP determined that the queue output buffer was too small to contain a decompressed record.</p> <p>System Action: DRS will put this printer in EDRAINED status.</p> <p>Required Action: Contact DRS technical support.</p> |
| DRSV600E | <p>LOG ALLOCATION FAILURE R15=r15 EC=eeee IC=iiii</p> <p>r15: Dynamic allocation return code.</p> <p>eeee: Dynamic allocation error code.</p> <p>iiii: Dynamic allocation info code (see OS/VS2 SPL: Job Management).</p> <p>Message Meaning: An error has occurred while allocating the SYSOUT dataset for the DRS/VPI log.</p> <p>System Action: Logging is disabled.</p> <p>Required Action: Determine the reason for the failure, based on the R15/EC/IC codes. If the reason cannot be determined, contact DRS technical support.</p> |
| DRSV601E | <p>LOG OPEN FAILURE</p> <p>Message Meaning: An error occurred opening the DRS/VPI log dataset.</p> <p>System Action: Logging is disabled.</p> <p>Required Action: If possible, correct the problem which caused the OPEN error. To enable logging the DRS/VPI address space must be restarted.</p> |

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| DRSV602E | LOG CLOSE FAILURE |
| | Message Meaning: An error has occurred on a close for the DRS/VPI log dataset. |
| | System Action: Logging is disabled. |
| | Required Action: Determine the reason for the failure. If the reason cannot be determined, contact DRS technical support. |
| | |
| DRSV603R | LOG CLOSE COMPLETE |
| | Message Meaning: A CLOSELOG command has been processed. |
| | System Action: DRS/VPI has responded to a CLOSELOG command by closing the DRS VPI log SYSOUT dataset and allocating a new SYSOUT dataset. Recording of log data will continue on the new dataset. The old SYSOUT dataset will be available for printing. |
| | Required Action: None. |
| | |
| DRSV604R | LOG DATASET IS FULL; LOGGING CONTINUES AT START OF DATASET |
| | Message Meaning: The DASD dataset being used for the DRS/VPI log is full. |
| | System Action: DRS/VPI will begin recording log data at the start of the dataset. Old data will be lost. |
| | Required Action: None. |
| | |
| DRSV605E | LOG DCB ABEND CODE=xxx-xx |
| | xxx-xx: Abend/return codes |
| | Message Meaning: An error occurred during OPEN/CLOSE/EOV processing for the DRS/VPI log dataset. |
| | System Action: Logging is disabled. |
| | Required Action: Determine the reason for the failure. If the reason cannot be determined, contact DRS technical support. |
| | |
| DRSV606E | LOG I/O ERROR xxxxxxxxxxxx |
| | xxxxxxxxxx: SYNAD message text. |
| | Message Meaning: An I/O error occurred while writing to the DRS/VPI log dataset. |
| | System Action: Logging continues. |
| | Required Action: Determine the cause of the I/O error and correct it. |

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| DRSV620E | <p>prtrid SNAP ALLOCATION FAILURE R15=r15 EC=eeee IC=iiii r15: Dynamic allocation return code. eeee: Dynamic allocation error code. iiii: Dynamic allocation info code (see OS/VS2 SPL: Job Management).</p> <p>Message Meaning: An error has occurred while attempting to allocate a snap dump dataset.</p> <p>System Action: The snap request is ignored.</p> <p>Required Action: Correct the error causing the allocation failure, based on the R15, EC, and IC values.</p> |
| DRSV621E | <p>prtrid SNAP OPEN FAILURE</p> <p>Message Meaning: An error occurred opening the snap dump dataset.</p> <p>System Action: DRS/VPI will put this printer in EDRAINED status.</p> <p>Required Action: If possible, correct the problem which caused the OPEN error. Then issue a START command for the printer.</p> |
| DRSV622E | <p>prtrid SNAP DCB ABEND CODE=xxx-xx xxx-xx: Abend/return codes.</p> <p>Message Meaning: An abend occurred during OPEN/CLOSE/EOV processing for the snap dump dataset.</p> <p>System Action: DRS/VPI will put this printer in EDRAINED status.</p> <p>Required Action: If possible, correct the problem which caused the abend. Then issue a START command for the printer.</p> |
| DRSV623E | <p>prtrid SNAP I/O ERROR xxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxx SYNAD message text</p> <p>Message Meaning: An I/O error occurred while writing to the snap dataset.</p> <p>System Action: The snap request is ignored.</p> <p>Required Action: Contact DRS technical support.</p> |
| DRSV630E | <p>DRSCKPT DD STATEMENT MISSING</p> <p>Message Meaning: DRSCKPT DD statement was not found.</p> <p>System Action: DRS/VPI initialization will terminate.</p> <p>Required Action: Add the DRSCKPT DD statement to the JCL and restart DRS/VPI.</p> |

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| DRSV631E | DRSCKPT DATASET INVALID RSN=reason reason: Reason for invalid dataset, such as: |
| | <ul style="list-style-type: none"> • DUMMY DATASET NOT ALLOWED • DATASET IS NOT VSAM • TEMPORARY DATASET NOT ALLOWED • DATASET NAME IS INVALID |
| | Message Meaning: The DRSCKPT dataset is not a valid file. |
| | System Action: DRS/VPI initialization will terminate. |
| | Required Action: Create a valid DRSCKPT file and restart DRS/VPI. |
| | |
| DRSV632N | LOADING DRSCKPT DATASET |
| | Message Meaning: The DRSCKPT dataset is being loaded. |
| | System Action: None. |
| | Required Action: None. |
| | |
| DRSV633N | DRSCKPT DATASET SUCCESSFULLY LOADED |
| | Message Meaning: The DRSCKPT dataset was loaded successfully. |
| | System Action: None. |
| | Required Action: None. |
| | |
| DRSV634N | DRSCKPT DATASET SUCCESSFULLY OPENED CLOSED type |
| | type: Type of OPEN/CLOSE, such as: |
| | <ul style="list-style-type: none"> • LOAD MODE |
| | Message Meaning: The DRSCKPT dataset was loaded successfully. |
| | System Action: None. |
| | Required Action: None. |
| | |
| DRSV635E | DRSCKPT type FAILED RC=rc RSN=reason |
| | type: Type of VSAM macro that failed. |
| | rc: Return code. |
| | reason: Reason code. |
| | Message Meaning: DRS/VPI encountered an error while processing the DRSCKPT dataset. |
| | System Action: DRS/VPI initialization will terminate. |
| | Required Action: Create a valid DRSCKPT file and restart DRS/VPI. |

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| DRSV636E | DRSCKPT DATASET I/O ERROR xxxxxxxxxx xxxxxxx: SYNAD message text. |
| | Message Meaning: An I/O error occurred while writing to the DRSCKPT dataset. |
| | System Action: DRS/VPI initialization will terminate. |
| | Required Action: Contact DRS technical support. |
| DRSV637E | DRSCKPT DATASET DISABLED DUE TO PREVIOUS ERROR |
| | Message Meaning: DRS encountered an unrecoverable error while processing the DRSCKPT dataset. |
| | System Action: DRS/VPI initialization will terminate. |
| | Required Action: Contact DRS technical support. |
| DRSV638N | DRSCKPT INVALID KIT ENTRY DETECTED FOR PRODUCT prodname |
| | prodname: Name of product. |
| | Message Meaning: DRS encountered an invalid product key entry. |
| | System Action: DRS/VPI initialization will continue. |
| | Required Action: Contact DRS technical support. |
| DRSV639E | DRSCKPT INSUFFICIENT VIRTUAL STORAGE FOR RECORD WORK AREA |
| | Message Meaning: DRS/VPI was unable to obtain virtual storage to process the DRSCKPT dataset. |
| | System Action: DRS/VPI initialization will terminate. |
| | Required Action: Contact DRS technical support. |
| DRSV640E | DRS/VPI FAST TERMINATION IN PROGRESS DUE TO DRSCKPT ERROR(S) |
| | Message Meaning: DRS/VPI was unable to continue due to errors when processing the DRSCKPT dataset. |
| | System Action: DRS/VPI will terminate. |
| | Required Action: Contact DRS technical support. |
| DRSV800E | DISPATCHER SUBTASK ABEND SYS=sss USR=uuu |
| | sss: System abend code. |
| | uuu: User abend code. |
| | Message Meaning: Dispatcher subtask has abended. |
| | System Action: DRS/VPI messages DRSV809E and DRSV810E will follow. DRS/VPI will abend with a U100 abend. |
| | Required Action: Contact DRS technical support. |

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- DRSV801E** COMMUNICATIONS SUBTASK ABEND SYS=sss USR=uuu
sss: System abend code.
uuu: User abend code.
Message Meaning: Operator communications subtask has abended.
System Action: DRS/VPI messages DRSV809E and DRSV810E will follow. DRS/VPI will abend with a U100 abend.
Required Action: Contact DRS technical support.
- DRSV802E** LOG SUBTASK ABEND SYS=sss USR=uuu
sss: System abend code.
uuu: User abend code.
Message Meaning: The DRS/VPI log subtask has abended.
System Action: DRS/VPI messages DRSV809E and DRSV810E will follow. DRS/VPI logging will be disabled.
Required Action: If logging is required, restart DRS/VPI.
- DRSV803E** DRIVER SUBTASK ABEND SYS=sss USR=uuu
sss: System abend code.
uuu: User abend code.
Message Meaning: The DRS/VPI driver subtask has abended.
System Action: DRS/VPI messages DRSV809E and DRSV810E will follow. DRS/VPI will abend with a U100 abend.
Required Action: Contact DRS technical support.
- DRSV804E** TCP/IP SUBTASK ABEND SYS=sss USR=uuu
sss: System abend code.
uuu: User abend code.
Message Meaning: The DRS/TCPIP subtask has abended.
System Action: Messages DRSV809E and DRSV810E will follow. The DRS/TCPIP product will be disabled.
Required Action: Contact DRS technical support.
- DRSV805E** SERVER SUBTASK ABEND SYS=sss USR=uuu
sss: System abend code.
uuu: User abend code.
Message Meaning: The DRS/VPI Server subtask has abended.
System Action: DRS/VPI messages DRSV809E and DRSV810E will follow. The SERVER connections will be lost.
Required Action: Contact DRS technical support.

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| DRSV806E | TIMER SUBTASK ABEND SYS=sss USR=uuu sss: System abend code. uuu: User abend code. Message Meaning: The DRS/VPI Timer subtask abended. System Action: DRSV809E and DRSV810E will follow. DRS/VPI will terminate. Required Action: Contact DRS technical support. |
| DRSV807E | prtrid VIRTUAL PRINTER SUBTASK ABEND SYS=sss USR=uuu sss: System abend code. uuu: User abend code. Message Meaning: The subtask for the specified virtual printer has abended. System Action: DRS/VPI messages DRSV809E and DRSV810E will follow. DRS/VPI will put the printer in EDRAINED status. Required Action: Contact DRS technical support. |
| DRSV808E | prtrid USER EXIT ABEND - EXITID=nn SYS=sss USR=uuu, EXIT DISABLED nn: User exit number. sss: System abend code. uuu: User abend code. Message Meaning: The DRS/VPI user exit module identified in the message has abended. System Action: DRS/VPI messages DRSV809E and DRSV810E will follow. DRS/VPI will disable the exit, and the printer will continue to process work, but without using this exit. Required Action: If the exit is required, correct the error in the exit and terminate and restart DRS/VPI to put the corrected version of the exit into effect. Note: This message will only appear if the exit has recovery on. If recovery is off, message DRSV807E will appear, and the printer will be put in EDRAINED status. |

DRSV809E prtrid PSW=pppppppp pppppppp MODULE = mmmmmmmm + nnnn
pppppppp pppppppp: PSW at time of abend.
mmmmmmmm: Name of the abending module.
nnnn: Hex offset into abending module.
Message Meaning: A DRS/VPI module has abended. This message and message DRSV810E give debugging information about the abend.
System Action: DRS/VPI will put this printer in EDRAINED status.
Required Action: None.

DRSV810E prtrid R0-R7 xxxxxxxx xxxxxxxx (etc.)
prtrid R8-R15 xxxxxxxx xxxxxxxx (etc.)
xxxxxxx: The contents of a register at the time of an abend.
Message Meaning: A DRS/VPI module has abended. This message and message DRSV809E give debugging information about the abend.
System Action: None.
Required Action: Contact DRS technical support.

DRSV811E JES SERVICES SUBTASK ABEND SYS=sss USR=uuu
sss: System abend code.
uuu: User abend code.
Message Meaning: The DRS/VPI JES services subtask abended.
System Action: DRSV809E and DRSV810E will follow. DRS/VPI will terminate.
Required Action: Contact DRS technical support.

DRSV812E UNABLE TO IDENTIFY ABENDED USER SUBTASK
Message Meaning: The DRS/VPI was not able to find the printer control blocks associated with the task which is abending.
System Action: None.
Required Action: Contact DRS technical support.

DRSV813E NOTIFY SERVICES SUBTASK ABEND SYS=sss USR=uuu
sss: System abend code.
uuu: User abend code.
Message Meaning: The DRS/VPI Notify services subtask abended.
System Action: DRSV809E and DRSV810E will follow. DRS/VPI will terminate.
Required Action: Contact DRS technical support.

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| DRSV814E | <p>NOTIFICATION SUBTASK ABEND SYS=sss USR=uuu</p> <p>sss: System abend code.</p> <p>uuu: User abend code.</p> <p>Message Meaning: The DRS/VPI Notification subtask abended.</p> <p>System Action: DRSV809E and DRSV810E will follow. DRS/VPI will terminate.</p> <p>Required Action: Contact DRS technical support.</p> |
| DRSV820N | <p>INVALID CONTROL STATEMENT (mbrname) - error desc</p> <p>mbrname: The name of the member found to be in error.</p> <p>error desc: The description of the error.</p> <p>Message Meaning: An invalid control statement was found.</p> <p>System Action: The requested printer will not be activated or DRS will terminate. Message DRSV821N will follow.</p> <p>Required Action: Correct control statement error and activate the printer or correct control statement error and restart DRS.</p> |
| DRSV821N | <p>PRINTER ADD FOR mbrname FAILED - failure reason</p> <p>mbrname: The name of the member that was not added.</p> <p>failure reason: Reason for error. Examples of reasons include:</p> <p>CONTROL STATEMENT (nnn) STARTS AFTER POS. 16</p> <p>DRSVLIB DCB ABEND xxx-xx</p> <p>DRSVLIB DCB LRECL NOT 80</p> <p>DRSVLIB I/O ERROR</p> <p>DRSVLIB OPEN FAILURE</p> <p>ENDING QUOTE MISSING KWD=kwd</p> <p>EXPECTED CONTINUATION NOT RECEIVED</p> <p>INSUFFICIENT VIRTUAL STORAGE AVAILABLE</p> <p>MAXIMUM NUMBER OF PRINTERS EXCEEDED</p> <p>MEMBER ALREADY ACTIVATED</p> <p>MEMBER NOT FOUND</p> <p>MISSING COMMA AFTER KWD: keyword</p> <p>QUOTE NOT FOLLOWED BY COMMA OR SPACE KWD=kwd</p> <p>UNBALANCED PARENTHESES FOR KWD=kwd</p> <p>Message Meaning: DRS/VPI printer activation has failed.</p> <p>System Action: The requested printer will not be activated.</p> <p>Required Action: Correct the error based upon the failure reason and activate the printer.</p> <p>Note: Message DRSV820N precedes this message.</p> |

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| DRSV822N | drsvlib i/o error synad message |
| | Message Meaning: This is the I/O error SYNAD message for DRSV821N above if an I/O error occurred. |
| | System Action: The requested printer will not be activated. |
| | Required Action: Correct the error based upon the I/O error SYNAD message and activate the printer. |
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| DRSV823N | KEYWORD PARSE FAILURE MEMBER(mbrname) - xxxxxxxxxx mbrname: The name of the member that was not added. xxxxxxx: Keyword and keyword value in error. |
| | Message Meaning: An invalid value has been specified for a printer keyword. |
| | System Action: The printer will not be activated. |
| | Required Action: Correct the keyword value and activate the printer. |
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| DRSV824E | stcname prtrid INVALID DSNNAME=dsname REASON=reason dsname: Up to 44 characters of the dataset name. reason: Reason the dataset name is invalid. |
| | Message Meaning: DRS/VPI has encountered an error in the dataset name after symbolic substitution is complete. |
| | System Action: If the error occurs during activation, the printer will not be activated. If the error occurs during report initialization, the printer will be EDRAINED. |
| | Required Action: Correct the DSN keyword in the virtual printer definition and re-activate. |
| | |
| DRSV825E | prtrid INVALID JOBNAME PATH USERID VALUE=name ACTION=ERROR IGNORE REASON=rsn name: Value of the keyword after substitution. rsn: The reason the keyword is invalid, such as: INVALID SYMBOLIC VARIABLE NOT ALPHANUMERIC OR NATIONAL FIRST CHARACTER IS NUMERIC |
| | Message Meaning: The keyword value is invalid after symbolic substitution. |
| | System Action: <ul style="list-style-type: none"> • If ACTION=ERROR occurs during printer activation, the activation will fail. • If ACTION=ERROR occurs when receiving a print file, the printer will be EDRAINED. • If ACTION=IGNORE occurs when receiving a print file, the keyword will be ignored. |
| | Required Action: Correct the keyword value and re-activate the printer definition. |

DRSV830E INTERNAL LOGIC ERROR - MESSAGE ID ### IS UNDEFINED

###: A DRS/VPI message number.

Message Meaning: A DRS/VPI module has attempted to issue a DRS/VPI message with an undefined message number.

System Action: The message is ignored.

Required Action: Contact DRS technical support.

