VPSX™

Installation and User Guide

V1 R1.0

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Levi, Ray & Shoup, Inc.
2401 West Monroe Street
Springfield, IL 62704
Phone: 217-793-3800
Fax: 217-787-4014
http://www.lrs.com

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VPSX

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VPSX V1.0.001

Enhancements:

- Support for 64bit execution and large file support (file sizes > 2GB).
- Additional validation of SERVROOT keyword to ensure an fully qualified directory name is specified.
- Additional checks added for STOP-IMMEDIATE and CANCEL printer commands to ensure prompt response.
- Performance improvement for spool re-route requests when processing large files.
- Correctly handle incomplete LPR requests and delete partially complete files.
- LRSQ query response enhanced to return additional device status information for SAP originated queries.
- Spool re-route requests rejected if spool file incomplete.
- Sort argument added to spool queue list functions to enable list to be sort by any spool attribute. (Requires LRS/NETX & VMCFX V1R1.0.001).
- New printer samples added for LRS data conversion filters.
- Use Lexmark PJL code descriptions for IBM rebadged Lexmark printers.
- PCL data incorrectly identified as HPGL by auto detection routine.
- Support added for HP-UX executing on Itanium based servers.
- Support added for Linux on Intel based servers.

Note: Note large file support is not provided for HP-UX on PA-Risc architecture due to errors in the pread and pwrite functions.

VPSX V1.0.002

Bugs Fixed

- Storage corruption in the VPSX process when using a printer with COMMTYPE=TCPIP/LRSQ and compression enabled.

VPSX V1.0.003

Bugs Fixed

- Segment violation in printer thread using filter processing.

  A segment violation can occur in a printer thread that is using filter processing due to a file close request being issued twice for the same file. This problem will only occur if multiple files are processed in a single session and only some of the files require filter processing. The printer thread was not resetting the file pointer used for the filter output file which can cause the file to be closed more than once.

  Module VPSPRTR has been updated to reset the filter file pointer during close processing.

Prerequisite

LRXAPI Library V1R1.0.002

Source File Changes:

vpsprtr.c
vpscmn.h

VPSX V1.0.004

Enhancements:

- VPSX license checking has been extended with the addition of a license file that will identify licensed hosts.
- New startup keywords: KEYPCL2PDF, KEYTIFF2AFP
- SOAP method VPSX_PrtQueList returns invalid response if QueType argument is not specified.
- Added new PJLOPTS flag to printer configuration to disable use of the page range keywords in the PJL JOB START command. These commands were found to cause a problem on some IBM InfoPrint 21 printers.
- If a product license key was removed via the Web interface or SOAP API it was then impossible to specify a key again until VPSX was recycled. The key processing has been modified to correct this error.
- The spool file datatype detection processing has been changed to inspect the spool file contents irrespective of the file extension. Prior to this change VPSX could indicate the wrong datatype for files with an extension that didn't relate to their contents.
- Filter configuration parameters not returned in SOAP API response if filter command is not specified. Request has been updated to always return all filter keyword values.
- SNMP thread terminates if TCP/IP send requests fails. Send errors No-route-to-network and No-route-to-host will be handled as recoverable error conditions.

Prerequisites: LRXAPI Library V1R1.0.003
VMCFX Library V1R1.0.002

VPSX V1.0.005

Enhancement:

- Support added for Intel based SuSe and RedHat Linux.

VPSX V1.0.006

Enhancements:

- The processing of inbound spool files has been changed to attempt to detect the data type of all spool files (Previously data detection was only active for files submitted as binary.)

  It is now possible to submit all files without indicating whether the data should be processed as binary or text. VPSX will attempt to detect the data type and process accordingly. If VPSX does not detect a binary data type then the file will be processed as text.

  Note: LRSQ fix level 1.0.21 is required to enable submission of any file type without specifying /bin=y. Older versions may report an error counting lines when processing some binary files if the /bin=y argument is not specified.
- The outbound LRSQ communication has been enhanced to pass the page count, line count, priority and format name to the receiving system.
- Filter processing has been updated to automatically detect the data type of the output file after conversion. The new data type will then be available for inclusion in separators via the &datatype symbolic variable.
- The LRSLP command has been updated to accept the -c argument. This was added to support PeopleSoft which generates this argument. The processing of the print submission request is unchanged.
- Support has been added for Solaris 10 on Intel based hardware.

Prerequisites: LRXAPI Library V1R1.0.003

VPSX V1.0.007

Bugs Fixed

- Error sending large files with COMMTYPE=TCPIP/LPD.

  When processing outbound LPR requests it is necessary for VPSX to create a temporary file containing the outbound data to calculate the total byte count. With very large files this can add a delay which causes the receiving LPD to timeout the connection and the printer will go EDRAINED. To correct this problem VPSX will now check the status of the connection after staging the spool data and will reconnect if the connection has been closed. This problem is more likely to occur for very large text files as VPSX has to scan the entire file for newline and formfeed sequences before transmission.

Enhancements:

- The spool file JOBNAME is now included in the LPR control file for outbound LPR/LPD requests.
- The byte count is now displayed in the log for all spool files that are created.
- Product expiration messages would display incorrect information if the product was running on an unlicensed host and the expiration date in the product key was less than the 30 day grace period.

Prerequisites: LRXAPI Library V1R1.0.003

VPSX V1.0.008

Bugs Fixed

- Output from filter prints incorrectly using COMMTYPE=TCPIP/PJL.

  Output from a filter process will print incorrect when using COMMTYPE=TCPIP/PJL after fix level 6. Fix 6 included an enhancement to detect the data type returned from the filter routine. This processing moved the current file position in the output file and caused the PJL printer driver to bypass the first 1K of data in the file.

  The filter processing has been corrected to reposition to the start of file after data detection.

Enhancements:

- ACCT and ACCTSIZE keyword values updated dynamically when changed without reload.
- Add support for RETAINS value specified via LRSQ client.

VPSX V1.0.009

Enhancements:

- IPP inbound support.
- Email printer type added for spool file delivery via email.
- Email notification of spool file and device events.
- Send PJL ENTER LANGUAGE for PCL and PS.
- Ignore printer stop command if already drained.
- Display PostScript interpreter error messages returned by printer.
- New PRTROPTS.
- Return both waiting and retained jobs to IPP Get-Jobs requests unless explicitly specified by client.
- Enable IPP clients to change printer status.
- Ignore spool file separator attribute and always use value defined in printer definition.
- Spool attributes not flushed to disk after re-route. Can cause file to return to the retained queue if VPSX is restarted.
- Printer Group-name and Long-name not displayed correctly if name is blanked out.
- Page count value incorrect for binary files submitted without the binary option.
- New device notification (SAP & EMAIL) generated for printer Intervention Required.
- Add support for a filter data type of ALL indicating all files.
- Added version display with -v option.
- When adding a new printer using a hostname, the IP-address was not being resolved which will cause SNMP requests to fail.

VPSX V1.0.010

Enhancements

- Page counting.

  As print files are received VPSX will dynamically detect the document format and then analyze the data to determine the number of pages a document contains.

  The page count will be displayed in the output queue and will enable VPSX to write correct accounting information irrespective of the delivery protocol being used.

  Document formats supported:

  PCL5
  PDF
  Postscript - Conforming to the Document Structure Conventions (DSC).
  SAP GOF
  AFPDS
  Text

  The page count is calculated as the data buffers are written to the spool and does not require the file to be re-read. This feature should cause no noticeable increase in CPU or processing time.

- The output queue displays can now be sorted in ascending or descending order by clicking on the column headings.

- Accounting changes:

  The accounting function will now accumulate accounting records into an active accounting file and will only switch when the file exceeds the user configured size or a 'Close account file' command is issued. (Previously VPSX would create a new accounting file each time it was started.)

  The account file can be switched using the WEB interface or the vpscmd (command line interface).

  The active accounting file will have a fixed name and will be renamed to indicate the date and time of the last accounting entry when it is closed.

  Accounting files will be retained and expired as before.

  A new symbolic spool file attribute called &TOTPAGES has been added which contains the total page count including copies. (The &pages variable contains the number of pages in a single copy.) This new variable will be used in the default accounting record layout as it saves the reporting program from having to calculate the total pages based on the page and copy counts.

- Collated copies for Windows IPP clients.

  When multiple copies are requested, the Windows IPP client does not pass the copy count in the IPP attributes. Instead, it sets the number of copies in the printer datastream which will cause the printer to create uncollated copies (i.e. Page1 Page1, Page 2 Page 2).

  VPSX will detect the copy command in PCL and Postscript documents, replace it with a copy count of 1, and then set the spool file copy count. This will enable VPSX to print collated copies by sending the data to the printer multiple times (i.e. Page 1 Page 2, Page 1 Page 2).

- Support added for dynamic encryption keys when using the LRSQ protocol. This basically means that you can use the LRSQ client to submit output to VPSX and specify /enc=y and the data will be encrypted using a dynamic key. You can also define a printer using COMMTYPE=TCPIP/LRSQ and specify an encryption key of 'dynamic'. VPSX will then generate a dynamic encryption key when sending data to DRS, AnyQueue or VPSX.

- Support for HP Tru64 platform. (**Note:** LRS WEB Connect is not currently available for this platform. Any customers wishing to trial this version will need to use a Web server on one of the currently supported platforms.)
- When executing under Windows, VPSX will generate DOS format log and accounting files (i.e. records terminated with CRLF). The System and printer configuration files are also supported in UNIX or DOS format and will be saved in DOS format if updated.
- New PJLOPTS to disable VPSX sending the ENTER LANGUAGE command.
- During shutdown if a SAP callback thread does not terminate within 10 seconds the thread will be terminated and shutdown will continue. (A customer reported a problem with VPSX not shutting down sometimes when a large number of SAP callback servers were active.)
- Inbound LPD requests would fail if multiple copies were requested via multiple filter records in the control file. This error has been corrected.

VPSX V1.0.011

Bugs Fixed

- A segment violation (SIGSEGV) can occur in a client requester thread when processing an API or IPP request that displays the current status of a printer.
- A copy of the spool object is chained from the Printer Control Block while printing and is released when the file is deselected. Due to a timing issue, it is possible in some cases for the client threads to attempt to access the spool object information after it has been released.
- The printer and spool processing routines have been updated to correctly set the printer status and release the spool object while the appropriate lock is being held.

Enhancements

- New PRTROPTS flag added to enable customers to disable the printer RETRY interval increment. Normally the retry interval is incremented after every 5 consecutive failed attempts.
- The VPSCMD command line interface has been modified to enable execution by users other than **root**. Customers can now control access to this command using standard file permissions.
- The authorization required to run the VPSCFG command line interface has been modified to allow access to users other than **root**. A new VPSX system keyword (CFGUSERS) has been added that enables administrators to specify one or more local users that are authorized to use the vpscfg command.
- Socket selection masks have been removed from the printer control block to reduce storage requirements when activating a very large number of printers. The socket selection fields on some platforms can be as large as 4K.

VPSX V1.0.012

Enhancements

- Accounting Data

  The VPSX accounting feature has been enhanced to record the accounting data in a standard format supported by most common log analysis tools. The accounting records now comply with the W3C (Extended Log Format). The ELF standard defines a consistent way of recording log data in a format that can be extended without having to redesign the log analysis tool.

  Extended-Log-Format compliant files contain a common set of directives at the beginning of the data that identify the application that created the data and the fields present in the following records. The 'fields' directive is used by log analysis tools to parse the data records and associate a name with each field. If the accounting record is modified a new 'fields' directive will be written and the log analysis tools will process all subsequent data using the new format.

  Details of the "Extended Log Format" standard can be found on the World Wide WEB Consortium site HTTP://WWW.W3C.ORG

- In addition to the new accounting format it is now possible to include VPSX system or printer keyword values in the accounting record template, e.g., **&sys_keyword** or **&prt_keyword**.

  Where:

  keyword is a VPSX system or printer keyword name. For example, **&prt_location &prt_dept** will include the printer department and location in the accounting data.

  These new symbolic variables are also available for filter command templates or for inclusion in separator page templates.

  The default accounting record now contains the follow information:

  &date &time &printer &sys_vpssysid &owner &host &filename &stime &ptime &totpages &bytes

- Additional spool file information has been added to the 'Selected, purged and expired' log messages to enable easy identification of the document and owner.
- The SOCKETS delivery protocol (COMMPTYPE=TCPIP/SOCK) has been enhanced to ensure all data has been confirmed by the remote device when closing the printer connection. Prior to this change it was possible for data loss to occur in some situations without generating an error message.
- Errors corrected in LRSQ Query response:

  - Dates displaying month incorrectly.
  - Spool file retention period missing.
  - Device field could contain garbage characters after name.

VPSX V1.0.013

Bugs Fixed

- Segmentation violation in printer and client threads.

  After fix 12 a segmentation violation can occur in printer threads when deselecting a spool file if a retention period has not been specified. Fix 12 added additional information to the spool file status message VPSX0203I and the modification to the PURGED message will attempt to access the spool file control block after it has been freed.

  This problem has only been seen in the Windows implementation of VPSX but could effect users on any platform.

  Segmentation violation in client thread when processing an LPD cancel request (LPRM command). If an LPRM command is issued without specifying a specific spool file number, the currently active spool file should be cancelled. An invalid check was being made to determine if the printer was actively printing which can cause a SIGSEGV error when an attempt is made to access the active spool file.
- Missing .MAL record reported when using the LRSQ protocol to send a document from VPSX to DRS or AnyQueue after fix 9. The .BDS control record was incorrectly indicating that a .MAL record would follow the .BDS.
- When printing large documents to Lexmark printers using the PJL communication type it is possible that the printer will close the connection before printing has completed. VPSX will send a keep-alive message to prevent the printer network card from timing out a connection when there is no activity on the connection. In this case the printer was generating status responses as the pages printed but Lexmark network cards do not count outbound data from the printer as traffic so it was not resetting the timeout period. The PJL communication type has been changed to send a keep-alive message every 60 seconds if no data is being sent from VPSX even if data is being received from the device.
- The TCPIP/LPD communication type has been enhanced to send the (C)lassification control record in the LPD control file for outbound connections.
- Xerox DocuPrint printer hung with Intervention-Required status but no error description. The PJL USTATUS response from some Xerox printers can contain keyword value pairs encoded as ‘KEYWORD = VALUE’ instead of the normal ‘KEYWORD=VALUE’. This was causing VPSX to incorrectly parse the printer ONLINE status value.
- Printer configuration keyword TCPPRTR will default to the printer name if not explicitly specified.
- LRSQ protocol inbound processing corrected to ensure all data is flushed to disk before sending final acknowledgement.

Enhancements:

- Support added for Windows platform.

VPSX V1.0.014

Enhancements:

- Outbound IPP support and external event notification.

  Support added for outbound printing using IPP protocol. This includes new features to display jobs queued on remote devices or servers and commands to delete, hold, release and restart remote jobs.

  External Event Notification facility added to enable job and device related status notification to be passed to an external process. The external event handler can use this information to generate notifications to external system management tools, provide feedback to external applications or simply record the event information for further analysis.

- New document-created email notification event.
- Spool id added as symbolic spool file variable.
- IPP inbound supported updated to add job-media-sheets-completed attribute to Job-List response. This will allow Windows clients to display document-pages and pages-completed values in the print manager displays.
- Printer and system symbolic variables not resolved correctly in filter argument template (i.e. &prt_xxxx or &sys_xxxx).
- VPSX system stats showing incorrect values for file open count when using filter routines.

Prerequisites: LRXAPI Library V1R1.0.007
VMCFX Library V1R1.0.008
ServerX V1R1.0.006

VPSX V1.0.015

Enhancements:

- Errors printing to Lexmark printers using IPP communication. The IPP standard requires support for HTTP/1.1 and specifically chunked content-encoding. The Lexmark network cards only support HTTP/1.0 although some firmware levels do support chunked encoding. To support all Lexmark printers, VPSX will check the HTTP version supported by the device and use content-length encoding if HTTP/1.0 is reported. (Note: This will require VPSX to stage the data before delivery to calculate the entire content-length).
- Errors querying and printing to Xerox DocuSP printers using IPP communication. VPSX was reporting errors because some IPP attributes were not returned or had an unknown value when the DocuSP attached printer entered power-saver mode. VPSX has been enhanced to handle this condition without reporting an error.
- Support added to allow SAP system specific login credentials. This enables customers that have multiple SAP systems to use different login credentials for callback notification. A new saplogin configuration file has been added containing system specific login details. If present, the user ID, password and client number specified in this file will override the VPSX default value specified via the SAPUSER, SAPPSWD, and SAPCLNT system keywords.

  A sample saplogin file has been provided in the vpsx/samples directory. To enable this feature, the saplogin file must be copied to the directory containing the vpsstart system configuration file.

- The LRSQ query information has been enhanced to provide additional details about the printer status and spool file information. These changes apply to both the /query keyword and the SAP query.

  (Note: This requires fix level 26 of the LRSQueue client.)

- Enable support for IPP printing from Apple Mac platforms. Some versions of the Mac operating system automatically append /ipp/prtname to an IPP printer URL. VPSX has been enhanced to handle this format and will only use the last element of the URL path to identify the VPSX printer name.
- Added new extended connect function to enable a timeout to be specified for TCP/IP connection requests (system default is normally 2 minutes). Printer connect requests will now use a timeout of 20 seconds and client IPP queries will use a timeout of 10 seconds.
- New message added to display primary email recipient in VPSX log when sending files using COMMTYPE=TCPIP/MAIL. (Note: Full recipient information can be written to the VPSX accounting file or external command notification feature.)
- New message added to display details of spool file browse requests.
- IPP error "ATTRIBUTE VALUE LENGTH INVALID FOR TYPE" reported when attempting to display 'Remote Complete' queue on some older HP printers. The IPP response from these devices contains malformed IPP attributes if the queue is empty. VPSX has been updated to ignore this specific error and display an empty job list.
- New symbolic spool file variable added to indicate the number of pages printed.

  Pages count variables:

  PAGES - Number of pages in document.

  TOTPAGES - Total number of pages including copies.

  PRTPAGES - Number of pages physically printed (NEW).

  The default accounting record has been updated to include this new variable in addition to the TOTPAGES value.
- New symbolic spool file variable 'IPPJOBID' added that contains the job identifier returned by the remote IPP server or device.
- New device event added to indicate when an EDRAINED printer is retried. This new event is available for EMAIL, SAP, and XCMD event notification.

Prerequisites: LRXAPI Library V1R1.0.008
LRSQueue Client V1R1.0.026

VPSX V1.0.016

Enhancements:

- LPR requests rejected if control file attribute values exceed maximum length defined in RFC1179. VPSX will now truncate any control file attribute that exceeds the maximum allowable value.
- Automatic spool file data detection support added for XML documents.
- The SEPNAME printer keyword has been modified to allow symbolic system, printer, or spool file attribute values to be specified.

Prerequisites: LRXAPI Library V1R1.0.008
LRSQueue client V1R1.0.026

VPSX V1.0.017

Enhancements:

- The TCPIP/LRSQ communication type has been enhanced to enable the remote queue name to be specified at the individual file level. This enhancement enables a single VPSX printer definition to route documents to any queue on a remote VPSX, DRS, or AnyQueue server. A new spool file attribute, **RmtQueue**, has been added to specify the remote queue name and will be used when sending this file using an LRSQ printer definition. The Remote Queue attribute can be specified when submitting the file using the LRSQ submission command with the following syntax:

  lrsq /queue=localprinter.remotequeue

  Where:

  Localprinter - Identifies the local printer definition on the target VPSX.

  remotequeue - Specifies the remote queue to receive this output when it is transmitted by the local printer definition.

  A remote queue name can also be specified for inbound LPD and IPP requests by qualifying the printer name using the same syntax.

  If a spool file explicitly specifies a remote queue name, this value will override the remote queue defined in the VPSX printer definition (TCPPRTR keyword).

- Timeout waiting for LPD final acknowledgement when driving network attached matrix printer. Some network printers that implement the LPD protocol can take a very long time to send the final acknowledgement to a print request.

  VPSX has been modified to not timeout while waiting for the final acknowledgement and will now wait for a indefinite period. During this wait the printer can be manually stopped using the Stop-Immediate or Cancel printer commands.

- The VPSX SNMP displays have been enhanced to show details of the Marker Supplies levels (i.e. toner, fuser etc.).
- The performance of LRSQ connections has been improved by removing a delay introduced by the TCP/IP Nagle algorithm.
- Two new symbolic attributes have been added that can be used in accounting records, filter commands and separator pages.

  &rmtqueue - Contains the remote queue attribute for a spool file.

  &rmtjobid - Contains the remote job identifier returned by a remote IPP or LRSQ server.

- Printer communication type TCPIP/SOCK has been updated to attempt reconnecting to a device if the connection times out because of a long running filter.

Prerequisites: LRXAPI Library V1R1.0.008

VPSX V1.0.018

Bugs Fixed

- An error in the processing of text files will cause individual characters to be lost. This problem will only occur with plain text files and will only effect files that are larger than 32k in size.
- Accounting records were not written if the spool file was deleted while printing.
- Spool file attributes for IPP originated documents displayed incorrect if they contain national characters.
- The spool file total pages count was incorrectly updated when a PJL controlled document was cancelled. The page count will now only be updated if the entire document printed successfully.

Enhancements:

- Email support has been enhanced to allow body text included from a separator file to contain Text, HTML or any other standard data type. The printer DEVTYPE keyword value will be used to determine the correct MIME type for the separator data.
- All printer types changed to use non-blocking TCP/IP requests to enable prompt response to printer Cancel and Stop-Immediate commands.
- New TCPOPTS flag added to instruct VPSX to treat DNS resolution failures as retryable errors.
- New TCPOPTS flag added to instruct VPSX to renew the ip-address associated with a DNS name every hour. The name resolution will occur the next time the printer has something to print.
- To provide easy access to the currently active log file, VPSX will now create a link in the log directory called active_log_file that will reference the currently active log. The link will only exist while VPSX is executing.
- Performance enhancements for very large configurations:
  - Printer activation moved to separate thread to enable server to complete initialization and begin processing work.
  - Printer DNS hostname resolution not performed during activation. Host name will now be resolved asynchronously by the SNMP system thread for SNMP enabled devices or during first print request.
  - Spool expiration processing optimized by saving earliest file expire time in queue control blocks. Scan of queue elements is only performed when at least one file is known to have expired.
- Filter support enhanced to enable filter programs to communicate with VPSX via filter feedback commands written to STDOUT or STDERR. These feedback commands enable the filter process to control error processing, provide an error description and indicate progress.
- SOAP complex type schema moved from WEBSVC library.

Prerequisites: LRXAPI Library V1R1.0.010
WEBSVC Library V1R1.0.005

LRS NetX

The following table contains the fix numbers assigned to major LRS NetX enhancements and/or fixes.

LRS NetX V1.0.001

Enhancements

- All code reviewed and updated for 64 bit execution and support for file sizes > 2GB.
- Buttons to access VPSX log and configuration screens added to VPSX summary display.
- Spool browse limit added to user preferences. When browsing large files this enables users to specify a limit on the amount of data that is downloaded.
- AUTOEJCT and ACCT printer keywords lost during printer copy operation.
- Sort options added to VPSX Output and Retained queue displays to enable the list to be sorted by any column.
- Output queue reordered based on printer selection criteria. The output queue is sorted to display files in the order they will be selected. Files not eligible for selection will have a status of 'Non-Selectable'.
- Support added to enable customers to add additional CUSTOM tabs to the VPSX spool queue display screens showing any chosen spool attributes.
- Support added for HP-UX executing on Itanium based servers.
- Support added for Linux on Intel based servers.

LRS NetX V1.0.002

Bugs Fixed

- Incorrect SOAP method definitions in WSDL file.

  Remove incorrect user ID argument from SOAP WSDL file definitions. The user ID argument is provided automatically by LRS/ServerX.
- Cleanup of code to conform with latest 'C' standards.

LRS NetX V1.0.003

- Add support for Solaris 10 on Intel based hardware.

  Support has been added for execution under Solaris 10 running on Intel based servers.
- VPSX wsdl definitions updated to add new PRTROPTS printer configuration keyword.

LRS NetX V1.0.004

- Changes to VPSX system and printer configuration screens.
- WSDL file has been updated to include new MAIL and IPP attributes.
- Added **-v** option to NetX executable to display version.

LRS NetX V1.0.005

- The VPSX SOAP WSDL definitions have been updated to reflect changes made to VPSX API functions.
- Page and copy count fields added to Spool queue list 1 array.
- New SortOrder argument added to Spool queue list methods to specify ascending to descending sort order.
- New VPSX_SystemCloseAcct method added to instruct VPSX to close the currently active accounting file.
- Support added for Tru64 platform.
- Generate files in DOS format when executing under Windows.

LRS NetX V1.0.006

- ADMINUSR keyword modified to allow multiple administrator user IDs to be specified separated by spaces.
- Updates to ADMINUSR and SYSDESC keywords no longer require LRS/NetX to be restarted to implement the change.
- Ensure all keywords are written to the system configuration file with a correct new line sequence. After fix 5 some keywords' records may not be correctly terminated with a new line sequence.

LRS NetX V1.0.007

- Enhancements for IPP outbound and External event notification.

  VPSX WSDL definitions updated for new IPP outbound methods and changes for External command notification keywords.

  Error writing system configuration keywords after fix 005. Yes/No keyword values were written without a newline sequence.

Source File Changes:

vpsx.wsdl
lntclnt.c
lntkwd.c
lntmsgs.h
lntkwd.h
lntnet.h
lnthtml.h
lntfunc.c

LRS NetX V1.0.008

- After fix 7, the WSDL file had increased in size and exceeded the default send buffer size. LRS/NetX has been modified to use a larger send buffer when serving up WSDL file.
- Errors in WDSL encoding corrected.

LRS NetX V1.0.009

- VPSX WSDL file updated for API changes.

  The following methods have been updated to add the RmtQueue and RmtJobID attributes.

  VPSX_SpoolSet
  VPSX_SpoolAttr
  VPSX_SpoolConfig

- The VPSX_PrinterMIB method has been updated to return printer marker supplies details.

Source File Changes:

vpsx.wsdl
lntcmn.h

LRS NetX V1.0.010

- Segment violation using encryption from LRS/Web Connect.

  A segment violation can occur in the LNTX_SendResponse() function due to an error calculating the storage required for the send buffer. The size used for the send buffer was not accounting for the fact that encrypted data must be a multiple of 16 bytes.

Enhancement:

- To provide easy access to the currently active log file, LRS/NetX will now create a link in the log directory called active_log_file that will reference the currently active log. The link will only exist while LRS/NetX is executing.

Prerequisites: LRXAPI Library V1R1.0.010

WEBSVC Library V1R1.0.005

New message: LNTX8080E

Source File Changes:

lntfunc.c
lntfunc.h
lntclnt.c
lntx.h
lntcmn.h
lntlog.c
lntmain.c
lntfile.h
lntfile.c
lntmsgs.h

LRS ServerX

The following table contains the fix numbers assigned to major LRS ServerX enhancements and/or fixes.

LRS ServerX V1.0.001

Bugs Fixed

- User security permissions incorrect due to an error reading the security database records. An area in the security database key was not being initialized correctly and in some circumstances could contain garbage values which will cause the read for the user security record to fail.

  After applying this update the profile database will be upgraded on first execution to correct an error in the index definitions. The old database files will be renamed and kept to enable recovery should the update fail.

Prerequisite: LRXAPI Library (LIBX) V1R1.0.001

LRS ServerX V1.0.002

Enhancements

- All code reviewed and updated for 64 bit execution and support for file sizes > 2GB.
- New VPSX spool queue function added to support customized queue displays.
- Support added for HP-UX executing on Itanium based servers.
- Support added for Linux on Intel based servers.

LRS ServerX V1.0.003

Bugs Fixed

- Duplicate Group security rules processed incorrectly.