DRSV840E LOGIC ERROR IN MODULE name desc

name: The module name (**DV34OLST** or **DV34LU60**).

desc: **If DV34OLST:** OUTPUT statement name.

If DV34LU60:

- DECOMP ERROR - INPUT ADDR ZERO
- DECOMP ERROR - INPUT LEN ZERO
- DECOMP ERROR - REC RDW ZERO
- DECOMP ERROR - REC RDW LONG
- INVALID TYPE IN .CMP PREFIX
- DECOMP BUFF LEN ERR - COMP REC
- DECOMP BUFF LEN ERR - NORM REC
- DV34COMP RETURN CODE NOT ZERO
- .CMP DECOMPRESSION LEN IS ZERO

Message Meaning: **If DV34OLST:** DRS/VPI has attempted to locate an OUTPUT statement defined in either the DRS/VPI started task JCL, or as an OUTPUT reference member in the DRS/VPI control library.

If DV34LU60: A decompression error occurred.

System Action: DRS/VPI will put this printer in EDRAINED status.

Required Action: Contact DRS technical support.

DRSV841E ddname macro REQUEST FAILED RC=X'return_code'
RSN=X'reason_code'

ddname: DDNAME of dataset which is the target for the macro request.

macro: VSAM data access macro reporting error.

return_code: Return code from the failing macro request.

reason_code: Reason code return by failing macro.

Message Meaning: DRS/VPI encountered an error issuing a VSAM data access macro against the indicated system dataset.

System Action: Depending on the severity of the error, DRS will attempt to continue processing.

Required Action: Check the return and reason codes for the cause of the error. The return codes for VSAM macro instructions can be found in DFSMS/MVS Macro Instructions For Datasets SC26-4913-nn. If you are unable to determine the cause of the error, contact LRS technical support.

DRSV842E ddname DATASET I/O ERROR error_text
ddname: DDNAME of the dataset reporting the I/O error.
error_text: VSAM I/O error text.
Message Meaning: DRS/VPI encountered an I/O error accessing the indicated system dataset.
System Action: Depending on the severity of the error, DRS will attempt to continue processing.
Required Action: Check the error text for the cause of the error. If you are unable to determine the cause of the error, contact LRS technical support.

DRSV843E ddname ERROR PROCESSING REQUEST - error_desc
ddname: DDNAME of the dataset which is the target of the request.
error_desc: Descriptive error text. For example:
FILE NOT DEFINED
ACB IS NOT OPEN
DDNAME NOT ALLOCATED
DATASET NOT VSAM
RPL OPTIONS INVALID
Message Meaning: DRS/VPI encountered an error while processing a request for a system VSAM dataset.
System Action: Depending on the severity of the error, DRS will attempt to continue processing.
Required Action: Check the error text for the cause of the error. If you are unable to determine the cause of the error, contact LRS technical support.

DRSV844E DRS/VPI EVENT EXIT ERROR - error_desc
error_desc: Descriptive error text. For example:
SYSX ADDRESS INVALID X'addr'
EVENT CODE 58 PARAMETERS INVALID
UNSUPPORTED EVENT 58 PARAMETER VERSION
ALESERV ADD REQUEST FAILED RC=X'rc'
DATASPACE HEADER INVALID
CELL POOL GET REQUEST FAILED RC='rc'
Message Meaning: This message is issued by the DRS/VPI SYSOUT Event Listener exit which does not execute in the DRS/VPI address space. The Event exit can be called by MVS in any address space to pass details of SYSOUT status events to the DRS/VPI tracking feature. These messages will not appear in the DRS/VPI log but will appear on the MVS system log.
System Action: DRS/VPI will continue execution but will not receive status events for failed requests.
Required Action: Contact LRS technical support. If the problem persists, restart DRS/VPI with the tracking feature disabled until the problem is resolved.

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| DRSV845E | <p>SYSOOUT TRACKING DISABLED DUE TO UNRECOVERABLE ERROR</p> <p>Message Meaning: DRS/VPI has encountered an unrecoverable error and has disabled the SYSOOUT tracking feature.</p> <p>System Action: DRS/VPI processing continues with the tracking facility disabled.</p> <p>Required Action: Check previous messages for the cause of the failure. If you are unable to determine the cause of the failure, contact LRS technical support.</p> |
| DRSV846E | <p>DATASPACE STORAGE ERROR - TRACKING DISABLED</p> <p>Message Meaning: DRS/VPI has encountered an error managing storage in its data space and has disabled the tracking feature.</p> <p>System Action: DRS/VPI processing continues with the tracking facility disabled.</p> <p>Required Action: Check previous messages for the cause of the failure. If you are unable to determine the cause of the failure, contact LRS technical support.</p> |
| DRSV847E | <p>prtid SYSOOUT track_no DUPLICATE CTOKEN - TRACKING DISABLED</p> <p>track_no: DRS/VPI SYSOOUT tracking number</p> <p>Message Meaning: DRS/VPI has encountered a duplicate SYSOOUT client token (CTOKEN) and has disabled the tracking feature. CTOKEN values are assigned by JES during SYSOOUT allocation and should uniquely identify a SYSOOUT dataset for tracking purposes.</p> <p>System Action: DRS/VPI continues execution with the tracking facility disabled.</p> <p>Required Action: Contact LRS technical support.</p> |
| DRSV848E | <p>prtid SYSOOUT track_no ERROR DELETING SYSOOUT TRACKING ELEMENT ADDRESS(X'addr')</p> <p>track_no: DRS/VPI SYSOOUT tracking number.</p> <p>addr: Address of SYSOOUT tracking element control block in data space.</p> <p>Message Meaning: DRS/VPI has encountered an error removing a SYSOOUT tracking element from the DRS/VPI data space. This could be a result of an invalid SYSOOUT tracking element control block or a storage error releasing a data space storage cell.</p> <p>System Action: DRS/VPI execution will continue with the tracking feature disabled.</p> <p>Required Action: Contact LRS technical support.</p> |

DRSV849E prtld SYSOUT track_no ERROR action TRACKING RECORD
track_no: DRS/VPI SYSOUT tracking number.
action: Tracking record action (UPDATING/DELETING)
Message Meaning: DRS/VPI encountered an error attempting to update or delete a SYSOUT tracking record.
System Action: Depending on the severity of the error, DRS will attempt to continue processing.
Required Action: Check the return and reason codes from previous messages for the cause of the error. The return codes for VSAM macro instructions can be found in DFSMS/MVS Macro Instructions For Datasets SC26-4913-nn. If you are unable to determine the cause of the error, contact LRS technical support.

DRSV850E prtld SYSOUT track_no UNSUPPORTED EVENT QUALIFIER X'qualifier'
qualifier: SYSOUT event notification qualifier. Refer to macro IAZENF58.
Message Meaning: DRS/VPI has received a SYSOUT event notification request with an invalid or unsupported event qualifier value. A list of available SYSOUT event notification qualifiers can be found in macro IAZENF58.
System Action: DRS/VPI will ignore the event notification and continue processing.
Required Action: Contact LRS technical support.

DRSV851E prtld SYSOUT track_no SSI 80 REQUEST FAILED RC=rc RSN=rsn
RSN2=rsn2
rc: Return code from subsystem request.
rsn: Reason code from extended status SSI80 request (STATREAS).
rsn2: Reason code2 from extended status SSI80 request (STATREA2).
Message Meaning: DRS/VPI encountered an error processing an extended status subsystem request (SSI80) to confirm the status of a SYSOUT dataset during restart of the DRS/VPI address space. As DRS is unable to monitor SYSOUT events while inactive, an extended status subsystem request is used during restart to confirm that a previously active SYSOUT dataset is still available.
System Action: The DRS tracking feature will continue initialization and will flag the status of the SYSOUT dataset as UNKNOWN.
Required Action: Check the returns codes for an explanation of the error condition. Details of the extend status (SSI80) return codes can be found in 'MVS Using the Subsystem Interface' SV28-1789-nn.

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| DRSV852E | 'C' ENVIRONMENT PROGRAM ADD FAILED RC=rc PROGRAM=program EP=addr INDEX=index TOKEN=token |
| rc: | Return code from LE/370 pre-initialization service routine CEEPIPI. |
| program: | Name of the C program which was the subject of the add request. |
| addr: | Entry point of C program. |
| index: | CEEPIPI program table index value. |
| Token: | LE/370 environment token |
| Message Meaning: | An error occurred processing a request to add a 'C' routine to the LE/370 program table. DRS/VPI uses the LE/370 pre-initialization services to initialize and interact with the LE/370 runtime environment and execute 'C' components of the DRS/VPI product. For an explanation of the return code, please refer to the documentation of the pre-initialization service routine CEEPIPI in the 'Language Environment for OS/390 Programmers Guide' SC28-1939-nn function request add_entry. |
| System Action: | Recovery action depends on the 'C' routine being processed. Check following messages for details. |
| Required Action: | Check the meaning of the return code for the cause of the error. If problem persists, contact LRS technical support. |
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| DRSV853E | 'C' ENVIRONMENT PROGRAM CALL FAILED RC=rc INDEX=index TOKEN=token |
| rc: | Return code from LE/370 pre-initialization service routine CEEPIPI. |
| token: | LE/370 environment token. |
| index: | CEEPIPI program table index value. |
| Message Meaning: | An error occurred processing a request to call a 'C' routine. DRS/VPI uses the LE/370 pre-initialization services to initialize and interact with the LE/370 runtime environment and execute 'C' components of the DRS/VPI product. For an explanation of the return code, please refer to the documentation of the pre-initialization service routine CEEPIPI in the 'Language Environment for OS/390 Programmers Guide' SC28-1939-nn function request call_sub. |
| System Action: | Recovery action depends on the 'C' routine being processed. Check following messages for details. |
| Required Action: | Check the meaning of the return code for the cause of the error. If problem persists, contact LRS technical support. |

DRSV854E 'C' ENVIRONMENT PROGRAM CALL FAILED RC=rc ADDR=addr
TOKEN=token

rc: Return code from LE/370 pre-initialization service routine CEEPIPI.

addr: Entry point address of 'C' routine.

token: LE/370 environment token

Message Meaning: An error occurred processing a request to call a 'C' routine. DRS/VPI uses the LE/370 pre-initialization services to initialize and interact with the LE/370 runtime environment and execute 'C' components of the DRS/VPI product. For an explanation of the return code, please refer to the documentation of the pre-initialization service routine CEEPIPI in the 'Language Environment for OS/390 Programmers Guide' SC28-1939-nn function request call_sub_addr.

System Action: Recovery action depends on the 'C' routine being processed. Check following messages for details.

Required Action: Check the meaning of the return code for the cause of the error. If problem persists, contact LRS technical support.

DRSV855E 'C' ENVIRONMENT PROGRAM DELETE FAILED RC=rc
PROGRAM=program INDEX=index TOKEN=token

rc: Return code from LE/370 pre-initialization service routine CEEPIPI.

program: Name of the C program which was the subject of the add request.

index: CEEPIPI program table index value.

token: LE/370 environment token

Message Meaning: An error occurred processing a request to delete a 'C' routine from the LE/370 program table. DRS/VPI uses the LE/370 pre-initialization services to initialize and interact with the LE/370 runtime environment and execute 'C' components of the DRS/VPI product. For an explanation of the return code, please refer to the documentation of the pre-initialization service routine CEEPIPI in the 'Language Environment for OS/390 Programmers Guide' SC28-1939-nn function request delete_entry.

System Action: Recovery action depends on the 'C' routine being processed. Check following messages for details.

Required Action: Check the meaning of the return code for the cause of the error. If problem persists, contact LRS technical support.

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| DRSV856E | 'C' ENVIRONMENT INITIALIZATION FAILED RC=rc |
| rc: | Return code from LE/370 pre-initialization service routine CEEPIPI. |
| Message Meaning: | An error occurred processing a request to initialize an LE/370 runtime environment. DRS/VPI uses the LE/370 pre-initialization services to initialize and interact with the LE/370 runtime environment and execute 'C' components of the DRS/VPI product. For an explanation of the return code, please refer to the documentation of the pre-initialization service routine CEEPIPI in the 'Language Environment for OS/390 Programmers Guide' SC28-1939-nn function request init_sub. |
| System Action: | Recovery action depends on the 'C' routine being processed. Check following messages for details. |
| Required Action: | Check the meaning of the return code for the cause of the error. If problem persists, contact LRS technical support. |
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| DRSV857E | 'C' ENVIRONMENT TERMINATION FAILED RC=rc |
| rc: | Return code from LE/370 pre-initialization service routine CEEPIPI. |
| Message Meaning: | An error occurred processing a request to terminate an LE/370 runtime environment. DRS/VPI uses the LE/370 pre-initialization services to initialize and interact with the LE/370 runtime environment and execute 'C' components of the DRS/VPI product. For an explanation of the return code, please refer to the documentation of the pre-initialization service routine CEEPIPI in the 'Language Environment for OS/390 Programmers Guide' SC28-1939-nn function request term. |
| System Action: | Recovery action depends on the 'C' routine being processed. Check following messages for details. |
| Required Action: | Check the meaning of the return code for the cause of the error. If problem persists, contact LRS technical support. |
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| DRSV858E | 'C' ENVIRONMENT PROGRAM LOAD FAILED PROGRAM=program |
| program: | Name of the program which was the subject of the load request. |
| Message Meaning: | An error occurred processing a load request on behalf of the LE/370 runtime environment. DRS/VPI uses the LE/370 pre-initialization services to initialize and interact with the LE/370 runtime environment and provides services routines to handle GETMAIN, FREEMAIN, LOAD, DELETE, MESSAGE and EXCEPTION HANDLING requests of behalf of the LE/370 environment. |
| System Action: | Recovery action is handled by the LE/370 environment. Check following messages for details. |
| Required Action: | Try to identify the cause of the error. If problem persists, contact LRS technical support. |

DRSV859E 'C' ENVIRONMENT GETMAIN FAILED SIZE=X'size' SP=sp
LOC=loc

size: Size of the storage area requested in HEX.
sp: Storage subpool for area requested.
loc: Storage location for area requested

Message Meaning: An error occurred processing a GETMAIN request on behalf of the LE/370 runtime environment. DRS/VPI uses the LE/370 pre-initialization services to initialize and interact with the LE/370 runtime environment and provides services routines to handle GETMAIN, FREEMAIN, LOAD, DELETE, MESSAGE and EXCEPTION HANDLING requests of behalf of the LE/370 environment.

System Action: Recovery action is handled by the LE/370 environment. Check following messages for details.

Required Action: Try to identify the cause of the error. If problem persists, contact LRS technical support.

DRSV860E 'C' ENVIRONMENT FREEMAIN FAILED ADDR=X'addr'
SIZE=X'size' SP=sp

addr: Address of storage to be freed.
size: Size of the storage area to be freed in HEX.
sp: Storage subpool for area.

Message Meaning: An error occurred processing a FREEMAIN request on behalf of the LE/370 runtime environment. DRS/VPI uses the LE/370 pre-initialization services to initialize and interact with the LE/370 runtime environment and provides services routines to handle GETMAIN, FREEMAIN, LOAD, DELETE, MESSAGE and EXCEPTION HANDLING requests of behalf of the LE/370 environment.

System Action: Recovery action is handled by the LE/370 environment. Check following messages for details.

Required Action: Try to identify the cause of the error. If problem persists, contact LRS technical support.

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| DRSV861I | <p>msg_text</p> <p>msg_text: LE/370 message text.</p> <p>Message Meaning: The message text displayed in this message is generated by the LE/370 runtime environment. DRS/VPI uses the LE/370 pre-initialization services to initialize and interact with the LE/370 runtime environment and provides services routines to handle GETMAIN, FREEMAIN, LOAD, DELETE, MESSAGE and EXCEPTION HANDLING requests of behalf of the LE/370 environment. DRS/VPI will intercept all messages issued by the LE/370 environment and write them to the DRS/VPI log. For an explanation of these messages, please refer to the Language Environment for OS/390 documentation.</p> <p>System Action: Check message text for details.</p> <p>Required Action: If message indicates an error condition, contact LRS technical support.</p> |
| DRSV862E | <p>DRSSRVC TASK SUBSYSTEM DYNAMIC request FAILURE SERVER=server R15=rc EC=ec IC=ic</p> <p>request: Type of request (ALLOCATION/UNALLOCATION)</p> <p>server: LRS/MVS Server name</p> <p>rc: SVC99 return code.</p> <p>ec: SVC99 error code.</p> <p>ic: SVC99 info code.</p> <p>Message Meaning: The task which connects to the LRS/MVS Server address space encountered an error.</p> <p>System Action: DRS/VPI will continue.</p> <p>Required Action: Contact LRS technical support.</p> |
| DRSV863E | <p>EXTERNAL NOTIFICATION DISABLED DUE TO UNRECOVERABLE ERROR</p> <p>Message Meaning: The DRS/VPI external event notification facility has encountered an unrecoverable error and has been disabled. All external event notifications will be disabled until DRS is restarted</p> <p>System Action: DRS/VPI will continue to execute with external notification disabled.</p> <p>Required Action: Try and determine the cause of the failure and then restart DRS. If the cause cannot be determined, contact LRS technical support.</p> |

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- DRSV864E** NOTIFICATION SUBTASK ATTACH FAILED INSUFFICIENT STORAGE FOR RTM WORKAREA
- Message Meaning:** DRS/VPI has attempted to attach a new external notification subtask, but the request has failed due to a shortage of storage.
- System Action:** DRS/VPI will continue to execute, and the notification subtask will be disabled and flagged as abended.
- Required Action:** Try to determine the cause of the failure and then restart DRS. If the cause cannot be determined, contact LRS technical support.
- DRSV865E** NOTIFICATION SUBTASK ATTACH FAILED MODULE=module RC=rc
module: DRS/VPI module name.
rc: Return code reported by the attach macro.
- Message Meaning:** DRS/VPI has attempted to attach a new external notification subtask, but the attached request has failed with the indicated return code.
- System Action:** DRS/VPI will continue to execute, and the notification subtask will be disabled and flagged as abended.
- Required Action:** Try to determine the cause of the failure and then restart DRS. If the cause cannot be determined, contact LRS technical support.
- DRSV866E** RESMGR MACRO ERROR - TYPE= type, RC = rc
type: Type of request (ADDRSPC/TASK)
rc: RESMGR return code.
- Message Meaning:** An error occurred when DRS attempted to issue the RESMGR macro.
- System Action:** DRS/VPI will terminate.
- Required Action:** Contact LRS technical support.
- DRSV867E** DRS SUBSYSTEM xxxx IS ALREADY ACTIVE.
xxxx: Name of DRS subsystem.
- Message Meaning:** The name of the DRS subsystem in the system initialization member is already active.
- System Action:** DRS/VPI will terminate.
- Required Action:** Correct the error by changing the DRS subsystem name to one that is not already active.

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| DRSV868E | UNABLE TO LOCATE DRS SSCVT. Message Meaning: The Subsystem Communications Vector Table could not be located for DRS. System Action: DRS/VPI will terminate. Required Action: Contact LRS technical support. |
| DRSV869E | GETMAIN FAILED FOR SSVT EXTENSION. Message Meaning: DRS could not obtain storage for the SSVT extension. System Action: DRS/VPI will terminate. Required Action: Contact LRS technical support. |
| DRSV870E | ERROR PROCESSING cmd LRSQ COMMAND reason cmd: LRSQ command in error. reason: COPY COUNT INVALID OUTPUT STATEMENT INVALID PRIORITY INVALID MAX QUEUE DEPTH INVALID QUEUE NAME LENGTH INVALID QUEUE NAME INVALID - @@@@ MAX QUEUE TIME INVALID SPOOL FILE ID INVALID @@@@ SMART TAG INTERFACE NOT ACTIVE SMART TAG PROCESSING ERROR UNKNOWN LRSQ CMD= VERSION NUMBER INVALID OUTPUTMANAGER KEY INVALID SYSOUT TRACKING DISABLED Message Meaning: DRS encountered an error processing an LRS/Queue client command. The LRSQ commands are used by AnyQueue, VPS and the LRS/Queue client to pass information to DRS. System Action: A negative acknowledgement will be sent to the requesting client, and the connection will be terminated. Required Action: Try to determine the cause of the failure. If the cause cannot be determined, contact LRS technical support. |
| DRSV871I | LRSQ COMMAND WARNING - reason reason: Reason for warning message. Message Meaning: DRS encountered an unexpected LRSQ command. System Action: DRS/VPI processing will continue. Required Action: Contact LRS technical support. |

DRSV872E SAP R/3 SERVER server DISABLED SYSTEM=system
server: SAP R/3 callback server host name
system: SAP R/3 system identifier.
Message Meaning: DRS has disabled the indicated SAP R/3 callback subtask due to an unrecoverable error.
System Action: DRS/VPI will continue to execute, and notification requests for this SAP R/3 system will be routed via an alternate callback server if available. If an alternate callback server is not available, then completion events (printed/purged) will be retained and delivered when DRS is restarted.
Required Action: Try to determine the cause of the failure and then restart DRS. If the cause cannot be determined, contact LRS technical support.

DRSV873E SAP R/3 SERVER server EDRAINED SYSTEM=system
server: SAP R/3 callback server host name.
system: SAP R/3 system identifier.
Message Meaning: DRS has flagged the indicated SAP R/3 callback subtask as error drained due to recoverable error condition.
System Action: DRS/VPI will continue to execute and will restart the callback subtask when the retry interval expires (keyword SAPRETRY).
Required Action: Try to determine the cause of the failure. If the cause cannot be determined and the callback subtask continues to fail, contact LRS technical support.

DRSV874E DVSSSRVC PC CALL ERROR SERVER=server R15=rc reason.
server: LRS/MVS Server name
rc: Call return code.
reason: Reason for error.
Message Meaning: The task which connects to the LRS/MVS Server address space encountered an error.
System Action: DRS/VPI will continue.
Required Action: Contact LRS technical support.

DRSV875E IEFSSI SUBSYSTEM request FAILED RETCODE=rc RSN=rsn.
request: IEFSSI subsystem request type (ADD, ACTIVATE, DEACTIVATE, PUT)
rc: IEFSSI return code.
rsn: IEFSSI reason code.
Message Meaning: An error occurred while DRS attempted to issue the IEFSSI macro.
System Action: DRS/VPI will terminate.
Required Action: Contact LRS technical support.

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| DRSV876E | IEFSSVT request FAILED RC=rc RSN=rsn. request: IEFSSVT subsystem request type (CREATE, EXCHANGE) rc: IEFSSVT return code. rsn: IEFSSVT reason code. Message Meaning: An error occurred while DRS attempted to issue the IEFSSVT macro. System Action: DRS/VPI will terminate. Required Action: Contact LRS technical support. |
| DRSV877E | GETMAIN FAILED FOR SSI COMMAND QUEUE. Message Meaning: DRS could not obtain storage for the subsystem command queue. System Action: DRS/VPI will terminate. Required Action: Contact LRS technical support. |
| DRSV878E | CPF DEFINE FOR SUBSYSTEM COMMAND CHARACTER FAILED RC=rc RSN=rsn. rc: CPF macro return code. rsn: CPF macro reason code. Message Meaning: An error occurred when DRS attempted to issue the CPF macro. System Action: DRS/VPI will terminate. Required Action: Contact LRS technical support. |
| DRSV879E | CPF DEFINE FOR SUBSYSTEM COMMAND CHARACTER FAILED, CHARACTER ALREADY IN USE RC=rc RSN=rsn. rc: CPF macro return code. rsn: CPF macro reason code. Message Meaning: The DRS command character specified in the system initialization member is already in use by another subsystem. System Action: DRS/VPI will terminate. Required Action: Correct the error by changing the DRS command character to one that is not already in use. |

DRSV880E printer SYSOUT trackno PURGE REQUEST FAILED RC=rc
SSOBRETN=retn SSS2REAS=reas

printer: DRS virtual printer name.
 trackno: SYSOUT tracking number.
 rc: Return code from Subsystem request (IEFSSREQ macro)
 retn: SAPI (SSI 79) return code.
 reas: SAPI (SSI 79) reason code.

Message Meaning: DRS encountered an error attempting to purge a SYSOUT dataset using a SYSOUT Application Programming Interface (SAPI) bulk modify request.

System Action: DRS/VPI execution continues.

Required Action: Details of SAPI return and reason codes can be found in IBM Manual SC28-1789-nn "MVS Using the Subsystem Interface". If you unable to determine the cause of the error, contact LRS technical support.

DRSV881E printer SYSOUT trackno PURGE REQUEST FAILED reason

printer: DRS virtual printer name.
 trackno: SYSOUT tracking number.
 reason: TRACKING DATA NOT FOUND
 ERROR READING TRACKING RECORD
 REQUESTER IS NOT OWNER OF OUTPUT
 PRINTING ON xxxxxxxxxxxxxxxx
 PRINTED ON xxxxxxxxxxxxxxxx
 DATASET ALREADY PURGED
 SYSOUT TRACKING NOT ACTIVE
 JES DOES NOT SUPPORT SAPI

Message Meaning: DRS encountered an error attempting to purge a SYSOUT dataset.

System Action: Purge request is rejected.

Required Action: None.

DRSV882E ERROR PROCESSING CONFIGURATION DATA FOR REPLY
MESSAGE GROUP rmg - error

rmg: Reply message group name. (This RMG relates directly to a Logical OMS (LOMS) definition in the SAP R/3 configuration).

error: Error description.

Message Meaning: DRS has encountered an error processing the OMS configuration data returned by SAP R/3 in response to a query.

System Action: DRS/VPI will continue to execute and will ignore the configuration data in error.

Required Action: Try to determine the cause of the failure. If the cause of the error cannot be determined, contact LRS technical support.

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| DRSV883E | SYSOUT QUERY REQUEST FAILED - SSI 80 RC=rc SSOBRETN=src RSN=X'rsn' RSN2=X'rsn2' |
| rc: | Return code from SUBSYSTEM request (IEFSSREQ macro). |
| src: | Extended Status (SSI80) request return code. |
| rsn: | Extended Status (SSI80) reason code. |
| rsn2: | Extended Status (SSI80) secondary reason code. |
| Message Meaning: | DRS has encountered an error executing an Extend Status Subsystem request(SSI80) to retrieve the SYSOUT attributes for an active SYSOUT dataset. |
| System Action: | DRS/VPI will continue to execute, but SYSOUT information for the requested dataset will not be available. |
| Required Action: | Try to determine the cause of the failure. Details of the Extended Status Subsystem request(SSI80) return codes can be found in IBM Manual SC28-1789-nn "MVS Using the Subsystem Interface". If you are unable to identify the cause of the failure, contact LRS technical support. |
| | |
| DRSV884E | SYSOUT QUERY LOGIC ERROR - error |
| error: | Description of error condition. <ul style="list-style-type: none"> • NO OUTPUT DATA RETURNED BY SSI80 • SSI80 JOB DATA PREFIX INVALID • SSI80 1ST JOB QUEUE SECTION INVALID • NO SYSOUT DATA RETURNED BY SSI80 • SSI80 SYSOUT DATA PREFIX INVALID • SSI80 1ST SYSOUT QUEUE SECTION INVALID |
| Message Meaning: | DRS encountered a logic error processing the response from a JES Extended Status Subsystem request (SSI80). The error description indicates the cause of the error. |
| System Action: | Processing will continue, but SYSOUT attribute information for the requested dataset will not be available. |
| Required Action: | Contact LRS technical support. |

DRSV885E SAP R/3 SERVER server request REQUEST FAILED - error

server: SAP R/3 callback server host name

request: SAP R/3 RFC API request (CONNECTION, TABLE ADD, TABLE DELETE, JOBS CALLBACK, QUERY CONFIG).

error: Error description.

Message Meaning: DRS has encountered a error processing a SAP R/3 RFC API request. This message will display the error summary information returned by the SAP API. The complete error text is also saved and can be displayed using the F DRS,DISPLAY,SYSTEM,SAPTASKS command.

System Action: The SAP R/3 callback task will be flagged as error drained and will be restarted when the retry interval expires (keyword SAPRETRY).

Required Action: Try to determine the cause of the failure using the F DRS,DISPLAY,SYSTEM,SAPTASKS command to display the complete error text. If the cause cannot be determined and the callback subtask continues to fail, contact LRS technical support.

DRSV886E printer SYSOUT trackno SAPI REQUEST FAILED RC=rc SSOBRETN=retn SSS2REAS=reas

printer: DRS printer name

trackno: Tracking number of SYSOUT dataset.

rc: Return code from Subsystem request (IEFSSREQ macro)

retn: SAPI (SSI 79) return code.

reas: SAPI (SSI 79) reason code.

Message Meaning: DRS encountered an error processing a SYSOUT Application Programming Interface (SAPI) GET/PUT request.

System Action: The status of the indicated dataset will be changed to UNKNOWN.

Required Action: Details of SAPI return and reason codes can be found in IBM Manual SC28-1789-nn "MVS Using The Subsystem Interface". If you unable to determine the cause of the error, contact LRS technical support.

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| DRSV899E | <p>XXXXXXXXXX XXXXXXXXXX:</p> <p>Message Meaning:</p> <p>System Action:</p> <p>Required Action:</p> | <p>The SVC 99 text unit in error, including the DDNAME, the text unit key, the text unit number, and, depending on the error code, the text unit length and text unit parm.</p> <p>An invalid text unit was specified when attempting to use SVC 99 to dynamically allocate a dataset.</p> <p>Dependent on the dataset for which allocation failed.</p> <p>Refer to additional DRS/VPI messages to determine the appropriate action.</p> |
| DRSV900R | <p>COMMAND INVALID - command</p> <p>command:</p> <p>Message Meaning:</p> <p>System Action:</p> <p>Required Action:</p> | <p>The DRS/VPI command that was issued.</p> <p>An unknown DRS/VPI command was issued.</p> <p>The command is ignored.</p> <p>Verify that the correct command was issued.</p> |
| DRSV901R | <p>COMMAND AMBIGUOUS - command</p> <p>command:</p> <p>Message Meaning:</p> <p>System Action:</p> <p>Required Action:</p> | <p>The DRS/VPI command that was issued.</p> <p>Insufficient characters were entered to make the command unique to DRS/VPI.</p> <p>The command is ignored.</p> <p>Enter additional command characters.</p> |
| DRSV902R | <p>PARAMETER LENGTH ERROR</p> <p>Message Meaning:</p> <p>System Action:</p> <p>Required Action:</p> | <p>A parameter exceeded 50 characters.</p> <p>The command is ignored.</p> <p>Shorten parameter as required.</p> |
| DRSV903R | <p>COMMAND HAS TOO MANY PARAMETERS</p> <p>Message Meaning:</p> <p>System Action:</p> <p>Required Action:</p> | <p>Too many command parameters were specified.</p> <p>The command is ignored.</p> <p>Remove unneeded parameters.</p> |
| DRSV904R | <p>PARAMETER INVALID - parm</p> <p>parm:</p> <p>Message Meaning:</p> <p>System Action:</p> <p>Required Action:</p> | <p>The value of the parameter used on the command.</p> <p>A parameter on a command was invalid.</p> <p>The command is ignored.</p> <p>Issue the command with valid parameters.</p> |

DRSV905R NON-SPECIFIC PRINTER-ID NOT ALLOWED
Message Meaning: A generic prtrid was specified, but the command requires a specific prtrid.
System Action: The command is ignored.
Required Action: Specify a specific prtrid.

DRSV906R REQUIRED PRINTER-ID|OUTREF NOT SPECIFIED
Message Meaning: Required prtrid or OUTREF not specified.
System Action: The command is ignored.
Required Action: Specify prtrid.

DRSV907R SPECIFIED PRINTER-ID|OUTREF NOT FOUND - aaaaaaaa
aaaaaaa: Printer ID or OUTREF name.
Message Meaning: Specified prtrid or output reference name was not found.
System Action: The command is ignored.
Required Action: Specify a valid prtrid.

DRSV908R SPECIFIED PRINTER STATUS INVALID - status
status: Status that was specified.
Message Meaning: An invalid status request was made.
System Action: The command is ignored.
Required Action: Correct the status request.

DRSV909R NO PRINTERS|OUTREF CURRENTLY DEFINED IN SYSTEM
Message Meaning: No printers or output reference statements currently exist in DRS/VPI.
System Action: The command is ignored.
Required Action: None.

DRSV910R NO PRINTERS WITH REQUESTED STATUS FOUND - S=status
status: Status that was specified.
Message Meaning: No printers with the status specified in the command currently exist in DRS/VPI.
System Action: The command is ignored.
Required Action: None.

DRSV911R prtrid PRINTER SUCCESSFULLY ACTIVATED|REACTIVATED
Message Meaning: Printer has been activated in response to an ACTIVATE command, or reactivated in response to a REACTIVATE command.
System Action: None.
Required Action: None.

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| DRSV912R | <p>NO PRINTERS OUTREF WITH REQUESTED PARTIAL NAME FOUND - generic name</p> <p>generic name: Generic name that was specified.</p> <p>Message Meaning: No printers OUTREFs exist that match the partial name.</p> <p>System Action: The command is ignored.</p> <p>Required Action: None.</p> |
| DRSV913R | <p>prtrid INACTIVATION REQUEST SCHEDULED</p> <p>Message Meaning: Inactivation has been scheduled in response to an INACTIVATE command.</p> <p>System Action: None.</p> <p>Required Action: None.</p> |
| DRSV914R | <p>prtrid REQUIRED SET PARAMETER(S) NOT SPECIFIED</p> <p>Message Meaning: A SET command was issued, but no parameters were specified on the command.</p> <p>System Action: The command is ignored.</p> <p>Required Action: Issue the SET command with the required parameter(s).</p> |
| DRSV915R | <p>prtrid SET PARAMETER AMBIGUOUS - set type</p> <p>set type: The requested set parameter.</p> <p>Message Meaning: Insufficient characters were entered to uniquely identify the set command type.</p> <p>System Action: The command is ignored.</p> <p>Required Action: Enter more characters of the set type.</p> |
| DRSV917R | <p>SSET,TCPIP=D E F REJECTED, DRS/TCPIP status</p> <p>status: Status of the DRS/TCPIP system, such as:</p> <ul style="list-style-type: none"> • ABENDED • EXPIRED • FORCED TO END • NOT INSTALLED <p>Message Meaning: The SSET command for DRS/TCPIP was rejected due to the reason indicated in the message.</p> <p>System Action: The command is ignored.</p> <p>Required Action: If the status is ABENDED or FORCED TO END, restart DRS/VPI. If the status is EXPIRED or NOT INSTALLED, verify the KEYLPD keyword value and restart DRS/VPI.</p> |

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| DRSV918R | REQUIRED SSET PARAMETER(S) NOT SPECIFIED |
| | Message Meaning: The SSET command was issued without the required parameters. |
| | System Action: The command is ignored. |
| | Required Action: Enter the required parameters on the SSET command. |
| DRSV919R | SSET PARAMETER AMBIGUOUS - parameter |
| | Message Meaning: Insufficient characters were entered to uniquely identify the SSET parameter. |
| | System Action: The command is ignored. |
| | Required Action: Enter more characters of the SSET parameter. |
| DRSV920R | cmdtarget cmdtype COMMAND ACKNOWLEDGED |
| | cmdtarget: The "target" of the command, such as printer id, SYSTEM, a printer status, etc. |
| | cmdtype: The type of command, such as SNAP, DISPLAY, etc. |
| | Message Meaning: DRS/VPI has acknowledged the command. |
| | System Action: DRS/VPI will schedule and process the command. |
| | Required Action: None. |
| DRSV921R | DISPLAY PARAMETER AMBIGUOUS - parameter |
| | parameter: The requested display parameter. |
| | Message Meaning: Insufficient characters were entered to uniquely identify the display parameter. |
| | System Action: None. |
| | Required Action: Enter more characters of the display parameter. |

DRSV922R SAP R/3 HOST(host) STATUS(status) SYS(system) RCFG(nnn)

host: SAP R/3 callback server host name.

status: Callback subtask status.