  If a user is connected to multiple security groups that contain duplicate security rules the user is only assigned the permissions associated with the first rule processed. This processing has been modified to merge the permissions associated with duplicate rules so that the user receives the combined authority of all duplicate group rules.

  The permissions associated with specific user rules are not merged as user specific rules override any authority defined in connected security groups.

Enhancements

- SOAP responses contained a trailing NULL which can cause problems for some SOAP API clients. This NULL terminator has been removed.

Prerequisite: LRXAPI Library V1R1.0.002

LRS ServerX V1.0.004

- The ServerX process was loading the incorrect PAM authentication libraries for HPUX(Itanium), Intel Linux, Interix (Windows) and Intel Sun 10.
- Support added for VPSX_PrinterURL function.
- Printer group name and long name not updated correctly if value is blanked out.
- Added -v option to VSVX executable to display version.

LRS ServerX V1.0.005

- Add support for VPSX Close accounting file command.
- Add support for Tru64 platform.
- Generate files in DOS format when executing under Windows.

Prerequisite: LRXAPI Library V1R1.0.006

LRS ServerX V1.0.006

Bugs Fixed:

New SOAP methods added for IPP outbound support.

VPSX_IPPJobList
VPSX_IPPPrtPause
VPSX_IPPPrtResume
VPSX_IPPPrtPurgeJobs
VPSX_IPPJobCancel
VPSX_IPPJobHold
VPSX_IPPJobRelease
VPSX_IPPJobRestart

Prerequisite: LRXAPI Library V1R1.0.007

VPSX V1R1.0.014

Source File Changes:

vsvxdist
vsvapi.c
vsvcmn.h

LRS ServerX V1.0.007

- The ServerX process may incorrectly terminate a VPSX monitor connection believing an inactivity timeout has occurred. This condition will only occur if the VPSX server has no printers defined and has previously had a connection to the ServerX process.

Prerequisite: LRXAPI Library V1R1.0.007

Source File Changes:

vsvvmon.c
vsvcmn.h

LRS ServerX V1.0.008

- To provide easy access to the currently active log file, ServerX will now create a link in the log directory called active_log_file that will reference the currently active log. The link will only exist while ServerX is executing.
- SOAP complex type schema definition removed from WEBSVC library.

Prerequisites: LRXAPI Library V1R1.0.010

WEBSVC Library V1R1.0.005

Source File Changes:

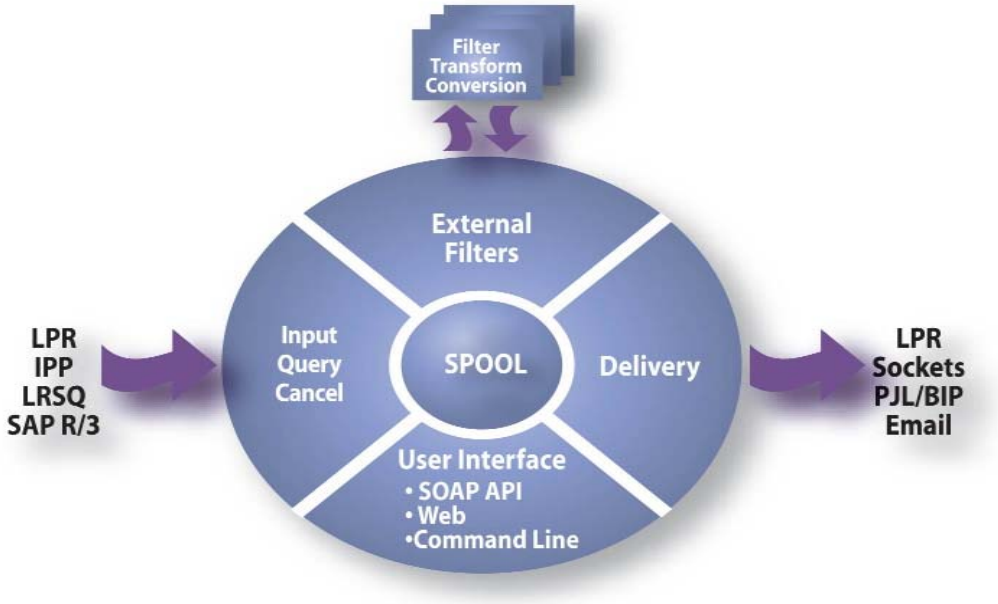
vsvlog.c
vsvfile.c
vsvfile.h
vsvmain.c
vsvmsgs.h
vsvx.h
vsvsoap.h
vsvcmn.h

Section 1
Overview

VPSX Product Overview

The VPSX software provides a complete Output Management solution for the UNIX environment. The product is a completely new development built around current technology standards (POSIX, XML, SNMP, UNICODE, SOAP, etc.) to bring sophisticated print management to the Open System environment. The VPSX product implements a highly scalable architecture designed to accommodate all environments, from single server solutions to the world's largest corporations. All elements of the product suite implement a single process, multi-threaded design to ensure efficient use of system resources and enable VPSX servers to handle a very large number of printers and users.

The core component of the VPSX product suite is the VPSX Print Server.

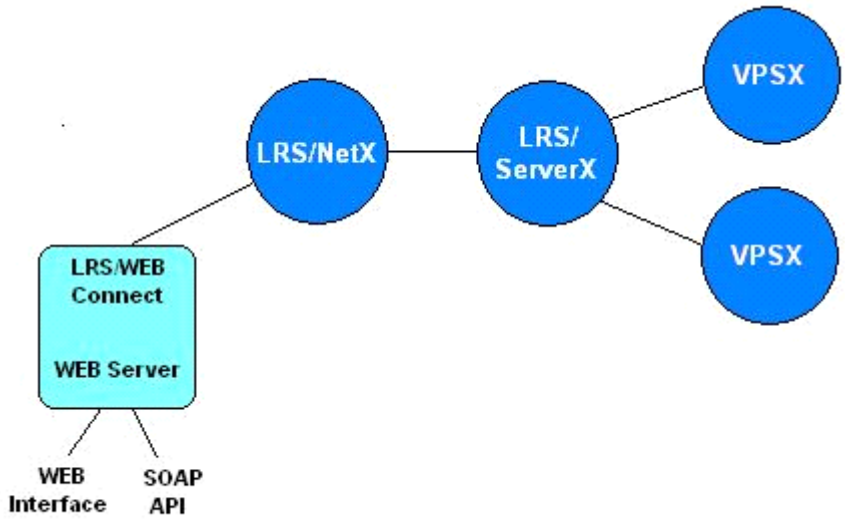


The VPSX Print server implements the following core features:

- Sophisticated print delivery.
  - Multiple communication options.
  - Guaranteed delivery.
  - Checkpoint restart of failed requests.
  - Automatic error recovery.
- Multiple input protocols.
  - IPP (Internet Printing Protocol)
  - LPR
  - LRSQ
  - SAP R/3
- Sophisticated spooling.
  - Queue management.
  - Data recognition.
  - Automatic page counting for PCL, PS, PDF, AFPDS, SAPGOF and text documents.
  - Print retention and reprint.
  - Automatic spool file expiration.
- Data Transformation.
  - Simple filter processing.
  - LRS provided data transforms.
  - Customer written filters.
- Simple configuration.
  - Web interface.
  - Command line interface.
  - SOAP API.
  - Text editor.
- Email support.
  - Email delivery of documents.
  - Email notification of document or device status information.

VPSX Components

The VPSX solution consists of the following components:



VPSX

An organization's printing environment can consist of one or more VPSX print servers. As each print server is capable of managing a very large number of printers, the decision to run multiple servers is normally dictated by geographical location or operational units. Each print server is capable of independent operation but is managed by one or more LRS/ServerX servers. Each VPSX print server can register with one or more LRS/ServerX servers to enable central control and a single view of all printers across the enterprise.

LRS/ServerX

The LRS/ServerX component provides a central directory of all VPSX servers and their associated printers. All VPSX print servers that are registered with LRS/ServerX provide continual updates on the status of all devices. This enables LRS/ServerX to build a single view of all printers throughout the enterprise. LRS/ServerX then acts as the focal point for all access to VPSX servers and printers. Before accessing any resources, all users must authenticate with the LRS/ServerX process, which then controls access to all printers and servers based on the user's security profile. The LRS/ServerX process supports internal user authentication or can integrate with external security servers via the PAM (Pluggable Authentications Modules) interface to implement a single sign-on across all platforms.

LRS/NetX

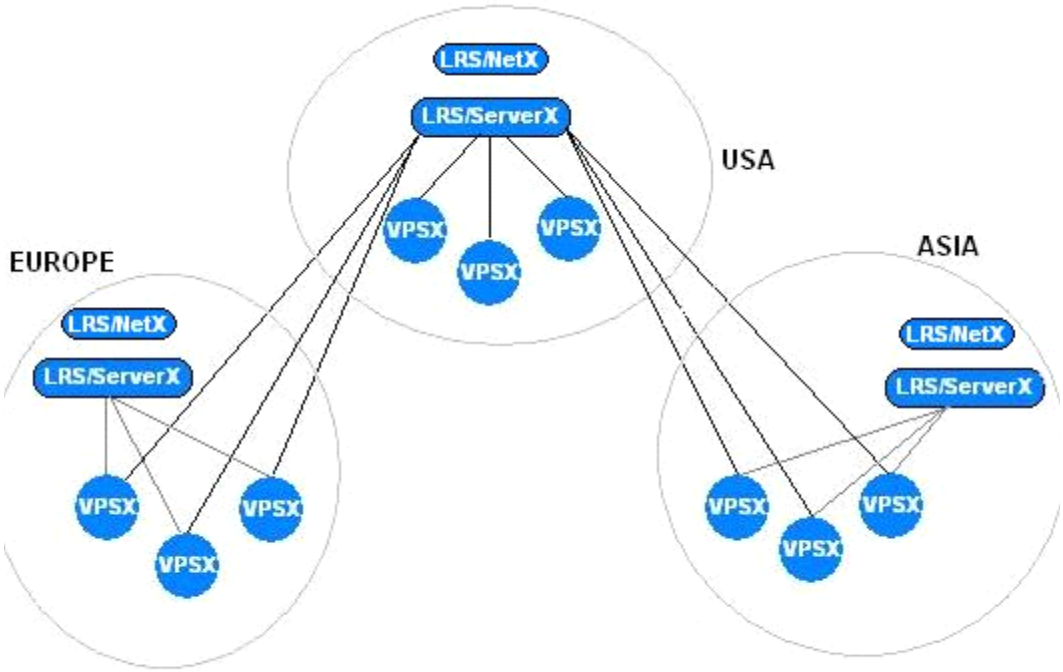
The LRS/NetX component is a multi-threading Web application server that provides a common execution environment for the VPSX Web applications.

LRS/Web Connect

The LRS/Web Connect component is installed in the customer's Web server and provides a connector from the Web server to the LRS/NetX Web application server. HTML and SOAP requests are routed to the LRS/NetX server for processing, and the response is then returned to the Web server for delivery to the requesting client. This architecture enables customers to present the VPSX Web interface via their existing Web servers but enables the LRS Web applications to execute in a consistent execution environment.

Scalable Architecture

The modular design of the VPSX server architecture enables the solution to scale from a single server solution, to a complex configuration spread across many hosts. Irrespective of the size of the configuration, users and system administrators are still provided with a single view of all printers across all platforms.



SAP R/3 Integration

The optional VPSX/OutputManager feature provides a SAP certified external output management solution for the SAP R/3 application suite. This component implements the SAP BC-XOM (eXternal Output Management) interface that enables VPSX 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.

VPSX/OutputManager implements the following features of the BC-XOM standard:

- Report submission.
- Callback interface for output status notification.
- Callback interface for device status notification.
- Operations Supplement (queue query, output query, and report cancellation).
- Multilingual support.

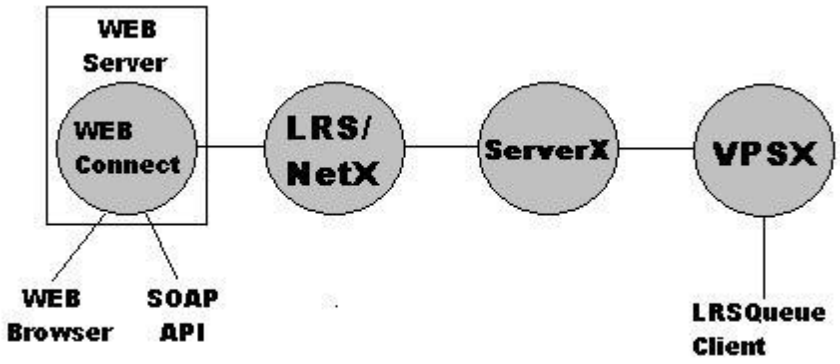
Section 2
Installation

VPSX Installation

This section will guide you through the installation of the various components of the VPSX print server. The installation process can be executed from a standard telnet session to the target host. If you are installing the Windows version please refer to "VPSX for Windows Installation" on page A.1 for details.

The VPSX product-set consists of the following components:

- VPSX - Print server.
- LRS/ServerX - Security manager and central printer directory server.
- LRS/NetX - Web application server.
- LRS/Web Connect - Router from customer Web server to LRS/NetX Web application server.
- LRSQueue - Print submission command line interface.



Each of the above components communicate via TCP/IP so they could be installed on different hosts. To keep these installation instructions simple it will be assumed that the three major components (VPSX, LRS/ServerX, and LRS/NetX) will initially be installed on the same host.

Common Function Library (LRXLIB)

In addition to the above major components, a common function library (LRXLIB) must also be installed on the platforms running the VPSX, LRS/ServerX, or LRS/NetX components. LRXLIB is a shared library that contains common functions and operating system interface routines.

Distribution Material

Each of the above components will be supplied as a compressed TAR file and can be shipped on CD or distributed electronically using the LRS EFT shipping system.