- ABENDED - Subtask has abended and will not be restarted
- ACTIVE - Subtask is currently processing a callback request.
- ATTACHED - Subtask is attached and attempting to establish a connection
- DETACHED - Subtask has been detached during termination.
- EDRAINED - Subtask is error drained and will be retried when the retry interval expires
- CONNECTED- Subtask has establish an RFC connection and is waiting for work.

system: SAP R/3 system identifier.

nnn: Reconfiguration interval (seconds). When idle, the subtask will send an empty callback request at the specified interval to check if reconfiguration is required.

Message Meaning: This message is issued in response to a DISPLAY,SYSTEM,SAPTASKS command and displays information about all attached SAP R/3 callback subtasks and the reply message group configuration values.

System Action: None.

Required Action: None.

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| DRSV923R | RMG(rmg) QTIME(qtime) QMAX(qmax) QUEUE(PEND(p) ACT(a) SENT(s)) RPTLVL(rptlvl) |
| rmg: | Reply Message Group name. The reply message groups are used to group together events for a specific Logical OMS(LOMS) definition and have independent configuration values. |
| qtime: | This value specifies the delay, in seconds, which should be applied to events for this reply message group. |
| qmax: | Specifies the maximum number of events that can accumulate before a callback request is triggered. This overrides the queue delay. |
| p: | Current number of pending notification events. |
| a: | Current number of events actively being sent. |
| s: | Total number of SYSOUT events sent to this callback server. |
| pptlvl: | Current SYSOUT event report level. 01 - Only report completion events (Printed or Purged). 02 - Report problems with Intervention. 03 - Report problems without intervention. 04 - Report status changes. 05 - Report all information events. 07 - Report all events. Note: Higher report levels include all levels below. |
| Message Meaning: | This message is issued in response to a DISPLAY,SYSTEM,SAPTASKS command and displays information about all attached SAP R/3 callback subtasks and the reply message group configuration values. |
| System Action: | None. |
| Required Action: | None. |
| DRSV924R | MESSAGE NOT LOGGED, LOGGING NOT ACTIVE |
| Message Meaning: | A log command was issued, but DRS/VPI logging is not currently active. |
| System Action: | The log command is ignored. |
| Required Action: | If desired, activate DRS/VPI logging. |
| DRSV925R | MESSAGE SUCCESSFULLY LOGGED |
| Message Meaning: | Requested message was successfully logged in response to a log command. |
| System Action: | None. |
| Required Action: | None. |

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| DRSV926R | CLOSELOG COMMAND REJECTED, LOGGING NOT ACTIVE Message Meaning: A closelog command was issued, but logging is not currently active. System Action: The command is rejected. Required Action: None. |
| DRSV927R | CLOSELOG COMMAND REJECTED, LOG DATASET WAS PRE-ALLOCATED Message Meaning: A CLOSELOG command was issued, but the log dataset is a pre-allocated DASD dataset rather than a SYSOUT dataset. System Action: The CLOSELOG command is ignored. Required Action: None. |
| DRSV928R | LOG=Y REJECTED, LOG SUBTASK HAS TERMINATED Message Meaning: An SSET command with LOG=Y was issued, but the log subtask has terminated. System Action: The LOG=Y option is ignored. Required Action: None. |
| DRSV929R | NO SAP R/3 SUBTASKS ATTACHED Message Meaning: This message is issued in response to a DISPLAY,SYSTEM,SAPTASKS command. System Action: None. Required Action: None. |
| DRSV930R | prtrid START COMMAND REJECTED, reject reason reject reason: One of the following: DRS/VPI TERMINATION IN PROGRESS INACTIVATION PENDING Message Meaning: A START command was issued for a printer, but was rejected due to one of the reasons listed above. System Action: The START command is ignored. Required Action: None. |
| DRSV931R | xxxxxxx SNAP DUMP COMPLETE xxxxxxx: Printer name or "SYSTEM". Message Meaning: A snap dump has been successfully completed for the requested printer or for the DRS/VPI system in response to a SNAP command. System Action: None. Required Action: None. |

DRSV932R xxxxxxxx SNAP DUMP NOT SUCCESSFUL RC=rc
 xxxxxxxx: Printer name or "SYSTEM".
 rc: Snap dump return code (see OS/VS2 MVS
 Supervisor Services)

Message Meaning: DRS/VPI attempted to create a snap dump in
 response to a SNAP command, but an error
 occurred in processing. The error occurred
 either allocating the snap dataset, opening the
 snap dataset, or issuing the SNAP macro. If
 allocation failed, message DRSV620E will
 precede this message.

System Action: The SNAP command is ignored.

Required Action: Contact DRS technical support.

DRSV933R command COMMAND REJECTED - reason
 command: DRS command name.
 reason: Reason command was rejected.

Message Meaning: DRS rejected the command for the indicated reason.

System Action: None.

Required Action: Correct command and re-issue.

DRSV934R PURGE REQUEST FAILED - reason
 Reason: Reason request failed.

Message Meaning: A request to purge a SYSOUT dataset failed for the
 indicated reason.

System Action: None.

Required Action: None.

DRSV935R DRS/VPI FAST TERMINATION REQUEST ACKNOWLEDGED

Message Meaning: DRS/VPI has acknowledged a "P DRSV"
 command.

System Action: All printers are drained via a "FORCE"
 command.

Required Action: None.

DRSV936R DRS/VPI TERMINATION REQUEST ACKNOWLEDGED

Message Meaning: DRS/VPI has acknowledged an "END" command.

System Action: DRS/VPI will terminate when all printers have
 finished printing their current report.

Required Action: None.

DRSV937R DRS/VPI ABNORMAL TERMINATION REQUEST ACKNOWLEDGED

Message Meaning: DRS/VPI has acknowledged an "ABEND"
 command.

System Action: DRS/VPI will terminate with a U001 abend.

Required Action: None.

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| DRSV938R | <p>ERROR error_text</p> <p>Error_text: Error text returned by last failing SAP R/3 RFC API request.</p> <p>Message Meaning: This message is issued in response to a DISPLAY,SYSTEM,SAPTASKS command and shows the complete error text returned by the last failing SAP R/3 RFC API request. This includes the name of the failing function, the key error text and the verbose error description. This information is only displayed for tasks that have a status of EDRAINED and that have RFC error text.</p> <p>System Action: None.</p> <p>Required Action: None.</p> |
| DRSV939R | <p>*SYSTEM EXITnn NAME=name LENGTH=length EP=ep ACTIVE INACTIVE RECOVERY=ON OFF</p> <p>nn: Exit number.</p> <p>name: Exit module name.</p> <p>length: Exit module length.</p> <p>ep: Exit module entry point address.</p> <p>Message Meaning: Response to DISPLAY-SYSTEM.</p> <p>System Action: None.</p> <p>Required Action: None.</p> |
| DRSV940R | <p>*SYSTEM VERSION=V1R3.4.xxxxxx CUSTID=cccccc INIT(mm/dd hh.mm) CPUID(cpuid) AUTOACT(Y N,Y N) CROPTS=cropts</p> <p>xxxxx: DRS/VPI maintenance and fix level.</p> <p>cccccc: Customer ID.</p> <p>mm/dd hh.mm: DRS/VPI initialization date and time.</p> <p>cpuid: CPU Identification.</p> <p>cropts: 'C' Environment runtime option flags.</p> <p>Message Meaning: Response to DISPLAY-SYSTEM.</p> <p>System Action: None.</p> <p>Required Action: None.</p> |
| DRSV941R | <p>*SYSTEM DESC(description) DESTVAL=Y N SWAP(Y N,Y N) USEROPTS=X'nnnn'</p> <p>description: Description from DRSDDESC keyword.</p> <p>nnnn: User options specified in the USEROPTS keyword.</p> <p>Message Meaning: Response to DISPLAY-SYSTEM.</p> <p>System Action: None.</p> <p>Required Action: None.</p> |

DRSV942R *SYSTEM DATASET TRACKING(ACTIVE(active) RETAINED(retained))
EVENT QUEUE(queue)

active: Total number of active SYSOUT datasets currently being tracked.

retained: Total number of retained SYSOUT tracking records.

queue: Current event notification queue depth.

Message Meaning: This message is issued in response to a DISPLAY,SYSTEM command and shows details of the current number of active SYSOUT datasets current being tracked by DRS. It also shows the current number of tracking records for SYSOUT datasets which have been processed and retained and the SYSOUT Event Notification queue depth. SYSOUT tracking records are considered active until the tracked dataset is physically purged from the JES spool. Tracking data is optionally retained after purge based on the setting of the TRACK printer keyword.

System Action: None.

Required Action: None.

DRSV943R *SYSTEM DRSVLIB(DEFALT=defltmem,MLIST=mlistmem,
MSGs=msmodmem,START=startmem,XLIST=xlistmem)

defltmem: DEFLTMEM from DRS/VPI system initialization.

mlistmem: MLISTMEM from DRS/VPI system initialization.

msmodmem: MSMODMEM from DRS/VPI system initialization.

startmem: Name of DRS/VPI system initialization member.

xlistmem: XLISTMEM from DRS/VPI system initialization.

Message Meaning: Response to DISPLAY-SYSTEM.

System Action: None.

Required Action: None.

DRSV944R *SYSTEM LOG(c,ddddddd,ffffff,wwwwwww,ooooooo,
HOLD|NOHOLD, ACTIVE|INACTIVE)

c: Log class.

ddddddd: Log destination.

ffffff: Log form.

wwwwwww: Log writer.

ooooooo: Log OUTPUT JCL statement name.

Message Meaning: Response to DISPLAY-SYSTEM.

System Action: None.

Required Action: None.

DRSV945R *SYSTEM MAX PRTRS type(aaaaa,bbbb) CURRENT(ccccc) HIGH(ddddd)

type: Printer type VTAM, TCP/IP or TOTAL

aaaaa: Maximum number of active printers defined at startup.

bbbb: Maximum number of active printers currently set. (Can be modified by command.)

ccccc: Current active printers.

dddd: Highest active printers.

Message Meaning: Response to DISPLAY-SYSTEM.

System Action: None.

Required Action: None.

DRSV946R *SYSTEM SAP(CLIENT=client USER=user PW=pw RETRY=retry TRACE(Y|N,directory)

client: SAP R/3 client number.

user: SAP R/3 userid.

pw: SAP R/3 password (obscured)

retry: Retry interval for failed SAP R/3 callback server subtasks.

directory: HFS directory name to receive SAP R/3 RFC API trace files.

Message Meaning: Response to DISPLAY-SYSTEM.

System Action: None.

Required Action: None.

DRSV947R *SYSTEM SNAP(c,d,f,w,o,HOLD|NOHOLD, ACTIVE|INACTIVE), SSI(NAME=name,CMD=cmd,BUFNO=buffers)

c: Snap class.

d: Snap destination.

f: Snap form.

w: Snap writer.

o: Snap OUTPUT JCL statement name.

name: Subsystem name for this DRS started task.

cmd: Console command character.

buffers: Number of subsystem command buffers.

Message Meaning: Response to DISPLAY-SYSTEM.

System Action: None.

Required Action: None.

DRSV948R *SYSTEM TCPIP(ABENDED|CONNECTED|DISABLED|INACTIVE|SEVERED) HOST(host)
host: Host name where DRS/VPI is executing.
Message Meaning: Response to DISPLAY-SYSTEM.
System Action: None.
Required Action: None.

DRSV948R *SYSTEM TCPIP(ID=tcipid,LHOST=tcplhost,PORT=tcpport,TYPE=tcptype)
tcipid: TCPIPID from DRS/VPI system initialization.
tcplhost: TCPLHOST from DRS/VPI system initialization.
tcpport: TCPPORT from DRS/VPI system initialization.
tcptype: TCPTYPE from DRS/VPI system initialization.
Message Meaning: Response to DISPLAY-SYSTEM.
System Action: None.
Required Action: None.

DRSV949R *SYSTEM TRACE(SIZE=sssK,types=X'tt',FMID=ff) TRACK(trk)
sss: Size of the DRS/VPI trace table.
tt: System trace types.
ff: GTF format ID.
trk: SYSOUT tracking enabled (Y/N).
Message Meaning: Response to DISPLAY-SYSTEM.
System Action: None.
Required Action: None.

DRSV950R *SYSTEM WTO(RTCDE=aa,ACTN=Y|N,INFO=Y|N,STCPFX=Y|N)
aa: Route code to be used for WTO's.
Message Meaning: Response to DISPLAY-SYSTEM.
System Action: None.
Required Action: None.

DRSV951R *SYSTEM aaaaaaaaaaaaaaaaa KEY - CUSTID (bbbbbb,cccccc) COPY(d)
CPUCHK(DISABLED|ENABLED)

*SYSTEM aaaaaaaaaaaaaaaaa KEY - CPUID(eeeee)
STATUS(ffffff)ggg...ggg

aaa..aaa: Name of product from the key.

bbbbbb: Customer ID from the product.

cccccc: Customer ID from the key.

d: Number of copies from the key (if any).

eeeeee: CPU serial number from the key or "ANY" if CPU
checking is disabled in the key.

ffffff: Status of the key (TRAP, LICENSE, INVALID).

ggg...ggg: Any error or warning message pertaining to the key.

Message Meaning: This message is issued in response to the
DISPLAY,SYSTEM,KEYS command.

System Action: None.

Required Action: None.

DRSV952R *SYSTEM STORAGE LIMIT|VPI|DRS(REGN|CURR(aaaaa,bbbbbb))
PRIV|MAX(aaaaa,bbbbbb))

aaaaa: Storage below the 16M line.

bbbbbb: Storage above the 16M line.

Message Meaning: Response to DISPLAY,SYSTEM,STORAGE.

System Action: None.

Required Action: None.

DRSV953R *SYSTEM STORAGE CELL POOL(NAME(a) SIZE(b)
ALLOCATION(PRIMARY(c) SECONDARY (d)))

a: Cell pool name.

b: Cell pool cell size.

c: Cell pool primary cell allocation.

d: Cell pool secondary cell allocation.

Message Meaning: Response to DISPLAY,SYSTEM,STORAGE.

System Action: None.

Required Action: None.

DRSV954R *SYSTEM STORAGE CELL POOL(NAME(a) GET(b) FREE(b) CURR(c)
HIGH(d))

a: Cell pool name.

b: Total cell get requests.

c: Total cell free requests.

d: Currently allocated cells.

Message Meaning: Response to DISPLAY,SYSTEM,STORAGE.

System Action: None.

Required Action: None.

DRSV955R *SYSTEM STORAGE DATASPACE(TOTAL CELLS(total)
ALLOCATED(allocated) MAX(max))
total: Total number of data space storage cells.
allocated: Total number of currently allocated data space storage
cells.
max: Maximum number of data space storage cells allocated.
Message Meaning: Response to DISPLAY,SYSTEM,STORAGE.
System Action: None.
Required Action: None.

DRSV956R *SYSTEM MODULE=aaaaaaaa LDPT=bbbbbbb EPA=ccccccc
LENGTH=ddddddd COUNT=ee...ee ff...ff
aaaaaaaa: Module name.
bbbbbbb: Module load point.
ccccccc: Module entry point.
ddddddd: Module length.
ee...ee: Module entry count.
ff...ff: Module error information (if any).
Message Meaning: Response to DISPLAY,SYSTEM,MODULE command.
System Action: None.
Required Action: None.

DRSV957R DRSV957R *SYSTEM MODULE=aaaaaaaa STORAGE bbbb CURRENT(c)
MAXIMUM(d) GET(e) FREE(f)
a: Module name
b: ABOVE/BELOW
c: Current storage allocated by module.
d: Maximum storage allocated by module.
e: Total number of getmain & cell pool gets.
f: Total number of freemain & cell pool frees.
Message Meaning: Response to DISPLAY,SYSTEM,MODULE
command.
System Action: None.
Required Action: None.

DRSV958R *SYSTEM MODULE=aaaaaaaa bbbbbbbb - ccccccc ddddddd
 eeeeeee ffffffff gggggggg hhhhhhhh iiiiiii jjjjjjjj
 aaaaaaa: Module name.
 bbbbbbb: Module address.
 ccccccc: 1st word at module address.
 ddddddd: 2nd word at module address.
 eeeeeee: 3rd word at module address.
 ffffffff: 4th word at module address.
 gggggggg: 5th word at module address.
 hhhhhhhh: 6th word at module address.
 iiiiiii: 7th word at module address.
 jjjjjjj: 8th word at module address.
Message Meaning: Response to DISPLAY,SYSTEM,MODULE
 command.
System Action: None.
Required Action: None.

DRSV959R SYSTEM TASK=task FOR type PSW=psw WLIC=wlic
 MODULE=module+offset
 task: DRS task name.
 type: DRS task type (SYSTEM/PRINTER).
 psw: Current PSW address for task.
 wlic: Current WLIC (Instruction length code).
 module: Currently active module.
 offset: Offset in module.
Message Meaning: Response to a DISPLAY,SYSTEM,TASKS
 command.
System Action: None.
Required Action: None.

DRSV960R prtrid OUTREF(name STATUS=ACTIVE|INACTIVE,ID=id,
 REFERENCES=nnnnn)
 name: OUTREF name.
 id: The system-generated name assigned to this
 OUTREF.
 nnnnn: Number of virtual printers referencing this
 OUTREF.
Message Meaning: Response to DISPLAY-OUTREF.
System Action: None.
Required Action: None.

DRSV960R prtrid OUTREF(name @OUTDESC=desc)
name: OUTREF name.
desc: OUTREF description.
Message Meaning: Response to DISPLAY-OUTREF.
System Action: None.
Required Action: None.

DRSV960R prtrid OUTREF(name ADDRESS=addr)
name: OUTREF name.
desc: ADDR1, ADDR2, ADDR3, and ADDR4
keyword values.
Message Meaning: Response to DISPLAY-OUTREF.
System Action: None.
Required Action: None.

DRSV960R prtrid OUTREF(name BUILDING=bldg,BURST=(Y|N)
name: OUTREF name.
bldg: BUILDING keyword value.
Message Meaning: Response to DISPLAY-OUTREF.
System Action: None.
Required Action: None.

DRSV960R prtrid OUTREF(name CHARS(char,char,char,char),
CKPTLINE=ckptline, CKPTPAGE=ckptpage,CKPTSEC=ckptsec)
name: OUTREF name.
char: CHARS keyword value(s).
ckptline: CKPTLINE keyword value.
ckptpage: CKPTPAGE keyword value.
ckptsec: CKPTSEC keyword value.
Message Meaning: Response to DISPLAY-OUTREF.
System Action: None.
Required Action: None.

DRSV960R prtrid OUTREF(name CLASS=c,COLORMAP=colormap,
COMPACT=compact, COMSETUP=comsetup,CONTROL=control)
name: OUTREF name.
c: CLASS keyword value.
colormap: COLORMAP keyword value.
compact: COMPACT keyword value.
comsetup: COMSETUP keyword value.
control: CONTROL keyword value.
Message Meaning: Response to DISPLAY-OUTREF.
System Action: None.
Required Action: None.

DRSV960R prtrid OUTREF(name COPIES=nnn,COPYGRP=(ccc,ccc,...,ccc,ccc),
DATAACK=dataack)
name: OUTREF name.
nnn: COPIES keyword value.
ccc: COPYGRP keyword value.
dataack: DATAACK keyword value.
Message Meaning: Response to DISPLAY-OUTREF.
System Action: None.
Required Action: None.

DRSV960R prtrid OUTREF(name DEPARTMENT=department)
name: OUTREF name.
department: DEPARTMENT keyword value.
Message Meaning: Response to DISPLAY-OUTREF.
System Action: None.
Required Action: None.

DRSV960R prtrid OUTREF(name DEST=destination)
name: OUTREF name.
destination: DEST keyword value.
Message Meaning: Response to DISPLAY-OUTREF.
System Action: None.
Required Action: None.

DRSV960R prtrid OUTREF(name DPAGELBL=Y|N,DUPLEX=NO|NORMAL|TUMBLE, FCB=fcbl, FLASH(flsh,flshcnt), FORMDEF=formdef)

name: OUTREF name.

fcbl: FCB keyword value.

flsh: FLASH name.

flshcnt: FLASH copy count.

formdef FORMDEF keyword value.

Message Meaning: Response to DISPLAY-OUTREF.

System Action: None.

Required Action: None.

DRSV960R prtrid OUTREF(name FORMLEN=formlen,FORMS=form, GROUPID=groupid,INDEX=index,INTRAY=intray)

name: OUTREF name.

formlen: FORMLEN keyword value.

form: FORMS keyword value.

groupid: GROUPID keyword value.

index: INDEX keyword value.

intray: INTRAY keyword value.

Message Meaning: Response to DISPLAY-OUTREF.

System Action: None.

Required Action: None.

DRSV960R prtrid OUTREF(name LINDEX=lindex,LINECT=linect, MODIFY(modify,trc))

name: OUTREF name.

lindex: LINDEX keyword value.

linect: LINECT keyword value.

modify: MODIFY copy modification module name.

trc: MODIFY copy modification TRC value.

Message Meaning: Response to DISPLAY-OUTREF.

System Action: None.

Required Action: None.

DRSV960R prtrid OUTREF(name NAME=namek)

name: OUTREF name.

namek: NAME keyword value.

Message Meaning: Response to DISPLAY-OUTREF.

System Action: None.

Required Action: None.

DRSV960R prtrid OUTREF(name NOTIFY(notify1,notify2,notify3,notify4)
name: OUTREF name.
notify1: NOTIFY keyword value.
notify2: NOTIFY2 keyword value.
notify3: NOTIFY3 keyword value.
notify4: NOTIFY4 keyword value.
Message Meaning: Response to DISPLAY-OUTREF.
System Action: None.
Required Action: None.

DRSV960R prtrid OUTREF(name OFFSETXB=offsetxb,OFFSETXF=offsetxf,
OFFSETYB=offsetyb)
name: OUTREF name.
offsetxb: OFFSETXB keyword value.
offsetxf: OFFSETXF keyword value.
offsetyb: OFFSETYB keyword value.
Message Meaning: Response to DISPLAY-OUTREF.
System Action: None.
Required Action: None.

DRSV960R prtrid OUTREF(name OFFSETYF=offsetyf,OUTBIN=outbin,
OUTDISP(displ,disp2))
name: OUTREF name.
offsetyf: OFFSETYF keyword value.
outbin: OUTBIN keyword value.
disp1: OUTDISP normal completion value.
disp2: OUTDISP abnormal completion value.
Message Meaning: Response to DISPLAY-OUTREF.
System Action: None.
Required Action: None.

DRSV960R prtrid OUTREF(name OVERLAYB=overlayb,OVERLAYF=overlayf,
OVFL=ON|OFF,PAGEDEF=pagedef,PIMSG=(Y|N,pimsgn))
name: OUTREF name.
overlayb: OVERLAYB keyword value.
overlayf: OVERLAYF keyword value.
pagedef: PAGEDEF keyword value.
pimsgn: PIMSG number of errors.
Message Meaning: Response to DISPLAY-OUTREF.
System Action: None.
Required Action: None.

DRSV960R prtrid OUTREF(name PORTNO=portno,PRMODE=prmode,
PRTEROR=prterror,PRTOPTNS=prtoptns)
name: OUTREF name.
portno: PORTNO keyword value.
prmode: PRMODE keyword value.
prterror: PRTEROR keyword value.
prtoptns: PRTOPTNS keyword value.
Message Meaning: Response to DISPLAY-OUTREF.
System Action: None.
Required Action: None.

DRSV960R prtrid OUTREF(name PRTY=prty,RESFMT=resfmt)
name: OUTREF name.
prty: PRTY keyword value.
resfmt: RESFMT keyword value.
Message Meaning: Response to DISPLAY-OUTREF.
System Action: None.
Required Action: None.

DRSV960R prtrid OUTREF(name RETAINF=retainf,RETAINS=retains,
RETRYL=retryl,RETRYT=retryt)
name: OUTREF name.
retainf: RETAINF keyword value.
retains: RETAINS keyword value.
retryl: RETRYL keyword value.
retryt: RETRYT keyword value.
Message Meaning: Response to DISPLAY-OUTREF.
System Action: None.
Required Action: None.

DRSV960R prtrid OUTREF(name ROOM=room,SYSAREA=sysarea)
name: OUTREF name.
room: ROOM keyword value.
sysarea: SYSAREA keyword value.
Message Meaning: Response to DISPLAY-OUTREF.
System Action: None.
Required Action: None.

DRSV960R prtrid OUTREF(name TITL=title,TRC=trc,UCS=ucs)
name: OUTREF name.
title: TITLE keyword value.
trc: TRC keyword value.
ucs: UCS keyword value.
Message Meaning: Response to DISPLAY-OUTREF.
System Action: None.
Required Action: None.

DRSV960R prtrid OUTREF(name USERDATA=userdata)
name: OUTREF name.
userdata: USERDATA keyword value.
Message Meaning: Response to DISPLAY-OUTREF.
System Action: None.
Required Action: None.

DRSV960R prtrid OUTREF(name USERLIB=userlib)
name: OUTREF name.
userlib: USERLIB keyword value.
Message Meaning: Response to DISPLAY-OUTREF.
System Action: None.
Required Action: None.

DRSV960R prtrid OUTREF(name WRITER=writer)
name: OUTREF name.
writer: WRITER keyword value.
Message Meaning: Response to DISPLAY-OUTREF.
System Action: None.
Required Action: None.

DRSV960R prtrid OUTREF(name MAILBCnn=mailbc)
name: OUTREF name.
mailbc: Value of MAILBC01-MAILBC32 keyword.
Message Meaning: Response to DISPLAY-OUTREF.
System Action: None.
Required Action: None.

DRSV960R prtrid OUTREF(name MAILCCnn=mailcc)
name: OUTREF name.
mailcc: Value of MAILCC01-MAILCC32 keyword.
Message Meaning: Response to DISPLAY-OUTREF.
System Action: None.
Required Action: None.

DRSV960R prtrid OUTREF(name MAILFILE=mailfile)
name: OUTREF name.
mailfile: Value of MAILFILE keyword.
Message Meaning: Response to DISPLAY-OUTREF.
System Action: None.
Required Action: None.

DRSV960R prtrid OUTREF(name MAILFROM=mailfrom)
name: OUTREF name.
mailfrom: Value of MAILFROM keyword.
Message Meaning: Response to DISPLAY-OUTREF.
System Action: None.
Required Action: None.

DRSV960R prtrid OUTREF(name MAILTOnn=mailto)
name: OUTREF name.
mailto: Value of MAILTO01-MAILTO32 keyword.
Message Meaning: Response to DISPLAY-OUTREF.
System Action: None.
Required Action: None.

DRSV960R prtrid OUTREF(name REPLYTO=replyto)
name: OUTREF name.
replyto: Value of REPLYTO keyword.
Message Meaning: Response to DISPLAY-OUTREF.
System Action: None.
Required Action: None.

DRSV961R prtrid NO OUTREF MEMBERS DEFINED FOR THIS PRINTER
Message Meaning: Response to DISPLAY-OUTREF.
System Action: The DISPLAY command is ignored.
Required Action: None.

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| DRSV962R | track_no STATUS(status) DEVICE(device) SYS(sysid) TIME(time) |
| track_no: | DRS/VPI SYSOUT tracking number. |
| status: | Current SYSOUT status. WAITING - Dataset is waiting to be processed. PRINTING - Dataset is currently selected and being processed. PRINTED - Dataset has been deselected after successful processing. PRINTED-R - Dataset has been deselected after successful processing and retained on the spool. PURGED - Dataset has been purged from the JES spool without being successfully processed. ERROR - Dataset has been deselected after unsuccessful processing. ERROR HELD - Dataset has been deselected after unsuccessful processing and held. ERR SYSHLD - Dataset has been deselected after unsuccessful processing and placed in system hold. UNKNOWN - Dataset was deleted while DRS was inactive and the status is unknown. |
| device: | Name of selecting device or application. Examples: VPS.PRTID1 - VPS started task name and printer ID. PRT1 - JES system printer ID. Ln.STn - NJE line and SYSOUT transmitter. PRSYSOUT - VPS or other application using PSO (External Writer) interface. |
| sysid: | System identification of JES system originating the last event notification. |
| time: | Time and date of last SYSOUT event. |
| Message Meaning: | This message is issued in response to a DISPLAY,prtId,Files or FActive command. These messages display the current tracking details for SYSOUT datasets created by the requested DRS virtual printer. |
| System Action: | None. |
| Required Action: | None. |

DRSV963R LPR OWNER(owner) HOST(host) JOB(job)
owner: Requesting LPR client owner id.
host: Requesting LPR client host name.
job: Requesting LPR client Job name or source file name.
Message Meaning: This message is issued in response to a DISPLAY,prtId,Files or FActive command and displays additional tracking data specific to TCP/IP LPR requests. The Owner, Host and Job/source file name information are taken from the LPR control file information.
System Action: None.
Required Action: None.

DRSV964R SNA PRIMARY-LU(plu)
plu: Primary logical unit originating print request.
Message Meaning: This message is issued in response to a DISPLAY,prtId,Files or FActive command and displays additional tracking data specific to SNA requests. The primary LU name identifies the VTAM application ACB which originated the report.
System Action: None.
Required Action: None.

DRSV965R SAP USER(userid) SYSTEM(system) SPOOLID(spooled) PRT(sapprt)
userid: Requesting SAP R/3 userid.
system: Requesting SAP R/3 system id.
spooled: SAP R/3 internal spool file identifier.
sapprt: SAP R/3 internal printer id.
Message Meaning: This message is issued in response to a DISPLAY,prtId,Files or FActive command and displays additional tracking data specific to SAP R/3 print requests.
System Action: None.
Required Action: None.

DRSV966R SAP TITLE(title)
title: SAP R/3 report title.
Message Meaning: This message is issued in response to a DISPLAY,prtId,Files or FActive command and displays additional tracking data specific to SAP R/3 print requests.
System Action: None.
Required Action: None.

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| DRSV967R | LRQ CLIENT(client) HOST(host) USER(user) |
| client: | LRS/Queue client which generated request. (VPS, LRS/Queue, ANYQueue) |
| host: | Originating host name |
| user: | Originating userid. |
| Message Meaning: | This message is issued in response to a DISPLAY,prtId,Files or FActive command and displays additional tracking data specific to LRS/Queue print requests. |
| System Action: | None. |
| Required Action: | None. |
| | |
| DRSV968R | LRQ FILE(file) |
| file: | Original file name. |
| Message Meaning: | This message is issued in response to a DISPLAY,prtId,Files or FActive command and displays additional tracking data specific to LRS/Queue print requests. |
| System Action: | None. |
| Required Action: | None. |
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| DRSV969R | FILES(ACTIVE(active) RETAINED(retain)) STATS(PRINTED(prtd) PURGED(purge) ERRORS(errors)) |
| active: | Number of tracking records for active spool files. (Non-purged). |
| retained: | Number of retained tracking records (purged datasets). |
| prtd: | Number of files successfully printed since initialization. |
| purged: | Number of file purged (without printing) since initialization. |
| error: | Number of printing errors since initialization. |
| Message Meaning: | This message is issued in response to a DISPLAY,prtId,Files, FActive or FSummary command and displays tracking statistics for the requested printer. If the DRS tracking feature is not enabled, all statistics will show N/A. |
| System Action: | None. |
| Required Action: | None. |
| | |
| DRSV969R | DATASET INFORMATION NOT AVAILABLE text |
| text: | DATASET TRACKING NOT ENABLED' |
| Message Meaning: | This message is issued in response to a DISPLAY,prtId,Files or FActive command. This indicates that either tracking is enabled and there are no tracking records for this printer, or dataset tracking is not enabled. |
| System Action: | None. |
| Required Action: | None. |

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| DRSV970R | prtrid status information | |
| | status information: | The information displayed here will vary, depending on the status of the printer. The first portion of the message will contain the status of the printer (PRINTING, FORCED, IDLE, EDRAINED, CONNECTED). An EDRAINED printer will show an error message. An IDLE or FORCED printer will show the spooling DASD, or HFS attributes. A PRINTING printer will show the DRS report ID and the number of lines which have been placed on the spool for this report. A CONNECTED printer will display the partner LU (for VTAM) or remote host IP address (for TCP/IP). A list of the possible error messages for EDRAINED printers and the associated DRS/VPI message number which was displayed at the time of the error appears later in this section, as "EDRAINED Printer Error Messages" on page 36.137. |
| | Message Meaning: | Response to DISPLAY-STATUS or ACTIVATE. |
| | System Action: | None. |
| | Required Action: | None. |
| DRSV971R | prtrid INIT(mm/dd-hh.mm) LINES=lines PAGES=pages D/S=datasets | |
| | mm/dd-hh.mm: | Printer initialization date and time. |
| | lines: | Total number of lines spooled since initialization. |
| | pages: | Total number of pages spooled since initialization. |
| | datasets: | Total number of datasets spooled since initialization. |
| | Message Meaning: | Response to DISPLAY-PROCESSING. |
| | System Action: | None. |
| | Required Action: | None. |
| DRSV972R | prtrid CURRENT DEFAULT ATTR SPOOL(CLASS=class, DDNAME=ddname,DEST=dest,FCB=fcb,FORM=form) | |
| | class: | SYSOUT class. |
| | ddname: | DDNAME assigned to SYSOUT dataset. |
| | dest: | JES node name and destination userid. |
| | fcb: | FCB name. |
| | form: | Form name. |
| | Message Meaning: | Response to DISPLAY-ATTRIBUTES. |
| | System Action: | None. |
| | Required Action: | None. |

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| DRSV973R | <p>prtrid CURRENT DEFAULT ATTR SPOOL(HOLD=Y N, JOBNAME=jobname,OUTREF=outref,UCS=ucs)</p> <p>jobname: Name of job as specified using JOBNAME= keyword.</p> <p>outref: OUTPUT JCL statement name.</p> <p>ucs: UCS name.</p> <p>Message Meaning: Response to DISPLAY-ATTRIBUTES.</p> <p>System Action: None.</p> <p>Required Action: None.</p> |
| DRSV974R | <p>prtrid CURRENT DEFAULT ATTR SPOOL (USERID=userid, WRITER=writer)</p> <p>userid: Userid of owner associated with file, if specified.</p> <p>writer: Writer name.</p> <p>Message Meaning: Response to DISPLAY-ATTRIBUTES.</p> <p>System Action: None.</p> <p>Required Action: None.</p> |
| DRSV975R | <p>prtrid ATTR RECORD(BLKSIZE=blksize,CC=X'cc',LRECL=lrecl, RECFM=recfm)</p> <p>blksize: Dataset block size.</p> <p>cc: Carriage control for first line of dataset.</p> <p>lrecl: Dataset record size.</p> <p>recfm: Dataset record format.</p> <p>Message Meaning: Response to DISPLAY-ATTRIBUTES.</p> <p>System Action: None.</p> <p>Required Action: None.</p> |
| DRSV976R | <p>prtrid ATTR DASD(DSN=dsname,MEMBER=member)</p> <p>dsname: DASD dataset name.</p> <p>member: PDS member name (if dataset is partitioned).</p> <p>Message Meaning: Response to DISPLAY-ATTRIBUTES.</p> <p>System Action: None.</p> <p>Required Action: None.</p> |
| DRSV977R | <p>prtrid ATTR DASD(AVGREC(avgrec,u),DATACLAS=class, DISP=(disp1,disp2),DSNTYPE=PDS LIBRARY)</p> <p>avgrec: Average record size.</p> <p>u: Multiplier for record allocation.</p> <p>class: SMS data class.</p> <p>disp1: Initial disposition.</p> <p>disp2: Normal disposition.</p> <p>Message Meaning: Response to DISPLAY-ATTRIBUTES.</p> <p>System Action: None.</p> <p>Required Action: None.</p> |

DRSV978R prtrid ATTR DASD(EXPDT=yyyyddd,MGMTCLAS=class,
RETPD=rrrr,SPACE=(B|C|E|R, pri,sec,dirblks,RLSE))
yyyyddd: Julian date for expiration.
class: SMS management class.
rrrr: Number of days to retain.
pri: Primary allocation units.
sec: Secondary allocation units.
dirblks: Number of directory blocks.
Message Meaning: Response to DISPLAY-ATTRIBUTES.
System Action: None.
Required Action: None.