The CD and the zipped EFT download file will contain the following directory structure:

lrsinst	**Common Product installation processor**
/LRXLib	Common LRXLIB libraries for all platforms.
/VPSX_for_AIX	VPSX installation material for AIX.
/VPSX_for_HPUX	VPSX installation material for HPUX.
/VPSX_for_SUN	VPSX installation material for SUN.
/VPSX_for_zLinux	VPSX installation material for zLinuz.
/LRS_ServerX	ServerX installation material for all platforms.
/LRS_NetX	LRS/NetX installation material for all platforms.
/LRSQueue	LRSQueue client for all platforms.
/LRS_WebConnect	LRS/Web Connect router for all Web servers.
/VPSX_for Tru64	VPSX installation material for Tru64.

Each product TAR file has a common naming standard where the first character of the file name indicates the execution platform.

- A - AIX 4.3 or above.
- C - SuSe or RedHat Linux for Intel platforms. (Kernel version 2.4.19 or above.)
- H - HP-UX 11.
- L - SuSe Linux for Z series.
- R - Tru64 platform.
- S - Sun Solaris 5.8 or 5.9.
- T - HP-UX 11 for Itanium.
- X - Solaris 10 for Intel platform.

For example, the installation material for the HP-UX platform will be named:

- hvpsx.tar.Z
- hvsvx.tar.Z
- hnetx.tar.Z
- hlrxlib.tar.Z
- hweb2.tar.Z
- hlrsqueue.tar.Z

Product Name Abbreviations

Throughout the installation instructions the following abbreviated product names will appear in file names and selection menus:

- VPSX - VPSX
- VSVX - LRS/ServerX
- NETX - LRS/NetX
- WEBC - LRS/Web Connect
- LRSQ - LRSQueue print submission client.
- WEB2 - LRS/Web Connect Release 2

Product Installation

The product installation process is controlled via the LRSINST common installation routine that is supplied in the root directory of the installation CD or the EFT download package. The LRSINST routine will inspect your system and locate the appropriate installation material for your platform and will guide you through the installation process.

Installation from CD

If you have a product installation CD then it is possible to mount the CD and execute the installation process directly from the CD.

Installation from EFT Download

If you have downloaded an EFT distribution package you will need to unzip the distribution files and copy the required installation material to a temporary directory on the target system. For example, if you plan to install on an AIX system, you will need to create a temporary directory on the target system and copy the following installation material from the EFT package using a BINARY file transfer.

Installation File	Location in EFT package
lrsinst	Install/
keyvpsx.lic	Install/
avpsx.tar.Z	Install/VPSX_for_AIX
avsvx.tar.Z	Install/LRS_ServerX
anetx.tar.Z	Install/LRS_NetX
alrxlib.tar.Z	Install/LRXLib
alrswc.tar.Z	Install/LRS_WebConnect
alrsqueue.tar.Z	Install/LRSQueue
aweb2.tar.Z	Install/LRS_WebConnect

Note: It is not necessary to preserve the directory structure when copying the required files to the target host. The installation process will search for product installation material in the current working directory and any subdirectories below this location.

Installation Process

Once the product installation CD has been mounted or the required installation files have been copied to a temporary directory, you are now ready to run the installation process, but please read the remainder of this section before continuing. The LRSINST routine is a very flexible installation tool and can be used to install product sets (groups of related product components) or individual product components. The following text describes the installation of the VPSX product set, which includes LRXLIB, VPSX, LRS/ServerX, LRS/NetX, and LRSQueue. If you wish to install individual product components please execute LRSINST with the **-h** option for detailed usage information.

Installation Directories

The LRSINST process will install all selected products under a common installation directory with a separate subdirectory for each component. The default installation location is **/opt/lrs** for installations that run under the root user ID and **/tmp/lrs** for non-root users. The installation process will prompt for the installation location on execution.

If the default locations are used, the installation process will create the following directory structure when installing the VPSX product set.

/opt/lrs/libx	Common function library.
/opt/lrs/vpsx	VPSX executables.
/opt/lrs/vpsx/pcmd	Sample printer command files.
/opt/lrs/vpsx/samples	Sample configuration files.
/opt/lrs/vpsx/separ	Sample banner page templates.
/opt/lrs/vsvx	LRS/ServerX executables.
/opt/lrs/vsvx/samples	Sample configuration files.
/opt/lrs/netx	LRS/NetX executables.
/opt/lrs/netx/html	HTML page template directory.
/opt/lrs/netx/html/net	LRS/NetX common HTML page templates.
/opt/lrs/netx/html/vmcfx	VMCFX HTML page templates.
/opt/lrs/netx/resources	Web page resources files.
/opt/lrs/netx/resources/vmcfx	VMCFX Web interfaces resources.
/opt/lrs/netx/sample	Sample configuration files.
/opt/lrs/netx/vmcfx	VMCFX Web interface executables.
/opt/lrs/man1	Manual pages for all components.
/opt/lrs/lrsq	LRSQueue print submission client.
/opt/lrs/web2	LRS/Web Connect executables.
/opt/lrs/slib	Shared libraries for LRSQ and WEBC.

Runtime Directories

After executing the installation, you will be asked if you wish to execute the LRS Fast-Configure (lrsfast) routine to create initial configuration files and directories for the runtime environment. Each component of VPSX requires a separate server root directory that will be used to contain files created during execution (spool files, logs, accounting, etc.). The LRSFAST routine will prompt you for a runtime directory location and will create subdirectories below this location for each component installed. The default directory root location will be **/var/lrs** for installations that run under the root user ID and **/tmp/lrsroot** for non-root users.

If the default locations are used, the Fast-Configure process will create the following directory structure for the runtime environment:

/var/lrs/vpsxroot/		VPSX server root directory.
	/spool	Spool directories and files.
	/log	Log files.
	/separ	Sample separator page templates.
	/pcmd	Sample printer command files.
	/prtr	Printer configuration files.
	/acct	Accounting files.
	/cntl	Checkpoint database.
	/snap	SNAP dump diagnostic files.
	/tmp	Temporary files.
/var/lrs/vsvxroot/		LRS/ServerX root directory.
	/cntl	User profile and security database.
	/log	Log files.
	/snap	SNAP dump diagnostic files.
	/tmp	Temporary files.
/var/lrs/netxroot/		LRS/NetX root directory.
	/log	Log files.
	/snap	SNAP dump diagnostic files.
	/tmp	Temporary files.

Note: It is recommended that you create a separate file system for the server runtime files and mount this file system as **/var/lrs** before beginning the installation process. This will isolate the storage used for the VPSX products from other users of the **/var** file system.

Required Information

Before starting the installation process the following information is required:

Installation Location	Described in the previous section.
Runtime Directories	Described in the previous section.
VPSX Product key	This is a 60 byte key that is required to execute the VPSX product. This information is provided with the installation material or via e-mail.
VPSX/OutputManager product key	This is a 60 byte key that is required to execute the VPSX/OutputManager interface for SAP R/3 (optional).
SAP RFC API library	To execute the optional VPSX/OutputManager interface for SAP R/3, VPSX requires access to the SAP RFC API communication library (librfccm). If this library is not already available on the target system, please refer to "Install SAP R/3 RFC Communication API" on page 3.77.
Web Server	To present the Web interface for VPSX a Web server is required. If an Apache based Web server is available on the target host the installation process will provide you with the following options: 1. Create a separate dedicated Web server instance for the VPSX Web interface. This Web server will be independent of any other Web servers running on the machine and will be started automatically with the other VPSX components. 2. Install the LRS/Web Connect router on an existing Web server instance on the target machine. To enable the installation process to determine the attributes of the Web server installed on the target host, you will need to provide the fully qualified location of the httpd executable. If you are unsure of the location, the installation process will provide an option to explore the system for available Web servers. Alternately, the LRS/Web Connect component can be installed on any supported host running a supported Web server. Refer to "Installing the Web Interface" on page 2.9 for details of supported servers.

Executing the Installation Process

You now have all the information required to start the installation process. To begin installation change directory to the CD root directory or the temporary directory containing the installation material. Execute the following command:

./lrsinst vpsx

Installation steps:

1. You will be asked to provide the directory under which the products will be installed (default **/opt/lrs**).
2. The installation routine will then install each of the product components into a subdirectory below the specified location.
3. Once the initial installation is complete you will be asked if you want to execute the Fast-Configure routine (lrsfast) to build initial configuration files and create the runtime directories required for each component.
4. You will next be asked if you want to install LRS/Web Connect. If you have an Apache based Web server available on this host reply 'Yes'. If you do not have a Web server available on this host, or want to use a Web server on another platform, reply 'No' and refer to "Installing the Web Interface" on page 2.9.
5. If you have chosen to install LRS/Web Connect you have two options:
   - **Create a dedicated Web server.**
     a. Follow the prompts to create a fully configured Web server that will be started automatically with the other VPSX server components.
   - **Install onto an existing Web server.**
     a. The installation routine will create a customized sample file containing the statements that must be added to the Web server configuration.
     b. **httpd.conf-Sample** - This sample configuration file contains the statements that must be added to the httpd.conf configuration file to enable execution of the LRS/Web Connect router.
     c. After updating the Web server configuration it will be necessary to re-start the server to recognize the changes.
     d. Before accessing the VPSX Web interface, some common HTML resources need to be available on the Web server. For details on how to load these resources, please refer to "Load VPSX HTML Resources onto Web Server" on page 2.13.
6. You will be prompted to start the VPSX servers.

After completing all of the above steps it is now possible to access the Web interface using the URL displayed at the end of the installation process and the installation is complete. If you did not install the LRS/Web Connect component then proceed to "Installing the Web Interface" on page 2.9 for details on installing this component on your chosen platform.

Note: If an error occurs during the installation process, or you need to quit before completing all steps, it is possible to re-run the installation process at any time. If you want to review the installation process, or any errors reported, the installation routine will write detailed information to a log file named LRSINST.LOG in the installation directory.

Installing the Web Interface

This step is only required if you did not install the LRS/Web Connect component during the installation of the VPSX product-set described previously.

To provide access to the VPSX Web interface it is necessary to install the LRS/Web Connect router onto a Web server running on one of the supported platforms. The LRS/Web Connect client acts as a router, sending inbound browser requests to LRS/NetX for processing and returning the response to the Web server for delivery back to the requesting client. Installation of the LRS/Web Connect client involves loading the product executable and making it available to the Web server.

The LRS/Web Connect router is available for all platforms supported by VPSX and has been tested with the default Apache based Web server supplied with UNIX and Linux platforms and the Microsoft ISS server for Windows. LRS/Web Connect uses the CGI 1.1 interface and will work with any Web server that supports this standard interface. The LRS installation routine will provide the option to configure a dedicated Web server instance for known versions of the Web server software. For unknown Web servers it will be necessary to manually configure the Web server to execute the LRS/Web Connect executable.

Installation of a Windows Based Web Server

If you plan to install LRS/Web Connect on a Windows based IIS server refer to the LRS/Web Connect documentation for details of the installation process.

Installation on a UNIX Based Web Server

The installation process for UNIX based Web servers uses the same LRSINST installation process that was used to install the VPSX components. If you have a product installation CD you can run the installation process directly from the disk. Alternatively, if you have downloaded an EFT software package you will need to extract the contents of the software package and transfer the LRSINST installation script and the appropriate LRS/Web Connect tar file to a temporary directory on the target system.

LRS/Web Connect Installation Material

- lrsinst - Common installation routine.
- aweb2.tar.Z - AIX
- hweb2.tar.Z - HPUX
- sweb2.tar.Z - Sun
- lweb2.tar.gz - zLinux
- xweb2.tar.Z - Solaris 10 for Intel
- cweb2.tar.Z - Linux for Intel
- rweb2.tar.Z - Tru64

Required Information

Before starting the installation process the following information is required:

HTTPD executable To enable the installation process to determine the attributes of the Web server installed on the target host, you will need to provide the fully qualified location of the httpd executable. If you are unsure of the location, the installation process will provide an option to explore the system for available Web servers.

Target LRS/NetX Server If the installation process does not detect that LRS/NetX has been installed on the local host it will be necessary to provide details for the LRS/Web Connect connection profile to enable communication with the target LRS/NetX server.

The information required for the LRS/Web Connect connection profile consists of:

1. A symbolic server name that is used to route Web requests to this specific server (example: vpsx).
2. The host name or IP-address of the system running the target LRS/NetX server.
3. The TCP/IP port number that has been opened by the LRS/NetX server to accept inbound connections (default: 5700).

The port number used by LRS/NetX for inbound Web requests is specified via the TCPPORT keyword in the LNTSTART configuration file. The LNTSTART configuration file is normally located in **/opt/lrs/netx**.

Executing the Installation Process

You now have all the information required to start the installation process. To begin installation change directory to the CD root directory or the temporary directory containing the installation material. Then execute the following command:

./lrsinst web2

Installation steps:

1. The installation process will ask for the installation location. If other LRS products have been installed on this system, use the same installation directory (i.e. /opt/lrs).
2. Enter the location of the Web server httpd executable or use the explore option to locate available servers. After entering this information, the installation routine will automatically detect the version of the Web server executable.
3. After the Web server software has been validated, the installation will prompt to configure a separate dedicated instance of a Web server solely for the use of LRS/Web Connect or would you prefer to use an existing Web server.
   - **Dedicated Web server.**
     a. Provide a directory name that will be used as the DocumentRoot directory for this Web server. This is the directory that will be used to server local documents and must contain the HTML resources required for the VPSX Web interface. Refer to "Load VPSX HTML Resources onto Web Server" on page 2.13 for details.
     b. Provide details of the target LRS/NetX server to build a connection profile definition.
     c. You will be asked if you want to start the dedicated Web server using the **webcctl** script that has been created in the WEB2 installation directory.
   - **Existing Web server.**
     a. The installation routine will create a customized sample file containing the statements that must be added to the Web server configuration.
     b. **httpd.conf-Sample -** This sample configuration file contains the statements that must be added to the httpd.conf configuration file to enable execution of the LRS/Web Connect router.
     c. After updating the Web server configuration it will be necessary to re-start the server to recognize the changes.
     d. Before accessing the VPSX Web interface, some common HTML resources need to be available on the Web server. For details on how to load these resources, please refer to "Load VPSX HTML Resources onto Web Server" on page 2.13.