DRSV979R prtrid ATTR DASD(STORCLAS=class,UNIT(unitname,unitcnt),
VOLCNT=volcnt,VOLUME=volume)
class: SMS storage class.
unitname: Unit name.
unitcnt: Unit count.
volcnt: Volume count.
volume: Volume name.
Message Meaning: Response to DISPLAY-ATTRIBUTES.
System Action: None.
Required Action: None.

DRSV980R prtrid ATTR HFS (PATH=pathname)
pathname: Value from PATH=printer keyword.
Message Meaning: Response to DISPLAY-ATTRIBUTES.
System Action: None.
Required Action: None.

DRSV981R prtrid ATTR HFS (PATHDISP(DELETE|KEEP,DELETE|KEEP))
Message Meaning: Response to DISPLAY-ATTRIBUTES.
System Action: None.
Required Action: None.

DRSV982R prtrid ATTR HFS (PATHMGRP(Y|N,Y|N,Y|N) PATHMOTH(Y|N,Y|N,Y|N)
PATHMUSR(Y|N,Y|N,Y|N))
Message Meaning: Response to DISPLAY-ATTRIBUTES.
System Action: None.
Required Action: None.

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| DRSV983R | prtrid ATTR HFS (PATHOPTS(xxxxxxx)) xxxxxxx: HFS path options specified on PATHOPTS printer keyword. Message Meaning: Response to DISPLAY-ATTRIBUTES. System Action: None. Required Action: None. |
| DRSV984R | prtrid ATTR HFS(FILEDATA=BINARY TEXT) Message Meaning: Response to DISPLAY-ATTRIBUTES. System Action: None. Required Action: None. |
| DRSV985R | prtr-id prtname prtname: PRTNAME keyword value, if specified. Message Meaning: Response to DISPLAY-STATUS or START command. System Action: None. Required Action: None. |
| DRSV987R | JES JOB(jname jid C=c D=d F=f W=w) held jname: Jobname. jid: JOB ID. c: class. d: destination. f: Form. w: Writer. held: SYSOUT held indicator. Message Meaning: This message is issued in response to a DISPLAY,prtId,Files or FActive command and displays the current SYSOUT attributes for an active dataset. System Action: None. Required Action: None. |
| DRSV988R | prtrid MISC(CROPTS=X'nnnnnnnn',DECRYPT(Y N,type,prtr) nnnnnnnn: C runtime options from CROPTS keyword. type: Decryption type. prtr: Decryption printer type. Message Meaning: Response to DISPLAY-MISC. System Action: None. Required Action: None. |

DRSV988R prtrid MISC(DEFLTMEM=defltmem, DESC=description)
 defltmem: Default member name.
 description: Description from DESC keyword.
Message Meaning: Response to DISPLAY-MISC.
System Action: None.
Required Action: None.

DRSV988R prtrid MISC(DKEY=nnnnnnnn)
 nnnnnnnn: Decryption key or '*** ACCESS SECURED***'.
Message Meaning: Response to DISPLAY-MISC.
System Action: None.
Required Action: None.

DRSV989R prtrid MISC(DRAINED=Y|N,ERRACTN(HOLD|KEEP|PURGE,EDR|IGN),
 GRPNAME=group,IPDCLASS=ipdsclass,IPDSOPTS=X'nn')
 group: GRPNAME.
 ipdsclass: SYSOUT class for IPDS files.
 nn: IPDS options.
Message Meaning: Response to DISPLAY-MISC.
System Action: None.
Required Action: None.

DRSV990R prtrid MISC(MAXLPG(currlpg,startlpg),MPP(currmpp,startmpp),
 PRTOPTS=X'nnnnnnnn',PRTXDBCS=(Y|N,dbstab,action,so,si))
 currlpg: Maximum lines per page currently in effect.
 startlpg: Maximum lines per page at printer activation.
 currmpp: Maximum print positions per line currently in effect.
 startmpp: Maximum print positions per line at printer activation.
 nnnnnnnn: Printer options.
 dbstab: Name of DBCS translation table.
 action: Action to be taken for shift-out and shift-in characters.
 so: The shift-out (SO) replacement character(s).
 si: The shift-in (SI) replacement character(s).
Message Meaning: Response to DISPLAY-MISC.
System Action: None.
Required Action: None.

DRSV991R prtrid MISC(PRTXLATE(Y|N,xlatetab,Y|N,trntab,DELT|KEEP),
RECLIMIT=(aaaa),SEPAR=(N|S|E|B,separ),SERVER=bbbbbbbb)

xlatetab: Name of the translation table for normal SBCS data.

trntab: Name of the translation table for transparent data.

aaaa: Record limit value.

separ: Name of the separator routine.

bbbbbbbb: Name of the LRS/MVS Server.

Message Meaning: Response to DISPLAY-MISC.

System Action: None.

Required Action: None.

DRSV992R prtrid MISC(SNAP=Y|N,SUBSYS(aaaa,bbbb),TAB=(cccc,dddd),
TERMRPT(eeeeeeee,ffffff,gggggggg)

aaaa: Name of the subsystem.

bbbb: The parameter to be passed to the subsystem.

cccc: The TAB value currently in use.

dddd: The TAB value specified at printer activation.

eeeeeee: The TERMRPT type currently in use.

ffffff: The TERMRPT type specified at printer activation.

gggggggg: The TERMRPT table name specified.

Message Meaning: Response to DISPLAY-MISC.

System Action: None.

Required Action: None.

DRSV993R prtrid MISC(TRACE(Y|N,x'tt'),TRACK(Y/N,tkret),TRN(C|B|S|T,
trnbeg,trnend),UDATA=udata)

tt: Indicates the trace options for the printer.

tkret: Tracking retention period in hours.

trnbeg: Indicates the character(s) which will begin transparency for the printer.

trnend: Indicates the character(s) which will end transparency for the printer.

udata: Indicates the value of the UDATA keyword.

Message Meaning: Response to DISPLAY-MISC.

System Action: None.

Required Action: None.

DRSV994R prtrid STAGING(BUFSIZE=bufsize,I/O=iocnt,
SPACE=(BLK|CYL|TRK,pri,sec),UNIT=unit,VOLUME=volume
bufsize: Buffer size to be used for the staging dataset.
dsname: Staging dataset name.
iocnt: I/O count for the staging dataset.
pri: Primary allocation quantity for the staging dataset.
sec: Secondary allocation quantity for the staging
dataset.
unit: Unit name for staging dataset.
volume: Volume serial number for staging dataset.
Message Meaning: Response to DISPLAY-QUEUE
System Action: None.
Required Action: None.

DRSV995R prtrid TCPIP(BUFSIZE(MAX,rbuf,sbuf),COMMTYPE(TCPIP,LPD|
LRSQ|SAP|VPSQ|VPSX,LRSQUEUE),CONNECT=ACTIVE,INACTIVE
rbuf: Received buffer size.
sbuf: Send buffer size.
Message Meaning: Response to DISPLAY-TCPIP.
System Action: None.
Required Action: None.

DRSV996R prtrid TCPIP(HOST=host,LIMIT=llllll,MRD=mm,
OPTS=X'nnnnnnn', PORT=port)
host: The remote host name, if connected.
lllll: Maximum number of bytes to accept from
TCPLIMIT keyword.
mm: TCPMRD interval, in minutes.
port: The remote port, if connected.
Message Meaning: Response to DISPLAY-TCPIP.
System Action: None.
Required Action: None.

DRSV997R prtrid VTAM(ACB(OPEN|CLOSED) SLU(ENABLED|DISABLED)
SESSION(ACTIVE|INACTIVE) PLU(pluname) TYPE(type,type)
pluname: Indicates the name of the application (partner
logic unit) which is currently in session with this
virtual printer; if no session is active, pluname
will be NONE.
type: Indicates the value of the COMMTYPE keyword.
Message Meaning: Response to DISPLAY-VTAM.
System Action: None.
Required Action: None.

DRSV998R prtrid VTAM(lutype,BUFSIZE(BIND|MAX,rbuf,sbuf) BIND=bind)
lutype: Indicates the LU type of the current session:
LU0 - DSC connection.
LU1 - SCS connection.
LU3 - DSC connection.
LU6 - APPC connection.
LU? - Not currently connected.
rbuf: Receive buffer size.
sbuf: Send buffer size.
bind: Session parameters from BIND.
Message Meaning: Response to DISPLAY-VTAM.
System Action: None.
Required Action: None.

DRSV999R prtrid VPB(xx-xx-xx-xx xx-xx-xx-xx) VPBV(vv-vv-vv-vv vv-vv-vv-vv)
xx-xx-xx-xx: Virtual printer status bytes (8 bytes).
vv-vv-vv-vv: Virtual printer VTAM status bytes (8 bytes).
Message Meaning: Response to DISPLAY-DIAG.
System Action: None.
Required Action: None.

DRS/Natural - Messages and Codes

Each of the DRS/Natural messages is listed below, with a brief explanation of its meaning and the action that will be taken or that the user should take. The “Yes” or “No” after “WTO:” indicates if this message will be issued as a WTO, in addition to appearing in the DRS log dataset.

DRSN000I stcname REPORT INIT SUCCESSFUL USER=uuuuuuuu PRT=pppp-
pppp OPTIONS=oooooooo FN=nn
uuuuuuuu Userid taken from Natural *INIT-USER system
variable
pppppppp Natural print file destination
oooooooo DRS/Natural output options selected from table
DRSNSDEF
nn Natural file number

Message Meaning: DRS/Natural has successfully allocated a JES
spool file.
System Action: DRS/Natural is ready to process print records.
Required Action: None.
WTO: No.

DRSN001I stcname REPORT COMPLETE USER=uuuuuuuu PRT=pppppppp
FN=nn
uuuuuuuu Userid taken from Natural *INIT-USER system
variable
pppppppp Natural print file destination
nn Natural file number

Message Meaning: DRS/Natural has successfully deallocated and
closed a JES spool file.
System Action: DRS/Natural has successfully processed a print
request.
Required Action: None.
WTO: No.

DRSN002E stcname ffffffff REQUEST FAILED USER=uuuuuuuu RC=nnnnnnnn
REASON=rrrrrrrr
fffffff Natural function code
uuuuuuuu Userid taken from Natural *INIT-USER system
variable
nnnnnnnn DRS/Natural or DRS/API return code
rrrrrrrr ERROR SPECIFIC REASON CODE

Message Meaning: DRS/Natural has encountered an error processing the requested function.

System Action: The requested function failed and an error will be returned to the requesting application.

Required Action: Check the return code and reason code for the cause of the error.
DRS/API and DRS/Natural return codes can be found on page [24.1](#).

WTO: Yes.

DRSN999E stcname DRS/Natural INITIALIZATION FAILED RC=nnnnnnnn
RSN=rrrrrrrr
nnnnnnnn DRS/Natural or DRS/API return code
rrrrrrrr ERROR SPECIFIC REASON CODE

Message Meaning: A fatal error occurred during the initialization of the DRS/Natural interface.

System Action: The Natural print file will be unavailable for use.

Required Action: Check the return code and reason code for the cause of the error and verify that the DRS/Natural and DRS/API installation tasks have been completed successfully.
DRS/API and DRS/Natural return codes can be found on page [24.1](#).

WTO: Yes.

DRS/SAPR2 Messages

The DRS/SAPR2 interface writes messages to the CICS queues defined by the TDQMSG and TDQTRC keywords in the DRS/SAPR2 defaults module (DRSSSDEF). Normal messages will be written to the file represented by the TDQMSG keyword. DRSP070I messages are special trace messages which will be written to the message file represented by the TDQTRC keyword. It is recommended that both queues be defined to CICS as JES SYSOUT datasets. For more information, see [“Updating the CICS Tables” on page 20.15](#).

If the TD queues defined in DRSSSDEF are not available, the messages will be written to the CSMT log, which is normally a JES SYSOUT dataset with a DD name of MSGUSR.

DRS/SAPR2 Message Format

Each DRS/SAPR2 message begins with an 8-byte message identifier formatted as follows:

Characters 1-4 - Always DRSP

Characters 5-7 - Message number uniquely identifying this message

Character 8 - One character identifying the message level

The possible message importance levels (the last character of the message identifier) are as follows:

I - Informational message

E - Error message

It is possible to eliminate all informational messages by setting USEROPTS=80 in the DRS/SAPR2 defaults module (DPSSSDEF). See [“Building the DRS/SAPR2 Defaults Module” on page 27.4](#).

DRS/SAPR2 Message Text

The date and time will be inserted into the message. In addition, the SAP R2 TD queue name will be moved into the message where ‘prtld’ appears in each message.

| | |
|-----------------|--|
| DRSP000I | <p>prtid DRS SYSTEM QUERY SUCCESSFUL – VERSION=V1rel.fix CUSTID=cust</p> <p>rel: DRS Release number (R3.4)</p> <p>fix: DRS Fix number</p> <p>cust: Customer ID</p> <p>Message Meaning: The DRS/SAPR2 interface has successfully issued a system query to locate the DRS/API modules and obtain DRS system information.</p> <p>System Action: None</p> <p>Required Action: None.</p> |
| DRSP001I | <p>prtid DRS REPORT INIT SUCCESSFUL C=class D=dest F=form W=wtr PD=pagedef FD=formdef</p> <p>class: SYSOUT class</p> <p>dest: Destination</p> <p>form: Form name</p> <p>wtr: Writer name</p> <p>pagedef: PAGEDEF name</p> <p>formdef: FORMDEF name</p> <p>Message Meaning: The DRS/SAPR2 interface has allocated a new SYSOUT dataset with the indicated attributes.</p> <p>System Action: None</p> <p>Required Action: None.</p> |
| DRSP002I | <p>prtid REPORT COMPLETE - nnnnn LINES</p> <p>nnnnn: Number of lines</p> <p>Message Meaning: The DRS/SAPR2 interface has successfully written a report to the JES spool.</p> <p>System Action: None</p> <p>Required Action: None.</p> |
| DRSP003E | <p>prtid DRS/SAPR2 PROCESSING TERMINATED DUE TO ERROR</p> <p>Message Meaning: The DRS/SAPR2 interface encountered an unexpected error.</p> <p>System Action: Processing terminates.</p> <p>Required Action: Check for other error messages for a description of the error. If the reason for the failure cannot be determined, contact LRS technical support.</p> |

DRSP004E prtld PROCESSING TERMINATED - GETMAIN FAILED FOR aaaaa
bbbb

aaaaa: Area for which storage was requested.
bbbb: Amount of storage requested.

Message Meaning: The DRS/SAPR2 interface was unable to obtain the storage requested. DRS/SAPR2 will abend with DR00 abend.

System Action: DRS/SAPR2 will abend with DR00 abend.

Required Action: Determine why storage is not currently available.

DRSP010E prtld INCOMPLETE REPORT action - nnn LINES CLASS=class
DEST=dest

action: Action based on ERRACTN in DPSSSDEF

- DELETED
- HELD
- KEPT

nnn,nnn,nnn: Number of lines in report
class: SYSOUT class based on ERRCLASS
dest: Destination based on ERRCLASS

Message Meaning: The DRS/SAPR2 interface has successfully written a report to JES, but the print data passed from SAP R2 was incomplete. This does not necessarily indicate an error as the creating ABAP may have been terminated by the user. If the report was not terminated by the user, then this can indicate that there was an excessive delay in SAP R2 writing the print information to the TD queue and the report was closed after a time-out period. For more information on the WAIT time and RETRY attempts to obtain the additional print lines, see [“Building the DRS/SAPR2 Defaults Module”](#) on page 27.4.

System Action: None
Required Action: None

| | |
|-----------------|---|
| DRSP011E | <p>prtid REPORT action AFTER ERROR - nnn,nnn,nnn LINES CLASS=class DEST=dest</p> <p>action: Action based on ERRACTN in DPSSSDEF</p> <ul style="list-style-type: none"> • DELETED • HELD • KEPT <p>nnn,nnn,nnn: Number of lines in report</p> <p>class: SYSOUT class based on ERRCLASS</p> <p>dest: Destination based on ERRCLASS</p> <p>Message Meaning: An unrecoverable error has occurred while processing a report. Output processing for this report has terminated and the SYSOUT file in error has been held, deleted or kept based on the ERRACTN keyword in the DPSSSDEF defaults module.</p> <p>System Action: Processing terminates.</p> <p>Required Action: Check for other error messages for a description of the error. If the reason for the failure cannot be determined, contact LRS technical support.</p> |
| DRSP022I | <p>prtid DRS/SAPR2 PRODUCT WILL EXPIRE IN nnn DAYS</p> <p>nnn: Number of days remaining in trial period</p> <p>Message Meaning: The DRS/SAPR2 interface trial will expire within 14 days. The number of days is indicated in the message. This message will be issued in each CICS system once per day.</p> <p>System Action: Processing continues.</p> <p>Required Action: Contact LRS marketing personnel.</p> |
| DRSP023E | <p>prtid DRS/SAPR2 PRODUCT HAS EXPIRED</p> <p>Message Meaning: The DRS/SAPR2 interface trial has expired.</p> <p>System Action: Processing terminates.</p> <p>Required Action: Contact LRS marketing personnel.</p> |
| DRSP025E | <p>prtid DRS/SAPR2 PRODUCT KEY INVALID</p> <p>Message Meaning: The DRS/SAPR2 interface product key was either not specified or was specified incorrectly.</p> <p>System Action: Processing terminates.</p> <p>Required Action: Contact LRS marketing personnel.</p> |
| DRSP026E | <p>prtid DRS PRODUCT KEY INVALID OR EXPIRED</p> <p>Message Meaning: The DRS product key was either not specified or was specified incorrectly. DRS/SAPR2 processing cannot continue without DRS/API.</p> <p>System Action: Processing terminates.</p> <p>Required Action: Contact LRS marketing personnel.</p> |

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- DRSP030E** prtld DRS/SAPR2 INTERFACE REQUIRES MVS/ESA
Message Meaning: The DRS/SAPR2 interface has detected that it is not running on an MVS/ESA system. The DRS/SAPR2 interface requires MVS/ESA to create dynamic output JCL statements.
System Action: Processing terminates.
Required Action: Move DRS/SAPR2 to a system running MVS/ESA or contact LRS technical support.
- DRSP031E** fac DRS/SAPR2 PRINT INTERFACE NOT INITIATED BY ATI
fac: Facility name (Terminal ID)
Message Meaning: The DRS/SAPR2 print interface transaction was initiated incorrectly and was not started by a TD queue initiate.
System Action: The print transaction terminates.
Required Action: Verify the TD definition is correct.
- DRSP032E** prtld LOAD FAILED for modname MODULE RC=nnnnnnnn
modname: Name of module.
nnnnnnnn: EIBRESP value.
Message Meaning: The load for failed for the named module.
System Action: The print transaction terminates.
Required Action: Check that the module named is defined to CICS and is available in the DFHRPL library concatenation.
- DRSP033E** prtld INVALID DEFAULTS MODULE (DPSSSDEF)
Message Meaning: The DRS/SAPR2 interface output defaults module (DPSSSDEF) is invalid.
System Action: Processing terminates.
Required Action: Check to be sure that the correct module is loaded by CICS from the DFHRPL concatenation. If the reason for the failure cannot be determined, contact LRS technical support.
- DRSP034E** prtld INVALID PRINTER ALIAS TABLE (DPSSPTAB)
Message Meaning: The DRS/SAPR2 interface printer alias module (DPSSPTAB) is invalid.
System Action: Processing continues without printer alias support.
Required Action: Check to be sure that the correct module is loaded by CICS from the DFHRPL concatenation. If the reason for the failure cannot be determined, contact LRS technical support.

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|-----------------|---|
| DRSP035E | <p>prtid *DRS* PARAMETERS NOT TERMINATED OR EXCEED MAX LENGTH - IGNORED</p> <p>Message Meaning: An error occurred while parsing a SYSOUT parameter options string from the SAPR2 formats table 022D. The DRS/SAPR2 print interface parameter options must be terminated by a less than (<) character and must not contain more than 1024 characters.</p> <p>System Action: Processing continues using the default output attributes from the DPSSSDEF module, and the parameter string is printed as part of the report.</p> <p>Required Action: Ensure that the *DRS* parameter options string in the SAP R2 formats table 022D is correctly terminated.</p> |
| DRSP036I | <p>prtid DRS/SAPR2 PARAMETER PARSING SUCCESSFUL</p> <p>Message Meaning: The *DRS* parameters were valid and will be used for the SYSOUT attributes to create the report.</p> <p>System Action: None.</p> <p>Required Action: None.</p> |
| DRSP037E | <p>prtid DRS/SAPR2 PARAMETER PARSING COMPLETED WITH WARNING</p> <p>Message Meaning: An error occurred while parsing a DRS SYSOUT parameter options string from the SAPR2 formats table 022D. The warning error message text will appear in one or more DRSP039E messages.</p> <p>System Action: Processing continues using the default SYSOUT parameter options string, plus any valid values from the DRS parameters. If USEROPTS=40 is not specified, the report will be DELETED, HELD or KEPT based on the ERRACTN keyword, SYSOUT class will be set to ERRCLASS and destination will be set to ERRDEST. If USEROPTS=40 is specified, the ERRACTN, ERRDEST and ERRCLASS will not be used.</p> <p>Required Action: Check the parameter options string in the SAP R2 formats table 022D for incorrect keyword values.</p> |

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|-----------------|---|
| DRSP038E | <p>prtid DRS/SAPR2 PARAMETER PARSING UNSUCCESSFUL</p> <p>Message Meaning: A severe error occurred while parsing a DRS SYSOUT parameter options string from the SAPR2 formats table 022D. The error text will appear in the DRSP039E message.</p> <p>System Action: Processing continues using the default SYSOUT parameter options string. The report will be DELETED, HELD or KEPT based on the ERRACTN keyword, SYSOUT class will be set to ERRCLASS and destination will be set to ERRDEST.</p> <p>Required Action: Check the parameter options string in the SAP R2 formats table 022D for incorrect keywords or keyword values.</p> |
| DRSP039E | <p>prtid ERROR: Parse_error</p> <p>Parse_error: Error description</p> <p>Message Meaning: An error occurred while parsing a DRS SYSOUT parameter options string. The error text indicates the reason for the error and the parameter keyword in error.</p> <p>System Action: Processing continues based on the type of error or warning message text and the options specified in the defaults module (DPSSSDEF). See messages DRSP037E or DRSP038P for more information.</p> <p>Required Action: Check the syntax of the parameter options string in the SAP R2 formats table 022D.</p> |
| DRSP040E | <p>prtid ERROR READING TD TS QUEUE EIBRESP=nnnnnnnn</p> <p>nnnnnnnn: EIBRESP value</p> <p>Message Meaning: An error occurred trying to read the print data transient data (TD) queue or a temporary storage (TS) queue.</p> <p>System Action: The print transaction terminates.</p> <p>Required Action: Determine the reason for the failure. If the reason cannot be determined, contact LRS technical support.</p> |
| DRSP041E | <p>prtid ERROR WRITING TD TS QUEUE EIBRESP=nnnnnnnn</p> <p>nnnnnnnn: EIBRESP value</p> <p>Message Meaning: An error occurred trying to write to a CICS TS or TD queue.</p> <p>System Action: The print transaction terminates.</p> <p>Required Action: Determine the reason for the failure. If the reason cannot be determined, contact LRS technical support.</p> |

| | |
|-----------------|---|
| DRSP042E | <p>prtid INVALID SPOOL BLOCK LENGTH nnnnn</p> <p>nnnnn: Length value from SAP R2 spool block header</p> <p>Message Meaning: The DRS/SAPR2 print transaction encountered an error processing a SAP R2 spool block. The length field in the spool block is less than the minimum allowed.</p> <p>System Action: The print transaction terminates</p> <p>Required Action: Determine the reason for the failure. If the reason cannot be determined, contact LRS technical support.</p> |
| DRSP043E | <p>prtid INVALID SPOOL BLOCK IDENTIFIER</p> <p>Message Meaning: The DRS/SAPR2 print transaction encountered an error processing a spool block. The data contained in the TD queue does not contain a valid SAP R2 spool block identifier.</p> <p>System Action: The print transaction terminates</p> <p>Required Action: Determine the reason for the failure. If the reason cannot be determined, contact LRS technical support.</p> |
| DRSP044E | <p>prtid SPOOL BLOCK LENGTH aaaaa NOT EQUAL TO TD QUEUE RECORD LENGTH bbbbb</p> <p>aaaaa: SAP R2 spool block length</p> <p>bbbbbb: TD queue record length</p> <p>Message Meaning: The DRS/SAPR2 print transaction encountered an error processing a spool block. The length field in the SAP R2 spool block does not match the record length of the TD queue record.</p> <p>System Action: The print transaction terminates</p> <p>Required Action: Determine the reason for the failure. If the reason cannot be determined, contact LRS technical support.</p> |

DRSP045E prtld RECORD LENGTH OF aaaaa EXCEEDS MAXIMUM LRECL
 bbbbb - action

aaaaa: Length of print record
 bbbbb Maximum LRECL specified in defaults module
 action One of the following actions taken due to the error:
 RECORD TRUNCATED
 PROCESS STOPPED

Message Meaning: The DRS/SAPR2 print transaction encountered an error processing a spool block. The length field in the SAP R2 print record is longer than the maximum allowed in the DRS/SAPR2 defaults (DPSSSDEF).

System Action: The record is truncated and processing continues. If USEROPTS=20 is set, then processing will terminate.

Required Action: Verify the MAXLRECL is set correctly.

DRSP046E prtld INVALID RECORD IN SPOOL BLOCK

Message Meaning: The DRS/SAPR2 print transaction encountered an error processing a record in the SAP R2 spool block. The length is too short to contain the record header.

System Action: The print transaction terminates

Required Action: Determine the reason for the failure. If the reason cannot be determined, contact LRS technical support.

DRSP047E prtld CICS REQUEST UNSUCCESSFUL – EIBRESP=aaaaaaa
 REQUEST=bbbbbbb

aaaaaaa: EIBRESP value
 bbbbbbbb: Type of CICS request made

Message Meaning: An error occurred during an EXEC CICS call.

System Action: The print transaction continues.

Required Action: Determine the reason for the failure. If the reason cannot be determined, call LRS technical support.

DRSP050E prtld LINK TO DRSSINTC FAILED RC=nnnnnnnn

nnnnnnnn: EIBRESP value.

Message Meaning: An error occurred during an EXEC CICS LINK to the DRS/API interface module DRSSINTC.

System Action: The print transaction terminates

Required Action: Determine the reason for the failure. If the reason cannot be determined, contact LRS technical support.

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| DRSP051E | <p>prtId DRS INIT REQUEST FAILED RC=nnn nnn: DRS/API return code in decimal Message Meaning: An error occurred during a DRS INIT request. System Action: The print is generated using the default SYSOUT attributes and ERRACTN defined in DPSSSDEF. Required Action: Determine the reason for the failure. If the reason cannot be determined, contact LRS technical support. The DRS/API return codes are documented in “DRS/API Return Codes” on page 24.1.</p> |
| DRSP052E | <p>prtId DRS PUT REQUEST FAILED RC=nnn REPORT ID=repid nnn: DRS/API return code in decimal repid: Report ID associated with request Message Meaning: An error occurred during a DRS PUT request. System Action: The print transaction terminates Required Action: Determine the reason for the failure. If the reason cannot be determined, contact LRS technical support. The DRS/API return codes are documented in “DRS/API Return Codes” on page 24.1.</p> |
| DRSP053E | <p>prtId DRS TERM REQUEST FAILED RC=nnn REPORT ID=repid nnn: DRS/API return code in decimal repid: Report ID associated with request System Action: The print transaction terminates. Required Action: Determine the reason for the failure. If the reason cannot be determined, contact LRS technical support. The DRS/API return codes are documented in “DRS/API Return Codes” on page 24.1.</p> |
| DRSP054E | <p>prtId DRS OUTPUT JCL STATEMENT ADD FAILED Message Meaning: An error occurred during a DRS/API OUTP request to dynamically add an OUTPUT card. This message is followed by message DRSP055E which further describes the error. System Action: The print is generated using the default SYSOUT attributes and ERRACTN defined in DPSSSDEF. Required Action: Determine the reason for the failure. If the reason cannot be determined, contact LRS technical support.</p> |

DRSP055E prtld DRRB RC=aaa OUTP RC=bbb REASON CODE=cccc TEXT
UNIT=X'ddddddd'

aaa: DRS/API DRRB return code in decimal
bbb: DRS/API DROB return code in decimal
cccc: DRS/API DROB reason code in decimal
ddddddd: Text unit number in hex

Message Meaning: An error occurred during a DRS/API OUTP request to dynamically add an OUTPUT card.

System Action: The print is generated using the default SYSOUT attributes and ERRACTN defined in DPSSSDEF.

Required Action: Determine the reason for the failure. If the reason cannot be determined, contact LRS technical support. The DRS/API return codes are documented in [“DRS/API Return Codes” on page 24.1.](#)

DRSP056E prtld OUTPUT JCL STATEMENT DELETE FAILED RC=nnn

nnn: DRS/API return code in decimal

Message Meaning: An error occurred during a DRS/API OUTP request to dynamically delete an OUTPUT card.

System Action: Processing continues.

Required Action: Determine the reason for the failure. If the reason cannot be determined, contact LRS technical support. The DRS/API return codes are documented in [“DRS/API Return Codes” on page 24.1.](#)

DRSP057E prtld DRS CMND REQUEST FAILED RC=nnn TYPE=type

nnn: DRS/API return code in decimal
type: The type of CMND request made:
SNAP DRS BLOCKS

Message Meaning: An error occurred during a DRS CMND request.

System Action: Processing terminates.

Required Action: Determine the reason for the failure. If the reason cannot be determined, contact LRS technical support. The DRS/API return codes are documented in [“DRS/API Return Codes” on page 24.1.](#)

| | |
|-----------------|---|
| DRSP058E | <p>prtid DRS QURY REQUEST FAILED RC=nnn TYPE=type nnn: DRS/API return code in decimal type: The type of QURY request made: SYSTEM QUERY</p> <p>Message Meaning: An error occurred during a DRS QURY request. System Action: Processing terminates. Required Action: Determine the reason for the failure. If the reason cannot be determined, contact LRS technical support. The DRS/API return codes are documented in “DRS/API Return Codes” on page 24.1.</p> |
| DRSP059E | <p>prtid OUTPUT *DRS* PARAMETERS FAILED - DEFAULT SYSOUT PARAMETERS WILL BE USED</p> <p>Message Meaning: An error occurred during a DRS/API OUTP request to initialize the report. A DRSP037 or DRSP038 message, along with one or more DRSP039 messages, will be issued to describe the error in the *DRS* parameters.</p> <p>System Action: The print is generated using the default attributes and ERRACTN as defined in DPSSSDEF.</p> <p>Required Action: Determine the reason for the failure. If the reason cannot be determined, contact LRS technical support.</p> |
| DRSP060E | <p>prtid DRS/SAPR2 - LOGIC ERROR CALLING module REQUEST=request module: DRS/SAPR2 module name. request: Request type.</p> <p>Message Meaning: An logic error occurred during a DRS/SAPR2 processing.</p> <p>System Action: Processing terminates. Required Action: Contact LRS technical support.</p> |
| DRSP070I | <p>prtid trace_data trace_data</p> <p>Message Meaning: Entry from DRS/SAPR2 internal trace table. Trace data has been requested from the internal DRS/SAPR2 trace table.</p> <p>System Action: Entries from the DRS/SAPR2 trace table are moved to the file defined by the TDQTRC keyword in the defaults module. Entries are created based on the last byte of the USEROPTS value; the entries should only be created upon the request of LRS technical support.</p> <p>Required Action: If tracing was requested by LRS technical support, forward the data in the trace file to LRS.</p> |

DRSP099E prtld INVALID MESSAGE NUMBER - CONTACT LRS TECHNICAL SUPPORT

Message Meaning: An logic error occurred during a DRS/SAPR2 message processing.

System Action: Processing terminates.

Required Action: Contact LRS technical support.

EDRAINED Printer Error Messages

When DRS/VPI puts a virtual printer into an EDRAINED status, it issues a message which indicates the type of error encountered. When message DRSV990R is displayed for an EDRAINED printer, the message will include an abbreviated version of the original error message.