The above installation process will create an LRS/Web connect configuration file called lrswc.cfg in the WEB2 installation directory that contains the customized connection profile definition based on your responses. The LRS/Web Connect connection profile should identify the host name or IP-address of the host running the LRS/NetX process and the port number that LRS/NetX is using to accept inbound LRS/Web Connect connections (default: 5700).

Example LRS/Web Connection configuration file (lrswc.cfg).

```
LRSWC_LOGFILE,/lrs/lrswc.log,0
vpsx,199.96.1.218,5700          <-- VPSX Connection profile
```

The connection profile name is used as the last part of the Web URL to identify the server that should process the HTML request.

Example:

http://webserver/lrs/webconnect/vpsx

Where: **vpsx** is the name of the connection profile define in the lrswc.cfg configuration file created during installation.

Load VPSX HTML Resources onto Web Server

Finally, before accessing the VPSX Web interface via your newly configured LRS/Web Connect connection profile, it is necessary to load a few common resource files onto your Web server. The resource files include images and help files that are referenced by VPSX HTML pages and are served up directly from the Web server.

The resource files are supplied in the LRS/NetX installation directory:

/opt/lrs/netx/resources/vmcfx

These resource files need to be made available in a directory called **vmcfx** which must be created as a subdirectory of the **DocumentRoot** directory being used by your Web server.

You must either, create the **vmcfx** directory on your Web server and copy the resources across from the installation directory or, if the Web server is running on the same host as LRS/NetX, you can create a soft link to the installation resource directory from your Web server's **DocumentRoot** directory, i.e.

ln -s /opt/lrs/netx/resources/vmcfx vmcfx

Starting the VPSX Servers

A control script called **lrsctl** is provided in the LRS installation directory that can be used to control the execution of the VPSX server components.

To start the VPSX servers using the **lrsctl** shell script enter:

lrsctl start

To display the status of the server processes enter:

lrsctl status

To terminate the server processes enter:

lrsctl stop

The **lrsctl** shell script can also be used to start and stop individual processes and can be configured, using environment variables, to control multiple instances of the server processes. For full details on the **lrsctl** shell script please refer to the main page or enter **lrsctl -h** for usage information.

To display the product version levels for the server components, execute the **lrsctl** script with the **-v** option.

If an error occurs starting any of the servers please check the contents of the log file for details. Each server will create a log sub-directory in the directory defined as the server root for the process.

Accessing the Web Interface

After completing the previous steps it should now be possible to access the VPSX Web interface. Below is an example of the URL required to access the LRS/NetX application index page.

Using a UNIX based Web server:

http://webserver/lrs/webconnect/vpsx

Using a Windows IIS Web server:

http://webserver/LRS/nlrswc2.exe/vpsx

Where:

webserver - Is the name or ip-address of the host running the Web server.

vpsx - Is the name of the LRS/Web Connect connection profile defined in /opt/lrs/web2/lrswc.cfg.

Note: The values in the URL are case sensitive.

Once the login page is displayed you can log on using the administrative user ID specified during the LRS/ServerX configuration (default: **admin**) and a password of "**password**".

Section 3
VPSX

VPSX System Configuration

The VPSX system configuration parameters are specified via a text configuration file normally called VPSSTART in the VPSX installation directory. The configuration options can be changed manually using a text editor or can be updated online using one of the following interfaces:

- Web interface.
- VPSCFG command line interface.
- SOAP Application Programming Interface.

It is expected that most users will modify the VPSX configuration values using the Web interface, therefore the descriptions of the system keywords have been organized based on the screen layouts. Each configuration option is described using the system keyword name that will appear in the configuration file, and the Web page field as it appears in the Web interface.

Syntax of System Configuration Files

- Comments may be included in configuration files by specifying an * in the first character position.
- Only a single keyword can be specified per line.
- All keywords must be followed by an equal (=) sign and a keyword value.
- White space around keywords is ignored.

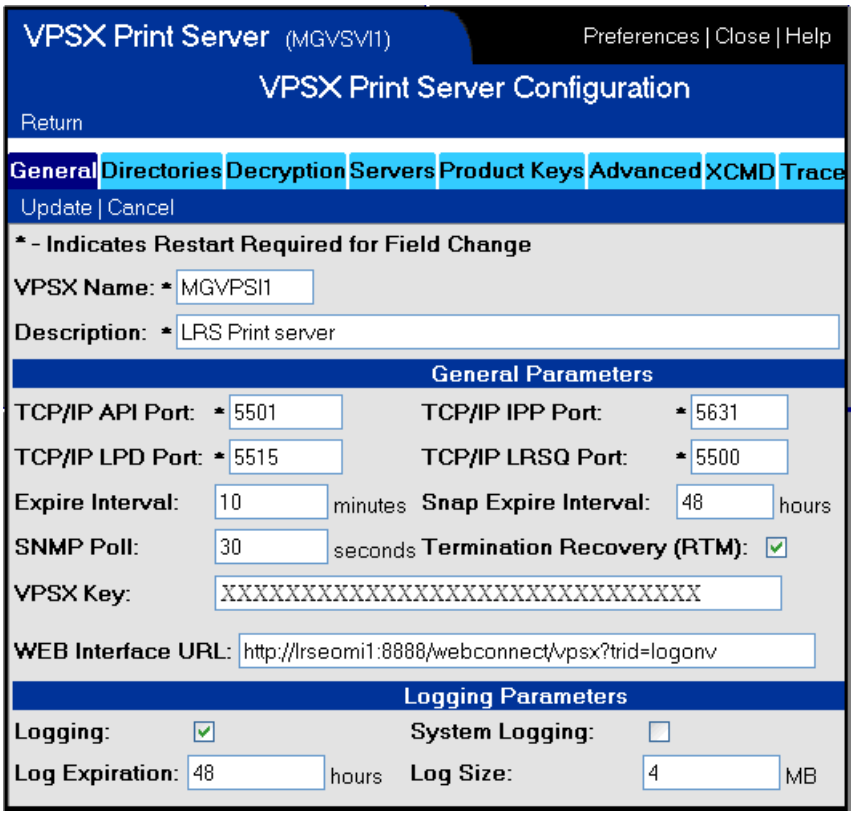
Selecting the Configuration File

The VPSX system configuration file is specified when the process is started via the -f argument.

Example:

```
/opt/lrs/vpsx/vpsx -f /opt/lrs/vpsx/vpsstart
```

General Parameters



Web page field: VPS Name
System keyword: VPSSYSID

Specifies a unique identifier for this instance of VPSX. Each VPSX print server that connects to a common LRS/ServerX process must have a unique name which is used to qualify references to individual printers. The LRS/ServerX process will build a directory of all printers known to the attached VPSX print servers and the combination of printer name and VPSX server identifier must be unique in the configuration.

Valid Values: 1 to 8 alphanumeric characters without embedded spaces.

Default: VPS1

Web page field: Description
System keyword: SYSDESC

Specifies a short text description of this VPSX server. This description will appear in the VPSX server list display.

Valid Values: 1 to 79 characters.

Default: None.

Web page field: TCP/IP API Port
System keyword: TCPPORT

Specifies the local TCP/IP port that VPSX will open for inbound API requests. The LRS/ServerX process will communicate with VPSX via this port number.

Valid Values: 1 - 65536

Default: 5501

Web page field: TCP/IP IPP port
System keyword: TCPPORTI

This keyword specifies the local TCP/IP port that VPSX will open for inbound IPP requests. The IPP specification (RFC2911) defines port 631, which is the default value for this parameter. To use port 631, the VPSX server must execute with root authority as this port is in the range of well known ports (1-1023).

Valid Values: 0 - 65536

Default: 631

Web page field: TCP/IP LPD port
System keyword: TCPPORTL

This keyword specifies the local TCP/IP port that VPSX will open for inbound LPD requests. The LPD specification (RFC1179) defines port 515, which is the default value for this parameter. To use port 515, the VPSX server must execute with root authority as this port is in the range of well known ports (1-1023).

Note: If an LPD daemon is already running on this system, it will be necessary to shutdown this process to enable VPSX to open port 515.

Valid Values: 0 - 65536

Default: 515

Web page field: TCP/IP LRSQ port
System keyword: TCPPORTQ

This keyword specifies the local TCP/IP port that VPSX will open for inbound LRS/Queue requests. The LRSQUEUE protocol is used to transfer files between LRS servers providing data compression and encryption support. An LRSQ command line interface is also available that enables submission of documents with additional control over spool file attributes. The LRSQ command line interface is available for all major platforms providing secure, efficient submission of documents from any supported platform.

Valid Values: 1 - 65536

Default: 5500

Web page field: Expire interval
System keyword: EXPINTVL

This keyword specifies the interval, in minutes, that VPSX should scan the spool queues looking for expired files that can be removed from the system. The minimum retention period for a spool file is one hour so it is recommended to specify a value less that 60 minutes to ensure prompt removal of expired files.

Valid Values: 10 - 9999

Default: 10

Web page field: SNAP Expire Interval
System keyword: SNAPEXPR

This keyword specifies the expiration period, in hours, for diagnostic SNAP dump files. SNAP dumps are generated in the event of a severe error and contains system diagnostic information that will help LRS determine the cause of the failure. SNAP dumps are created in the directory identified by the SNAPDIR system keyword and will be removed automatically when the specified expiration period has expired. Specifying a value of zero will disable automatic expiration of SNAP files.

Valid Values: 0 - 9999 hours

Default: 48 hours

Web page field: SNMP Poll
System keyword: SNMPPOLL

This keyword specifies the interval, in seconds, that VPSX will poll SNMP enabled printers to determine their current status. VPSX constantly monitors the status of all printers that have been defined with SNMP support enabled (SNMP=Yes in the printer configuration). This is done even when VPSX is not actively sending output to a printer to enable the Web interface to always show the current status of devices, even when they are being used by another host. The main device status indicators are retrieved using a single SNMP GET request that is sent to each device at the specified interval. Setting the poll interval is a trade-off between network traffic and maintaining up to date device status information. Each SNMP GET packet consists of approximately 42 bytes and will not cause excessive network load even when using a small poll interval.

Valid Values: 0 - 99999 seconds

Default: 10 seconds

Web page field: Termination Recovery
System keyword: RTM

This keyword controls whether VPSX should attempt to recovery from severe errors that generate hardware context signals that would normally terminate the process (i.e. SIGSEGV, SIGBUS, etc.). VPSX is a multi-threaded server but SIGNALS only operate at the process level. If a signal is generated by any thread, the default operating system action will be to terminate the entire VPSX process. With recovery termination enabled, VPSX will capture the signal, take a diagnostic SNAP dump and only terminate the currently active thread.

Note: If the terminating thread holds any locks at the time of the error, these will not be released as this could compromise the integrity of the internal process data structures. In this event it may be necessary to restart the VPSX process.

Valid Values: Yes/No

Default: Yes

Web page field: VPSX Key
System keyword: KEYVPSX

This keyword specifies the product license key for VPSX. A license key will have been provided by LRS with the installation material and additional license keys can be obtained by contacting your LRS marketing representative.

Note: All VPSX license keys are time limited and will issue warning messages when the license period remaining is less than one month. A new license key can be obtained by contacting your LRS marketing representative.

Valid Values: The license key consists on 60 alphanumeric characters and must be entered exactly as provided by LRS.

Default: None.

Web page field: Web Interface URL
System keyword: WEBURL

This keyword identifies the URL that can be used to access the VPSX Web interface. This value will be used in email notification messages to direct users to the VPSX Web interface and is also used to re-direct users who click on an IPP printer URL to the WEB interface.

Note: If the default is not changed or no value is specified, email notification will not contain a link to the Web interface.

Valid values: Any valid HTTP URL.

Default: http://www.lrs.com/eom

Example: http://hostname/webconnect/vpsx?trid=logonv

Web page field: Logging
System keyword: LOG

This keyword specifies whether the VPSX process should write all messages to a VPSX log file. Log files will be generated in the directory specified via the LOGDIR system keyword and will be actively managed and removed from the system when the log expiration period has expired.

Valid Values: Yes/No

Default: Yes

Web page field: System Logging
System keyword: SYSLOG

This keyword specifies whether the VPSX process should write all messages to the UNIX system log daemon.

Valid Values: Yes/No

Default: No

Web page field: LOG Expiration
System keyword: LOGEXPR

This keyword specifies the expiration period, in hours, for log files. Log files are created in the directory identified by the LOGDIR system keyword and will be removed automatically when the specified expiration period has expired. Specifying a value of zero will disable automatic expiration of log files.

Valid Values: 0 - 9999 hours.

Default: 48 hours.

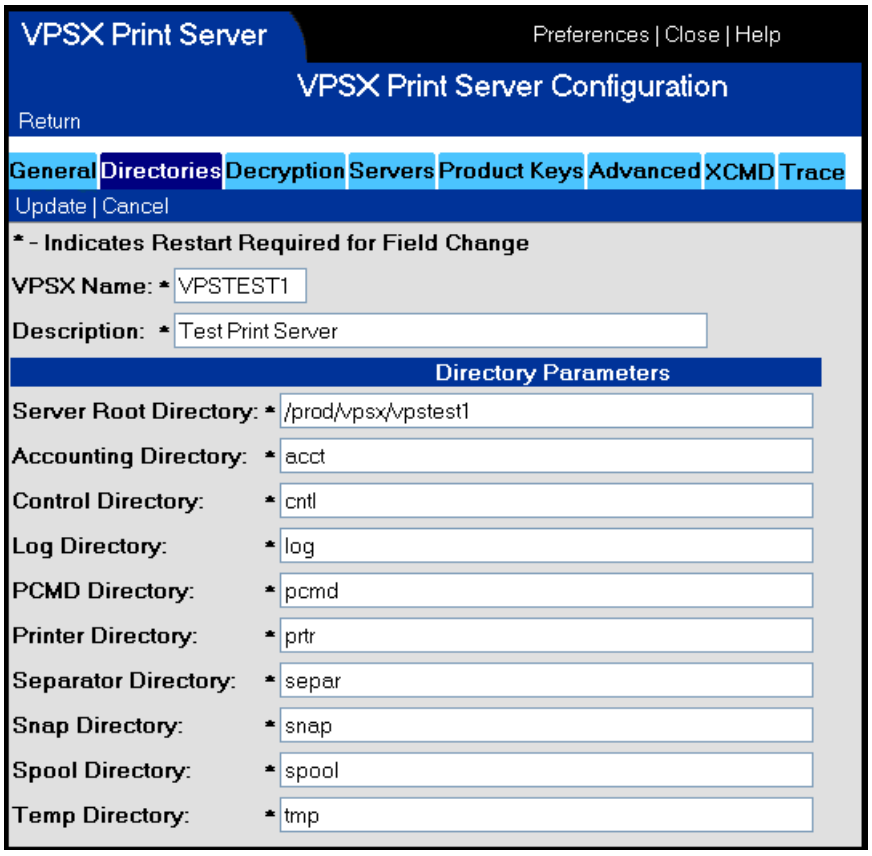
Web page field: LOG size
System keyword: LOGSIZE

This keyword specifies the maximum size of a single log file. When the log size limit is reached, VPSX will close the current log file and start logging to a new file.

Valid Values: 1 - 999 MB

Default: 4 MB

Runtime Directories



Web page field: Server Root Directory
System keyword: SERVROOT

This keyword specifies the root working directory for this instance of VPSX. This keyword must specify a fully qualified directory name and will be used as the root for all subsequent directory definitions unless a fully qualified directory name is specified.

Default: /lrs/vpsx

Valid values: 1-99 character directory name.

Web page field: Accounting directory
System keyword: ACCTDIR

This keyword specifies the directory that will be used as the output location for accounting files generated by this instance of VPSX. Unless a fully qualified directory name is specified, this directory will be created below the server root directory defined via the SERVROOT keyword.

Valid Values: 1-99 character directory name.

Default: acct

Web page field: Control directory
System keyword: CNTLDIR

This keyword specifies the directory that will be used as the output location for control information used to maintain status between executions of VPSX. Unless a fully qualified directory name is specified, this directory will be created below the server root directory defined via the SERVROOT keyword.

Valid Values: 1-99 character directory name.

Default: cntl

Web page field: Log directory
System keyword: LOGDIR

This keyword specifies the directory that will be used as the output location for log files generated by this instance of VPSX. Unless a fully qualified directory name is specified, this directory will be created below the server root directory defined via the SERVROOT keyword.

Valid Values: 1-99 character directory name.

Default: log

Web page field: PCMD directory
System keyword: PCMDDIR

This keyword specifies the directory that will contain printer command files used to control the presentation of text documents. Unless a fully qualified directory name is specified, this directory will be created below the server root directory defined via the SERVROOT keyword.

Valid Values: 1-99 character directory name.

Default: pcmd

Web page field: Printer directory
System keyword: PRTRDIR

This keyword specifies the directory that will contain printer configuration files. During startup, VPSX will activate all printer definitions contained in this directory. Unless a fully qualified directory name is specified, this directory will be created below the server root directory defined via the SERVROOT keyword.

Valid Values: 1-99 character directory name.

Default: prtr

Web page field: Separator directory
System keyword: SEPARDIR

This keyword specifies the directory that will contain separator page templates. Unless a fully qualified directory name is specified, this directory will be created below the server root directory defined via the SERVROOT keyword.

Valid Values: 1-99 character directory name.

Default: separ

Web page field: SNAP directory
System keyword: SNAPDIR

This keyword specifies the directory that will be used as the output location for diagnostic SNAP files generated by this instance of VPSX. Unless a fully qualified directory name is specified, this directory will be created below the server root directory defined via the SERVROOT keyword.

Valid Values: 1-99 character directory name.

Default: snap

Web page field: SPOOL directory
System keyword: SPOOLDIR

This keyword specifies the directory that will be used as the spool directory for this instance of VPSX. The spool directory will contain a spool index file and a separate subdirectory for each printer queue. Unless a fully qualified directory name is specified, the spool directory will be created below the server root directory defined via the SERVROOT keyword.

Note: Each instance of VPSX requires a separate spool directory.

Valid Values: **1**-99 character directory name.

Default: spool

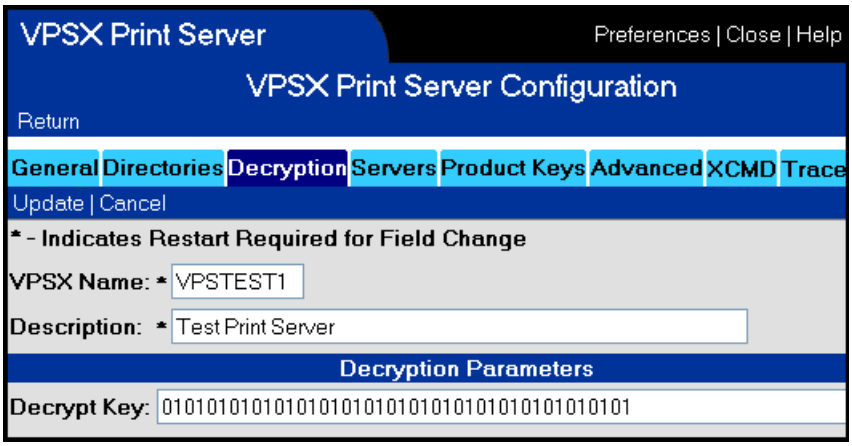
Web page field: Temp directory
System keyword: TMPDIR

This keyword specifies the directory that will be used as the output location for temporary files generated by this instance of VPSX. Unless a fully qualified directory name is specified, this directory will be created below the server root directory defined via the SERVROOT keyword.

Valid Values: 1-99 character directory name.

Default: tmp

Decryption Parameters



Web page field: Decryption Key
System keyword: DKEY

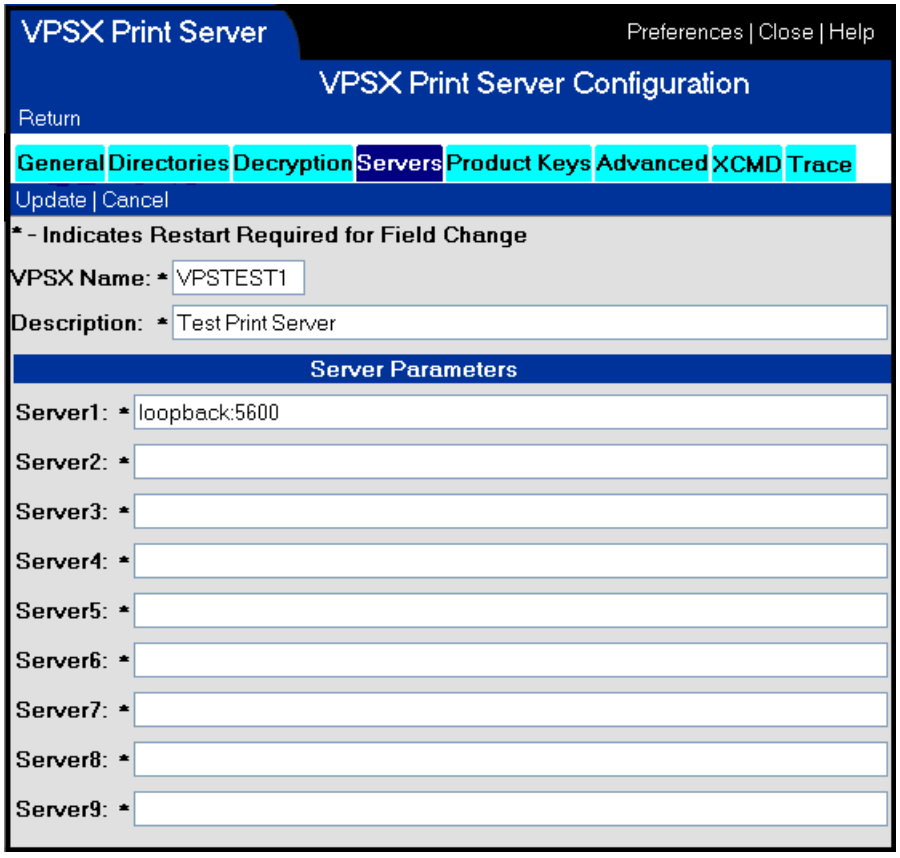
This keyword specifies the decryption key that will be used to decrypt inbound LRS/Queue print requests from other LRS products. If encryption is being used, this key must match the encryption key used by the sending client.

The decryption key is specified as 16, 24, or 32 character HEX bytes to indicate whether 128, 192, or 256 bit decryption is to be used.

Valid Values: The value must be specified in character hex format (i.e. 2B = 0x2B) and must consist of 16, 24, or 32 character hex bytes.

Default: 0102030405060708090A0B0C0D0E0F

LRS/ServerX Connection Parameters



Web page field: Server1-9
System keyword: SERVER1-9

The server keywords identify up to nine LRS/ServerX processes that this VPSX server should establish a VPSX monitor connection. The monitor connection is used to register this instance of VPSX with the LRS/ServerX process and identify all printers defined to this server. The LRS/ServerX process dynamically builds a central directory of all printers and their associated VPSX servers and is used as the focal point for all user access to the printers and VPSX servers. VPSX will notify the LRS/ServerX process of all printer status changes enabling the Server to provide a single view of all printers across all VPSX servers.

If no LRS/ServerX connections are defined, VPSX will still operate although the printers will not be visible via the Web and SOAP API interfaces. The VPSX process can still be controlled and configured using the VPSCFG and VPSCMD command line interfaces.

Valid Values: A LRS/ServerX instance is identified by the TCP/IP hostname or ip-address where the process is running and optionally the remote port number that is being used by the LRS/ServerX process to accept inbound VPSX monitor connections.

Default: None.

Format: Hostname:port

Examples:

SERVER1 = 127.0.0.1

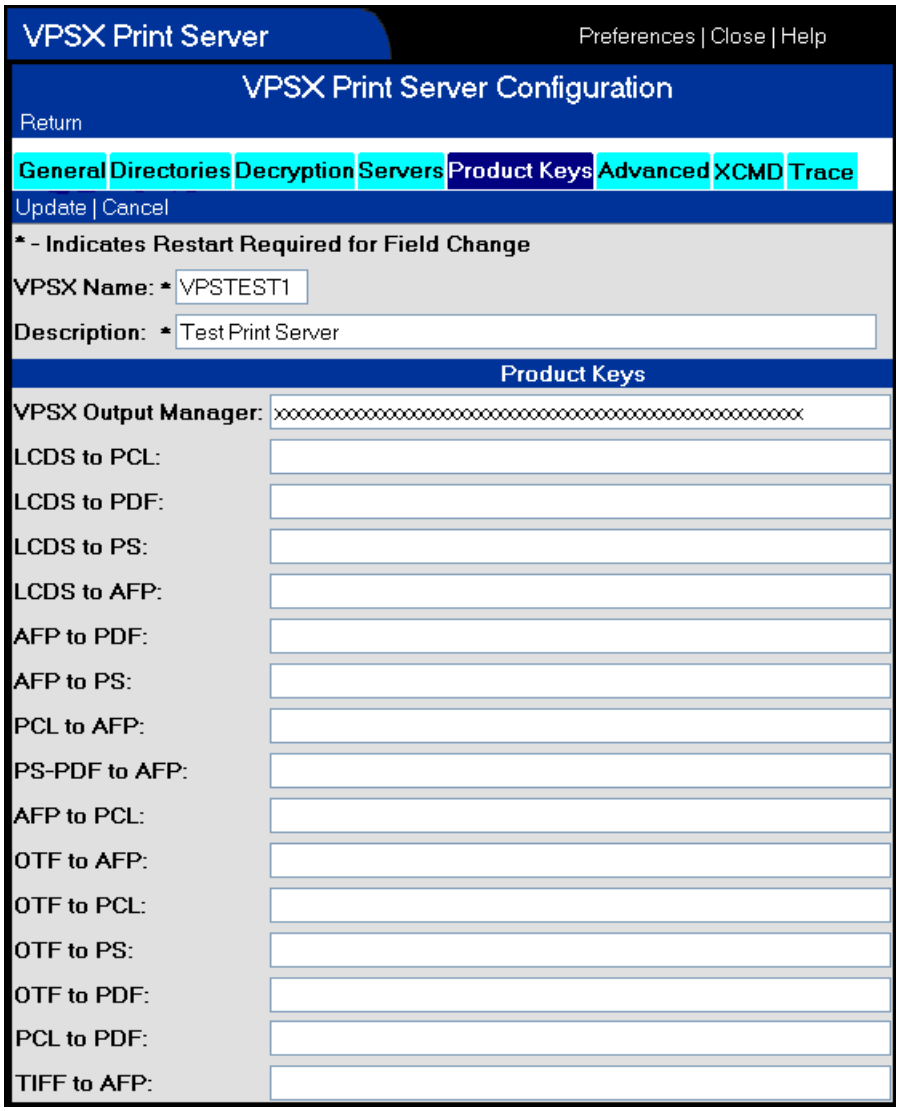
This specification indicates that the LRS/ServerX process is running on the local host and is using the default TCP/IP port for inbound VPSX monitor connections (5600).

SERVER2 = myhostname:6601

This specification indicates that the LRS/ServerX process is running on a host called **myhostname** and is using TCP/IP port number **6601** to receive inbound VPSX monitor connections.

Note: The TCP/IP port number used by the LRS/ServerX process for inbound VPSX monitor connections is specified via the TCPPORTV keyword in the LRS/ServerX system initialization parameters.

Optional Product Keys



Web page field: VPSX OutputManager
System keyword: KEYOMGR

This keyword specifies the product license key for the VPSX/OutputManager interface for SAP R/3. A license key will have been provided by LRS with the installation material and additional license keys can be obtained by contacting your LRS marketing representative.

Note: All VPSX license keys are time limited and will issue warning messages when the license period remaining is less than one month. A new license key can be obtained by contacting your LRS marketing representative.

Valid Values: The license key consists of 60 alphanumeric characters and must be entered exactly as provided by LRS.

Default: None.