The abbreviated error messages and their associated DRS message numbers are:

| Associated Message Number | Abbreviated Error Message |
|---------------------------|---|
| DRSV201E | ATTACH FAILED FOR xxxxxxxx R15=xx |
| DRSV210E | LOGIC ERROR FORMATTING OUTPUT BUFFER - xxxx |
| DRSV211E | OUTPUT BUFFER OVERRUN - xxxx |
| DRSV212E | DSC 3270 WRITE COMMAND IS MISSING |
| DRSV213E | ERROR PROCESSING SPANNED DSC 3270 COMMAND |
| DRSV214E | WRITE STRUCTURED FIELD 3270 COMMAND NOT SUPPORTED |
| DRSV217E | LOGIC ERROR DVSSVPRT - xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx |
| DRSV218E | RECV LEN xxxx INVALID xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx |
| DRSV219E | LOGIC ERROR PBLK xxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx |
| DRSV220E | SCS CONTROL CODE SPANS RECEIVE BUFFERS |
| DRSV221E | INVALID SCS CONTROL CODE |
| DRSV230E | IPDS PRINT BLOCK IS INVALID |
| DRSV231E | IPDS DATA LENGTH ERROR |
| DRSV232E | IPDS PRINT BLOCK OVERFLOW |
| DRSV233E | IPDS UNKNOWN COMMAND DETECTED CMC=xxxx |
| DRSV250E | ACB OPEN FAILED R15=xx EC=xx |
| DRSV252E | ACB CLOSE FAILED R15=xx EC=xx |
| DRSV253E | OPNSEC ERROR R15=xx R0=xx RC=xx F2=xx SNS=xxxxxxxx |
| DRSV254E | TERMSESS ERROR R15=xx R0=xx RC=xx F2=xx SNS=xxxxxxxx |
| DRSV255E | SETLOGON ERROR R15=xx R0=xx RC=xx F2=xx SNS=xxxxxxxx |
| DRSV256E | SESSIONC ERROR R15=xx R0=xx RC=xx F2=xx SNS=xxxxxxxx |
| DRSV257E | RECEIVE ERROR R15=xx R0=xx RC=xx F2=xx SNS=xxxxxxxx |
| DRSV258E | INQUIRE ERROR R15=xx R0=xx RC=xx F2=xx SNS=xxxxxxxx |
| DRSV259E | SEND ERROR R15=xx R0=xx RC=xx F2=xx SNS=xxxxxxxx |
| DRSV260E | RESETSR ERROR R15=xx R0=xx RC=xx F2=xx SNS=xxxxxxxx |
| DRSV261E | CHECK ERROR R15=xx R0=xx RC=xx F2=xx SNS=xxxxxxxx |
| DRSV262E | RECEIVE FAILED RTNCD=xx FDBK2=xx SENSE=xxxxxxxx |
| DRSV264E | MODCB ERROR R15=xx R0=xx BLK=xxxxx |
| DRSV265E | SHOWCB ERROR R15=xx R0=xx BLK=xxxxx |
| DRSV266E | TESTCB ERROR R15=xx R0=xx BLK=xxxxx |

| Associated Message Number | Abbreviated Error Message |
|---------------------------|--|
| DRSV267E | CLSDST ERR R15=xx R0=xx RC=xx F2=xx SNS=xxxxxxx |
| DRSV268E | SESSION REJECT SNS=xxxxxxx xxxxxxxxxxxxxxxxxxxxxxx |
| DRSV270E | APPCCMD ERR xxxxxxxx xxxxxxxx RCPR=xxxx RCSC=xxxx |
| DRSV281E | TPEND xxxxxx RECEIVED |
| DRSV282E | xxxxxxxxxxx REQ RECEIVED in ATTn EXIT xxxx |
| DRSV283E | RPLEXIT UNKNOWN REQ=xx R15=xx R0=xx RC=xx F2=xx |
| DRSV284E | INVALID/UNSUPPORTED FMH=xxxxxxxxxxxxxxxxxxxx |
| DRSV285E | INVALID xxxxxxxx REQUEST xxxxxxxx |
| DRSV286E | UNKNOWN REQUEST RECEIVED IN NETWORK SERVICES EXIT |
| DRSV287E | UNEXPECTED DFSYN REQUEST=xx CONTROL=xxxxxx |
| DRSV288E | xxxxxxxxxxx REQ RECEIVED IN SCIP EXIT xxxxxx |
| DRSV290E | INVALID DRS CALL REQUEST xxxxxxxx |
| DRSV291E | DRS CALL ERROR FUNC=xxxx RC=xxxxxxxx OSRC=xxxxxxx |
| DRSV381E | xxxxxxxxxxxxxxxxxxxxxxxx ERROR R15=xxxxxxx |
| DRSV382E | TCPIP ERR=xxxxxxxx TYPE=xxxxxxxx FUNCTION=xxxx |
| DRSV383E | TCPIP CONNECTION SEVERED |
| DRSV384E | TCPIP LOGIC ERR xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx |
| DRSV387E | TCPIP CONNECTION NOT AVAILABLE |
| DRSV391E | TCPMRD EXPIRED - CONNECTION TIMED OUT |
| DRSV394E | TCPIP ERR=xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx |
| DRSV520E | TCP Q ALLOC ERR RC=xx EC=xxxx IC=xxxx |
| DRSV521E | TCP Q UNALLOC ERR RC=xx EC=xxxx IC=xxxx |
| DRSV522E | TCP QUEUE xxxxx FAILURE DDNAME=xxxxxxx |
| DRSV523E | TCPIP QUEUE DCB ABEND CODE=xxx-xx |
| DRSV525E | TCP QUEUE I/O ERR xxxxxxxxxxxxxxxxxxxxxxxxxxx |
| DRSV526E | TCP INSUFFICIENT STORAGE - QUEUE BUFFER |
| DRSV528E | TCPIP QUEUE INVALID DATASET DETECTED |
| DRSV529E | TCPIP QUEUE OUTPUT BUFFER OVERRUN |
| DRSV807E | VIRTUAL PRINTER SUBTASK ABEND |
| DRSV825E | INVALID JOBNAME PATH USERID VALUE=xxxx ACTION=xxxx |
| DRSV840E | LOGIC ERROR IN MODULE xxxxxxx |

Table 36.1: EDRAINED Printer Error Messages

DRS/STI Messages

The following messages can result from using program DS34LOAD to populate the DRS/STI rules dataset.

| | |
|-------------------------|--|
| DSST010E | type REQUEST FAILED FOR FILE DSSTRLIB, RC=X'retcode' |
| type: | The file access request type. |
| retcode: | The file access request return code. |
| Message Meaning: | The rules file access request shown in the message failed with the return code shown in the message. |
| System Action: | Processing terminates. |
| Required Action: | Ensure that the DRS/STI rules dataset name is properly defined in the CLIST. If unable to resolve the problem, notify DRS technical support. |
| | |
| DSST020E | type REQUEST FAILED FOR FILE DSSTRLIB, RETCODE=X'rc', ERRCODE=X'ec', INFCODE=X'ic' |
| type: | The file allocation request type. |
| rc: | Dynamic allocation return code. |
| ec: | Dynamic allocation error code. |
| ic: | Dynamic allocation info code. |
| Message Meaning: | The rules file dynamic allocation request shown in the message failed with the error feedback information shown in the message. |
| System Action: | Processing terminates. |
| Required Action: | Ensure that the DRS/STI rules dataset name is properly defined in the CLIST. If unable to resolve the problem, notify DRS technical support. |
| | |
| DSST900I | INITIALIZING DRS PRINT RULES DATASET |
| Message Meaning: | The DRS/STI rules dataset has been opened in VSAM load mode and is being loaded with the initial control data. |
| System Action: | None. |
| Required Action: | None. |

| | |
|-----------------|--|
| DSST904I | ddname STATEMENT NOT PRESENT-PRINT RULES type DATA BYPASSED |
| | ddname: The JCL DDNAME of the file which is not present. This will be either VPSLIB or DRSVLIB. |
| | type: The type of print rules data for which processing was bypassed. This will be either PRINTER or OUTPUT. |
| | Message Meaning: The DD statement shown in the message is not present in the job control language. As a result, processing for the print rules data type shown in the message will be bypassed. |
| | System Action: None. |
| | Required Action: None. |
| | |
| DSST908I | UPDATING PRINT RULES type DATA USING SYSTEM INITIALIZATION MEMBER member |
| | type: The type of print rules data for which processing is being performed. This will be either PRINTER or OUTPUT. |
| | member: The name of the VPS or DRS system initialization member used to determine the printer and output statement definitions to process. |
| | Message Meaning: Processing for the print rules data type shown in the message is beginning using the system initialization member shown in the message. |
| | System Action: None. |
| | Required Action: None. |
| | |
| DSST920I | PRINT RULES action FOR PRINTER printer |
| | action: Indicates the action taken against the named printer definition (CREATED, REPLACED, or RETAINED). |
| | printer: Indicates the name of the print rules printer definition. |
| | Message Meaning: Print rules processing took the action shown in the message for the printer shown definition in the message. |
| | System Action: None. |
| | Required Action: None. |

| | |
|-------------------------|---|
| DSST924I | PRINT RULES action FOR OUTPUT STATEMENT outref |
| action: | Indicates the action taken against the named output definition (CREATED, REPLACED, or RETAINED). |
| printer: | Indicates the name of the print rules output definition. |
| Message Meaning: | Print rules processing took the action shown in the message for the output definition shown in the message. |
| System Action: | None. |
| Required Action: | None. |
| | |
| DSST960W | EXEC STATEMENT PARAMETER parm IS NOT RECOGNIZED |
| parm: | Indicates the JCL EXEC statement parameter that is not recognized. |
| Message Meaning: | A JCL EXEC statement parameter was specified that is not recognized. |
| System Action: | Processing continues, ignoring the unrecognized parameter. |
| Required Action: | None. |
| | |
| DSST970E | SYNTAX ERROR IN STMT stmt OF MEMBER member-desc |
| stmt: | Indicates the statement number of the VPS or DRS control library member that contains the syntax error. |
| member: | Indicates the VPS or DRS control library member name that contains the syntax error. |
| desc: | The description of the syntax error. |
| Message Meaning: | A syntax error was identified in the VPS or DRS control library member shown in the message. |
| System Action: | If the syntax error was identified in the system initialization member or the inclusion/exclusion list member, processing terminates. Otherwise, processing continues with the next printer or output statement definition. |
| Required Action: | Correct the syntax error and retry the process. |

| | |
|-------------------------|--|
| DSST972E | SYNTAX ERROR IN KEYWORD keyword OF MEMBER member- desc |
| keyword: | Indicates the keyword statement of the VPS or DRS control library member that contains the syntax error. |
| member: | Indicates the VPS or DRS control library member name that contains the syntax error. |
| desc: | The description of the syntax error. |
| Message Meaning: | A syntax error was identified in the VPS or DRS control library member shown in the message. |
| System Action: | If the syntax error was identified in the system initialization member or the inclusion/exclusion list member, processing terminates. Otherwise, processing continues with the next printer or output statement definition. |
| Required Action: | Correct the syntax error and retry the process. |
| | |
| DSST976E | MEMBER member IS NOT A VALID PRINTER DEFINITION |
| member: | Indicates the VPS control library member name. |
| Message Meaning: | The member name shown in the message was identified by the member inclusion or exclusion list as a VPS printer definition. However, the member does contain any statement specifying the printer CLASS, DEST, FORM, or WRITER. |
| System Action: | Processing continues with the next printer definition. |
| Required Action: | None. |
| | |
| DSST978E | MLISTMEM/XLISTMEM NOT SPECIFIED IN SYSTEM INITIALIZATION MEMBER member |
| member: | Indicates the VPS or DRS control library system initialization member name. |
| Message Meaning: | The system initialization member shown in the message does not specify either a member inclusion list (MLISTMEM) or a member exclusion list (XLISTMEM). |
| System Action: | Processing terminates. |
| Required Action: | Correct the system initialization member and retry the process. |

| | |
|-----------------|--|
| DSST980E | <p>OPEN FAILED FOR FILE ddname</p> <p>ddname: The JCL DDNAME of the file for which the OPEN failed.</p> <p>Message Meaning: The attempt to OPEN the file shown in the message failed.</p> <p>System Action: Processing terminates.</p> <p>Required Action: Correct the JCL and retry the process.</p> |
| DSST984E | <p>request REQUEST FAILED FOR FILE DRSRULES, RETCODE=X'retcode'</p> <p>request: The file access request type.</p> <p>retcode: The file access request return code.</p> <p>Message Meaning: The print rules file access request shown in the message failed with the return code shown in the message.</p> <p>System Action: Processing terminates.</p> <p>Required Action: Ensure that the DRS/STI print rules dataset is properly defined in the job control language. If unable to resolve the problem, notify DRS technical support.</p> |
| DSST988E | <p>FIND FOR LIBRARY MEMBER member FAILED, RETCODE=X'retcode', RETCODE=X'retcode', RSNCODE=X'rsncode'</p> <p>member: The VPS or DRS control library member for which the FIND request failed.</p> <p>retcode: The FIND return code.</p> <p>rsncode: The FIND reason code.</p> <p>Message Meaning: The attempt to locate the VPS or DRS control library member shown in the message failed with the return code and reason code shown in the message.</p> <p>System Action: If the locate failure occurred while processing the system initialization member or the inclusion/exclusion list member, processing terminates. Otherwise, processing continues with the next printer or output statement definition.</p> <p>Required Action: Correct the VPS or DRS control library definitions and retry the process.</p> |

DRS/STI CICS Messages

DSSC005E TRANSACTION INVOCATION ERROR – COMMAREA LENGTH INVALID

Message Meaning: The commarea length is invalid.

System Action: Processing terminates.

Required Action: Correct the programming error and retry the process.

DSSC010E TRANSACTION INVOCATION ERROR – MUST BE LINKED TO FROM A PROGRAM PASSING A COMMEAREA

Message Meaning: A transaction invocation error has occurred as indicated in the message.

System Action: Processing terminates.

Required Action: Correct the programming error and retry the process.

DRS/API Abend Codes

System Abend Codes

SA03 Abend

An SA03 abend occurs whenever a task terminates, but all of its subtasks (i.e., DRSSMAIN) have not yet terminated.

CICS Mode

An SA03 abend will occur during CICS termination if DRSSSHTC is not included in the CICS PLT. The DRSSSHTC program is used to initiate DRS termination. DRS termination consists of terminating all active report(s) and detaching the DRSSMAIN subtask(s). See [“Updating the CICS Tables” on page 20.15](#) for a description of the PLT entry that is used to invoke DRSSSHTC.

DRS 1.0 users MUST replace PLT entry DRS1SHUT with DRSSSHTC when migrating to DRS Version 1 Release 3.3. Both programs perform the same function. The difference is that DRS1SHUT is a CICS macro level program and DRSSSHTC is a CICS command level program. The macro level version will not work with DRS Version 1 Release 3.3. This change was made because IBM will be dropping support of the CICS macro level interface in future releases of CICS.

Non-CICS mode (TP Monitor)

An SA03 abend will occur if DRSSSHTB is not executed prior to the termination of the TP monitor. The DRSSSHTB program is used to initiate DRS termination. DRS termination consists of terminating all active report(s) and detaching the DRSSMAIN subtask(s).

Non-CICS mode (batch program) An SA03 abend will occur during termination of the batch program under the following conditions:

- The batch program initiated one or more reports but failed to terminate all of them. The program should be corrected to terminate all reports prior to program termination.
- The DRSSOPTS module specified a non-zero value for the TCBBTCH keyword. A non-zero value for the TCBBTCH keyword should only be specified when executing DRS in an environment that allows execution of program DRSSSHTB or DRSSSHTC at shutdown. Change the TCBBTCH keyword value to zero in the DRSSOPTS module. Re-assemble and relink the DRSSOPTS module and rerun the program.
- The DRSSOPTS module specified LOG=YES. LOG=YES should only be specified when executing DRS in an environment that allows execution of program DRSSSHTB or DRSSSHTC at shutdown. Change the LOG keyword value to NO in the DRSSOPTS module. Re-assemble and relink the DRSSOPTS module and rerun the program.

All Other System Abends

All other system abends should be reported to DRS technical support.

DRS/API Abend Codes

Both the CICS and non-CICS versions of the DRS/API issue certain user abends when critical errors occur. In a CICS environment, the transaction which issued the DRS call that caused the critical error will be abended. In a non-CICS environment, an MVS abend will be issued.

In a non-CICS environment, you can choose to use DRS User Exit 06 (OS Services Exit) to change the MVS abend to some other type of abend which will not abend the entire address space.

The DRS log will contain one or more error messages indicating the exact cause of the abend.

The **non-CICS DRS/API user abend codes** and their meanings are:

- U0700** The parameter list passed to DRS was invalid.
- U0701** A GETMAIN for a critical DRS control block failed.

The **CICS DRS/API user abend codes** and their meanings are:

- DR00** No DRRB or invalid DRRB
- DR01** System Record TS-READQ error
- DR02** System Record TS-WRITEQ error
- DR03** Invalid DRS System Record
- DR04** Error allocating RQE
- DR05** Error allocating DRS System Area (SYS)
- DR06** Error allocating SCA table
- DR07** Error loading support modules
- DR08** Error attaching support subtask

DRS/SAPR2 Abend Codes

The CICS programs for DRS/SAPR2 issue certain abends when critical errors occur. The DRS/SAPR2 log will contain one or more error messages indicating the cause of the abend.

The **CICS DRS/SAPR2 user abend codes** and their meanings are:

- DP00** Error allocating DRS control blocks.
- DP01** Error writing a DRS/SAPR2 message to the message queue.

DRS/VPI Abend Codes

User Abend Codes

| Code | Dump? | Reason for Abend | Corresponding Message |
|------|-------|--|--|
| U001 | YES | Requested by ABEND command. | DRSV937R |
| U002 | YES | VTAM is inactive. Operator response was to end DRS/VPI | DRSV251E |
| U005 | YES | A critical error has occurred during DRS/VPI initialization. Various messages may be issued to describe the error(s) detected. | DRSV010E |
| U006 | YES | A critical error has occurred in the TCP/IP interface; unable to locate DRS/VPI control blocks. | (none) |
| U100 | NO | A required subtask has abended. The user abend will not create a dump, but the original subtask abend would create a dump. | DRSV800E DRSV801E DRSV803E DRSV805E DRSV806E DRSV811E DRSV813E DRSV814E |

Appendix A

DRS Documentation

The most recent version of this manual can be downloaded from the LRS Web site (www.lrs.com).

As a licensed user of this product, you may print the PDF file on the *Enterprise Output Management Product Documentation* CD for use within your company as allowed by your license.



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