Web page field: LCDS to PCL
System keyword: KEYLCDS2PCL

This keyword specifies the product license key for the LCDS to PCL conversion filter. If requested, a license key will have been provided by LRS with the installation material and additional license keys can be obtained by contacting your LRS marketing representative.

Note: All VPSX license keys are time limited and will issue warning messages when the license period remaining is less than one month. A new license key can be obtained by contacting your LRS marketing representative.

Valid Values: The license key consists of 60 alphanumeric characters and must be entered exactly as provided by LRS.

Default: None.

Web page field: LCDS to PCL
System keyword: KEYLCDS2PDF

This keyword specifies the product license key for the LCDS to PDF conversion filter. If requested, a license key will have been provided by LRS with the installation material and additional license keys can be obtained by contacting your LRS marketing representative.

Note: All VPSX license keys are time limited and will issue warning messages when the license period remaining is less than one month. A new license key can be obtained by contacting your LRS marketing representative.

Valid Values: The license key consists of 60 alphanumeric characters and must be entered exactly as provided by LRS.

Default: None.

Web page field: LCDS to PS
System keyword: KEYLCDS2PS

This keyword specifies the product license key for the LCDS to Postscript conversion filter. If requested, a license key will have been provided by LRS with the installation material and additional license keys can be obtained by contacting your LRS marketing representative.

Note: All VPSX license keys are time limited and will issue warning messages when the license period remaining is less than one month. A new license key can be obtained by contacting your LRS marketing representative.

Valid Values: The license key consists of 60 alphanumeric characters and must be entered exactly as provided by LRS.

Default: None.

Web page field: LCDS to AFP
System keyword: KEYLCDS2AFP

This keyword specifies the product license key for the LCDS to AFP conversion filter. If requested, a license key will have been provided by LRS with the installation material and additional license keys can be obtained by contacting your LRS marketing representative.

Note: All VPSX license keys are time limited and will issue warning messages when the license period remaining is less than one month. A new license key can be obtained by contacting your LRS marketing representative.

Valid Values: The license key consists of 60 alphanumeric characters and must be entered exactly as provided by LRS.

Default: None.

Web page field: AFP to PDF
System keyword: KEYAFP2PDF

This keyword specifies the product license key for the AFP to PDF conversion filter. If requested, a license key will have been provided by LRS with the installation material and additional license keys can be obtained by contacting your LRS marketing representative.

Note: All VPSX license keys are time limited and will issue warning messages when the license period remaining is less than one month. A new license key can be obtained by contacting your LRS marketing representative.

Valid Values: The license key consists of 60 alphanumeric characters and must be entered exactly as provided by LRS.

Default: None.

Web page field: AFP to PS
System keyword: KEYAFP2PS

This keyword specifies the product license key for the AFP to Postscript conversion filter. If requested, a license key will have been provided by LRS with the installation material and additional license keys can be obtained by contacting your LRS marketing representative.

Note: All VPSX license keys are time limited and will issue warning messages when the license period remaining is less than one month. A new license key can be obtained by contacting your LRS marketing representative.

Valid Values: The license key consists of 60 alphanumeric characters and must be entered exactly as provided by LRS.

Default: None.

Web page field: PCL to AFP
System keyword: KEYPCL2AFP

This keyword specifies the product license key for the PCL to AFP conversion filter. If requested, a license key will have been provided by LRS with the installation material and additional license keys can be obtained by contacting LRS sales and support.

Note: All VPSX license keys are time limited and will issue warning messages when the license period remaining is less than one month. A new license key can be obtained by contacting your LRS marketing representative.

Valid Values: The license key consists of 60 alphanumeric characters and must be entered exactly as provided by LRS.

Default: None.

Web page field: PS-PDF to AFP
System keyword: KEYPSPDF2AFP

This keyword specifies the product license key for the Postscript/PDF to AFP conversion filter. If requested, a license key will have been provided by LRS with the installation material and additional license keys can be obtained by contacting your LRS marketing representative.

Note: All VPSX license keys are time limited and will issue warning messages when the license period remaining is less than one month. A new license key can be obtained by contacting your LRS marketing representative.

Valid Values: The license key consists of 60 alphanumeric characters and must be entered exactly as provided by LRS.

Default: None.

Web page field: AFP to PCL
System keyword: KEYAFP2PCL

This keyword specifies the product license key for the AFP to PCL conversion filter. If requested, a license key will have been provided by LRS with the installation material and additional license keys can be obtained by contacting your LRS marketing representative.

Note: All VPSX license keys are time limited and will issue warning messages when the license period remaining is less than one month. A new license key can be obtained by contacting your LRS marketing representative.

Valid Values: The license key consists of 60 alphanumeric characters and must be entered exactly as provided by LRS.

Default: None.

Web page field: OTF to AFP
System keyword: KEYOTF2AFP

This keyword specifies the product license key for the SAP OTF to AFP conversion filter. If requested, a license key will have been provided by LRS with the installation material and additional license keys can be obtained by contacting your LRS marketing representative.

Note: All VPSX license keys are time limited and will issue warning messages when the license period remaining is less than one month. A new license key can be obtained by contacting your LRS marketing representative.

Valid Values: The license key consists of 60 alphanumeric characters and must be entered exactly as provided by LRS.

Default: None.

Web page field: OTF to PCL
System keyword: KEYOTF2PCL

This keyword specifies the product license key for the SAP OTF to PCL conversion filter. If requested, a license key will have been provided by LRS with the installation material and additional license keys can be obtained by contacting your LRS marketing representative.

Note: All VPSX license keys are time limited and will issue warning messages when the license period remaining is less than one month. A new license key can be obtained by contacting your LRS marketing representative.

Valid Values: The license key consists of 60 alphanumeric characters and must be entered exactly as provided by LRS.

Default: None.

Web page field: OTF to PS
System keyword: KEYOTF2PS

This keyword specifies the product license key for the SAP OTF to Postscript conversion filter. If requested, a license key will have been provided by LRS with the installation material and additional license keys can be obtained by contacting your LRS marketing representative

Note: All VPSX license keys are time limited and will issue warning messages when the license period remaining is less than one month. A new license key can be obtained by contacting your LRS marketing representative.

Valid Values: The license key consists of 60 alphanumeric characters and must be entered exactly as provided by LRS.

Default: None.

Web page field: OTF to PDF
System keyword: KEYOTF2PDF

This keyword specifies the product license key for the SAP OTF to PDF conversion filter. If requested, a license key will have been provided by LRS with the installation material and additional license keys can be obtained by contacting your LRS marketing representative.

Note: All VPSX license keys are time limited and will issue warning messages when the license period remaining is less than one month. A new license key can be obtained by contacting your LRS marketing representative.

Valid Values: The license key consists on 60 alphanumeric characters and must be entered exactly as provided by LRS.

Default: None.

Web page field: PCL to PDF
System keyword: KEYPCL2PDF

This keyword specifies the product license key for the PCL to PDF conversion filter. If requested, a license key will have been provided by LRS with the installation material and additional license keys can be obtained by contacting your LRS marketing representative.

Note: All VPSX license keys are time limited and will issue warning messages when the license period remaining is less than one month. A new license key can be obtained by contacting your LRS marketing representative.

Valid Values: The license key consists of 60 alphanumeric characters and must be entered exactly as provided by LRS.

Default: None.

Web page field: TIFF to AFP
System keyword: KEYTIFF2AFP

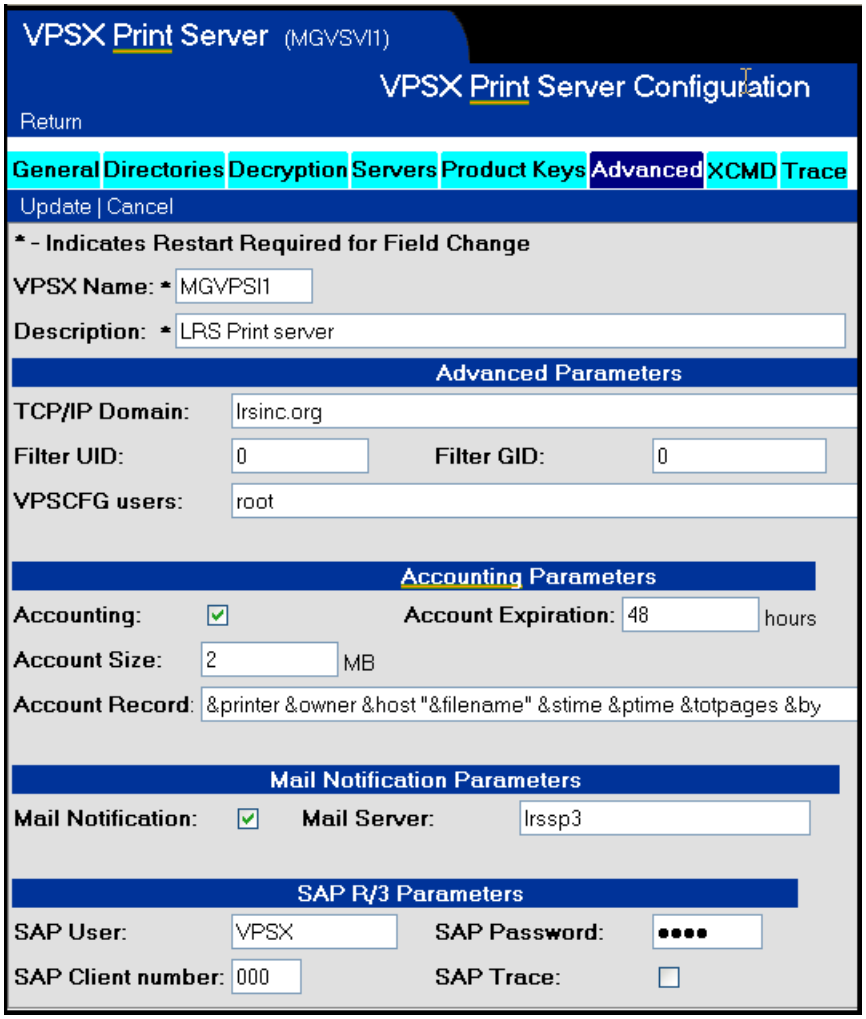
This keyword specifies the product license key for the TIFF to AFP conversion filter. If requested, a license key will have been provided by LRS with the installation material and additional license keys can be obtained by contacting your LRS marketing representative.

Note: All VPSX license keys are time limited and will issue warning messages when the license period remaining is less than one month. A new license key can be obtained by contacting your LRS marketing representative.

Valid Values: The license key consists of 60 alphanumeric characters and must be entered exactly as provided by LRS.

Default: None.

Advanced System Parameters



Note: If different login credentials are required for specific SAP systems, a 'saplogin' configuration file can be used. Please refer to the description of the SAPUSER system keyword on page 3.25 for details.

Web page field: TCP/IP Domain
System keyword: TCPDMN

This keyword specifies the default TCP/IP domain name that should be used when resolving TCP/IP hostnames. VPSX will append the specified domain name to all hostnames that are not fully qualified before attempting to resolve the hostname to an IP-address.

Valid Values: 1-99 character domain name qualifier.

Default: None.

Web page field: Filter UID
System keyword: FILTUID

This keyword specifies an alternate user identification number that should be used when executing external filter processes. By default, filter processes will execute with the UID associated with the VPSX main process. This could present a potential security exposure if users are authorized to specify their own filter processes. If a non-zero value is specified, VPSX will switch to the specified UID before executing the filter program.

Valid Values: 0 or any valid UID number.

Default: 0

Web page field: Filter GID
System keyword: FILTGID

This keyword specifies an alternate group identification number that should be used when executing external filter processes. By default, filter processes will execute with the GID associated with the VPSX main process. This could present a potential security exposure if users are authorized to specify their own filter processes. If a non-zero value is specified, VPSX will switch to the specified GID before executing the filter program.

Valid Values: 0 or any valid Group ID number.

Default: 0

Web page field: VPSCFG Users
System keyword: CFGUSERS

This keyword specifies one or more local user names that will be authorized to use the VPSCFG command line interface to modify the VPSX system and printer configuration.

Valid Values: One or more local user names separated with spaces.

Default: root

Web page field: Accounting
System keyword: ACCT

This keyword specifies whether the accounting feature of VPSX should be enabled. If enabled, the accounting thread will open an accounting file in the directory specified via the ACCTDIR keyword. Accounting is controlled at the printer level via the ACCT keyword in the printer definition and an account record will be written for all successful print requests. Accounting files are actively managed and removed from the system when the account file expiration period has expired.

Valid Values: Yes/No

Default: No

Web page field: Account Expiration
System keyword: ACCTEXPR

This keyword specifies the expiration period, in hours, for accounting files. Accounting files are created in the directory identified by the ACCTDIR system keyword and will be removed automatically when the specified expiration period has expired. Specifying a value of zero will disable automatic expiration of accounting files.

Valid Values: 0 - 9999 hours.

Default: 48 hours.

Web page field: Account size
System keyword: ACCTSIZE

This keyword specifies the maximum size of a single accounting file. When the account size limit is reached, VPSX will close the current accounting file and start recording to a new file.

Valid Values: 1 - 999 MB

Default: 2 MB

Web page field: Account Record
System keyword: ACCTREC

This keyword specifies the template for the accounting file records. The accounting records are written in a format that is consistent with the W3C (Extended Log Format) to enable simple analysis using commonly available log analysis tools. For details of the "Extended Log Format" standard please refer to the World Wide Web Consortium site http://www.w3c.org. The accounting record template is completely customizable and can contain symbolic variables that represent spool file attributes, VPSX system keywords or VPSX printer keywords. The record template symbolic variables are substituted when the accounting record is written using data from the currently active spool file. A separate accounting record is written for each spool file that is successfully printed.

For a complete list of symbolic variables that can be included in the accounting record template, please refer to page B.1.

Valid Values: 1-255 characters consisting of VPSX symbolic spool attribute variable names, system keyword names, or printer keyword names.

Default: &date &time &printer &sys_vpssysid &owner &host &filename &stime &ptime &totpages &bytes

Web page field: Mail notification
System keyword: MAIL

This keyword specifies whether the VPSX email notification feature should be enabled.

The email notification feature enables users to receive notification of document and device events and can be enabled/disabled without restarting. If mail notification is enabled, the MAILHOST keyword must specify the host name of the target SMTP mail server.

Default: No

Valid Values: Yes/No

Web page field: Mail server
System keyword: MAILHOST

This keyword specifies the host name of the SMTP mail that will be used for email event notification delivery.

Default: None.

Valid Values: The TCP/IP hostname or ip-address where the SMTP mail server is executing and optionally the remote port number that is being used by the mail server for inbound SMTP connections (default 25).

Format: Hostname:port

Web page field: SAP User
System keyword: SAPUSER

This keyword specifies a SAP R/3 user ID that will be used by VPSX/OutputManager to sign-on to SAP R/3 servers to deliver job and device status callback information. For full details of how to define this user ID to the SAP R/3 environment, please refer to the VPSX/OutputManager installation section on page 3.76.

If different login credentials are required for specific SAP systems, an external 'saplogin' configuration file can be created to specify system specific login values. When connecting to a SAP system, VPSX will check for the existence of a 'saplogin' configuration file in the same directory as the 'vpsstart' system configuration file. If a 'saplogin' file exists, and contains an entry for the SAP system, the login credentials in the saplogin file will override the default values specified via the SAPUSER, SAPPSWD and SAPCLNT system configuration keywords. A sample 'saplogin' configuration file is provided in the vpsx/samples installation directory.

Valid Values: Any valid SAP R/3 user ID.

Default: VPSX

Web page field: SAP Password
System keyword: SAPPSWD

This keyword specifies the password for the SAP R/3 user ID that was specified via the SAPUSER keyword. This user ID and password combination will be used by VPSX/OutputManager to sign-on to SAP R/3 servers to deliver job and device status callback information. For full details of how to define VPSX to the SAP R/3 environment, please refer to the VPSX/OutputManager installation section on page 3.76

Valid Values: Any valid SAP R/3 password.

Default: vpsx

Web page field: SAP Client number
System keyword: SAPCLNT

This keyword specifies the SAP R/3 client number that should be used by VPSX/OutputManager to sign-on to SAP R/3 servers to deliver job and device status callback information. For full details on the SAP R/3 interface, please refer to the VPSX/OutputManager installation section on page 3.76.

Valid Values: 000-999

Default: 000

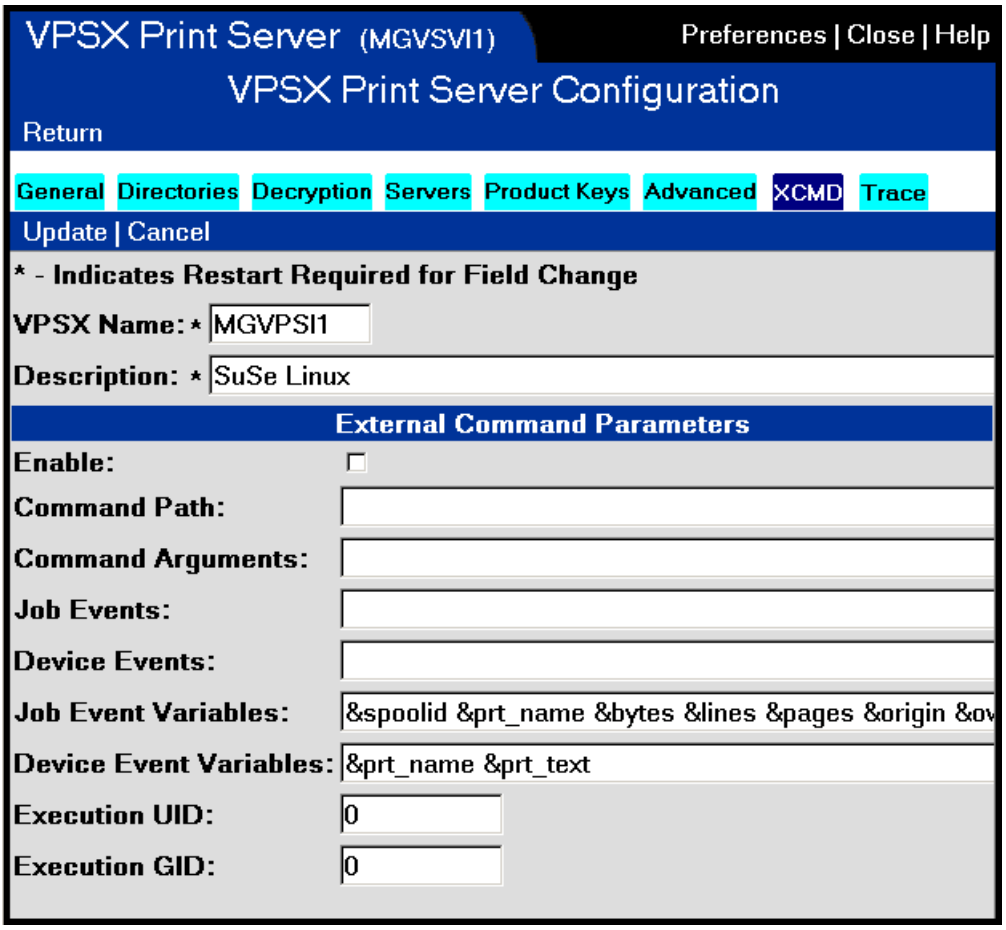
Web page field: SAP Trace
System keyword: SAPTRACE

This keyword specifies whether tracing should be requested for all communication requests using the SAP R/3 Remote Function Call (RFC) API library. For full details on the SAP R/3 interface, please refer to the VPSX/OutputManager installation section on page 3.76.

Valid Values: Yes/No

Default: No

XCMD System Parameters



The XCMD system configuration values specify options to define an external event notification routine that will be attached as a co-process and passed notification events. For details of how to write an external event notification routine please refer to page 3.122.

Web page field: Enable
System keyword: XCMD

This keyword specifies whether the external command notification feature should be enabled and the event notification routine started as a co-process.

Valid Values: Yes/No

Default: No

Web page field: Command Path
System keyword: XCMDPATH

This keyword specifies the name of the external command notification routine that will be executed by VPSX as a co-process. The path can identify a binary executable or a shell script and should specify the fully qualified path to the executable, unless available in the PATH for the VPSX process. If the executable requires any shared libraries it will be necessary to export the library path in the VPSX shell script or build a wrapper shell script around the command that exports the required environment variables.

Valid Values: 1-255 character path name.

Default: None

Web page field: Command Argument
System keyword: XCMDARGS

This keyword specifies the command line arguments that will be passed to the external command co-process at startup.

Valid Values: 1-511 character argument string.

Default: None

Web page field: Job Events
System keyword: XCMDJOBEVENTS

This keyword specifies a list of job events that should be passed to the external command notification routine. For a list of available job event numbers, please refer to page 3.124.

Valid Values: One or more job event numbers separated by commas or spaces, or the word ‘all’.

Default: None

Web page field: Device Events
System keyword: XCMDDEVEVENTS

This keyword specifies a list of device events that should be passed to the external command notification routine. For a list of available device event numbers please refer to page 3.124.

Valid Values: One or more device event numbers separated by commas or spaces, or the word ‘all’.

Default: None

Web page field: Job Event Variables
System keyword: XCMDJOBVARS

This keyword specifies the information that will be passed to the event notification co-process for all job related events. The event notification information is passed to the external command via standard input in the form of a record. Each event record will consist of an event-token, the event number, and the information defined by this keyword. The event variables field specifies a template consisting of constant text, spool file symbolic variables, and system or printer symbolic keyword variables that will be resolved when the event record is generated. A complete list of spool file related symbolic variables can be found in Appendix B. The value of any VPSX system or printer configuration keyword can be specified using the following syntax (&sys_keyword or &prt_keyword) where keyword is any valid VPSX system or printer keyword name.

Additional symbolic variables:

&prt_name - Printer name

&eventname - Event name

Valid Values: 1-511 character variable data template

Default: &eventname &spoolid &prt_name &filename &bytes &pages &owner &host

Web page field: Device Event Variables
System keyword: XCMDDEVVARS

This keyword specifies the information that will be passed to the event notification co-process for all device related events. The event notification information is passed to the external command via standard input in the form of a record. Each event record will consist of an event-token, the event number, and the information defined by this keyword. The event variables field specifies a template consisting of constant text and system or printer symbolic keyword variables that will be resolved when the event record is generated. The value of any VPSX system or printer configuration keyword can be specified using the following syntax (&sys_keyword or &prt_keyword) where keyword is any valid VPSX system or printer keyword name.

Additional symbolic variables:

&prt_name - Printer name

&eventname - Event name

&prt_text - Event specific text string

Valid Values: 1-511 character variable data template.

Default: &eventname &prt_name &prt_text

Web page field: Execution UID
System keyword: XCMDUID

This keyword specifies an alternate UID that should be used to execute the external command. This keyword is only valid if the VPSX process is executing with root authority and allows the system administrator to limit the privileges granted to the external command.

Valid Values: Any valid UID.

Default: 0

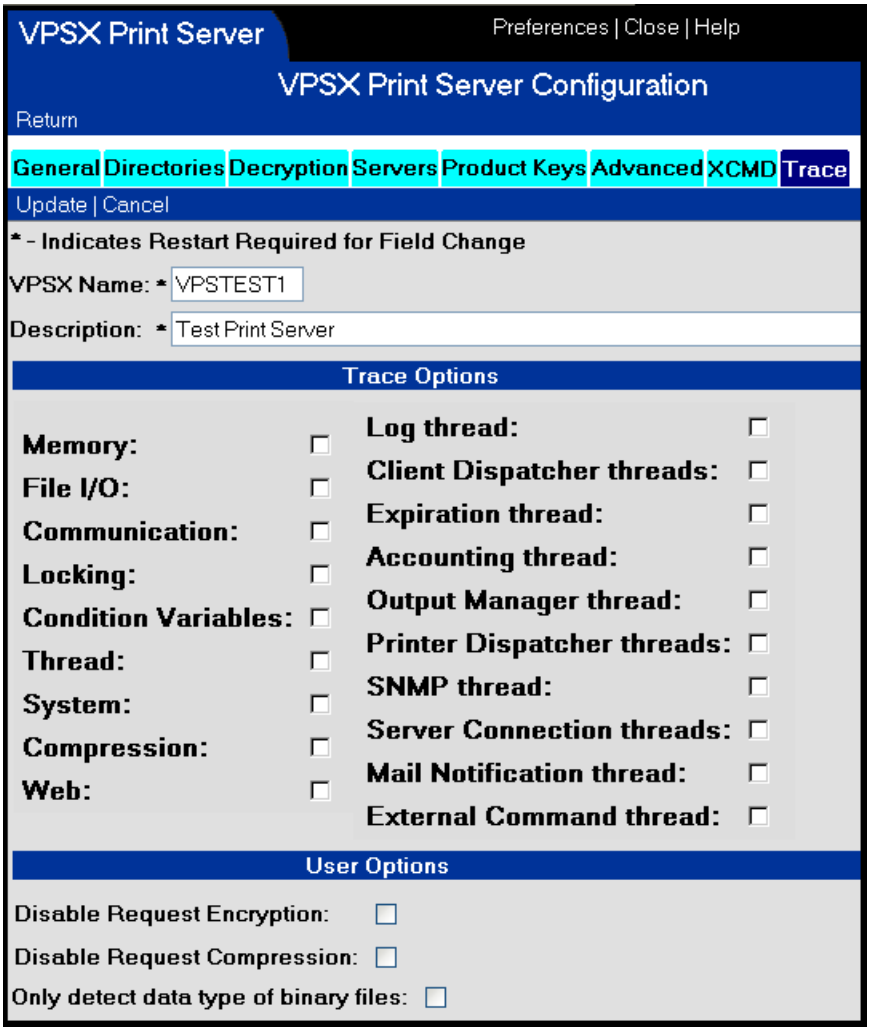
Web page field: Execution GID
System keyword: XCMDGID

This keyword specifies an alternate Group ID that should be used to execute the external command. This keyword is only valid if the VPSX process is executing with root authority and allows the system administrator to limit the privileges granted to the external command.

Valid Values: Any valid GID.

Default: 0

Diagnostic Parameters



Web page field: Trace options
System keyword: TRACE

This keyword specifies the tracing flags that control the level of trace information that is generated by VPSX. The trace options are specified as 1-8 hex bytes and each bit relates to a specific trace flag or tracing mask. The tracing flags control the level of tracing required and the system mask bits limit the tracing options to specific system threads.

Tracing flags:

00000001 - Memory.

00000002 - File I/O.

00000004 - Communication.

00000008 - Lock and Mutex processing.

00000010 - Condition variables.

00000020 - POSIX thread functions.

00000040 - System level trace events.

00000080 - Compression.

00000100 - Web Services API.

00000200 - Database functions.

System Thread Masks:

00010000 - System log thread.

00020000 - Client threads.

00040000 - Expiration thread.

00080000 - Accounting thread.

00100000 - SAP Callback threads.

00200000 - Printer dispatcher thread.

00400000 - SNMP thread.

00800000 - Server communication threads.

01000000 - Email notification thread.

02000000 - External command notification thread.

Valid Values: 00000000 - FFFFFFFF

Default: 00000000

Web page field: User option flags
System keyword: USEROPTS

The USEROPTS keyword specifies option flags to control specific VPSX processing options.

User option flags:

0x00000001 - Disable request encryption. This option flag disables encryption of requests passed between VPSX and the other product components.

0x00000002 - Disable request compression. This option flag disables compression of requests passed between VPSX and the other product components.

0x00000004 - Only detect data type of binary files. This option will tell VPSX to only attempt to detect the data type of print files that have been explicitly submitted as Binary (i.e. LPR command with the -l filter or LRSQ command with /BIN=Y). Note: This feature can also be enabled at the individual printer level using the PRTROPTS printer keyword.

VPSX Printer Configuration

The VPSX printer configuration files are created in the directory identified via the PRTRDIR system configuration keyword. Each printer configuration is saved in a separate file with the same name as the printer. The printer configuration files are text files that can be edited manually using a text editor or can be updated online using one of the following interfaces.

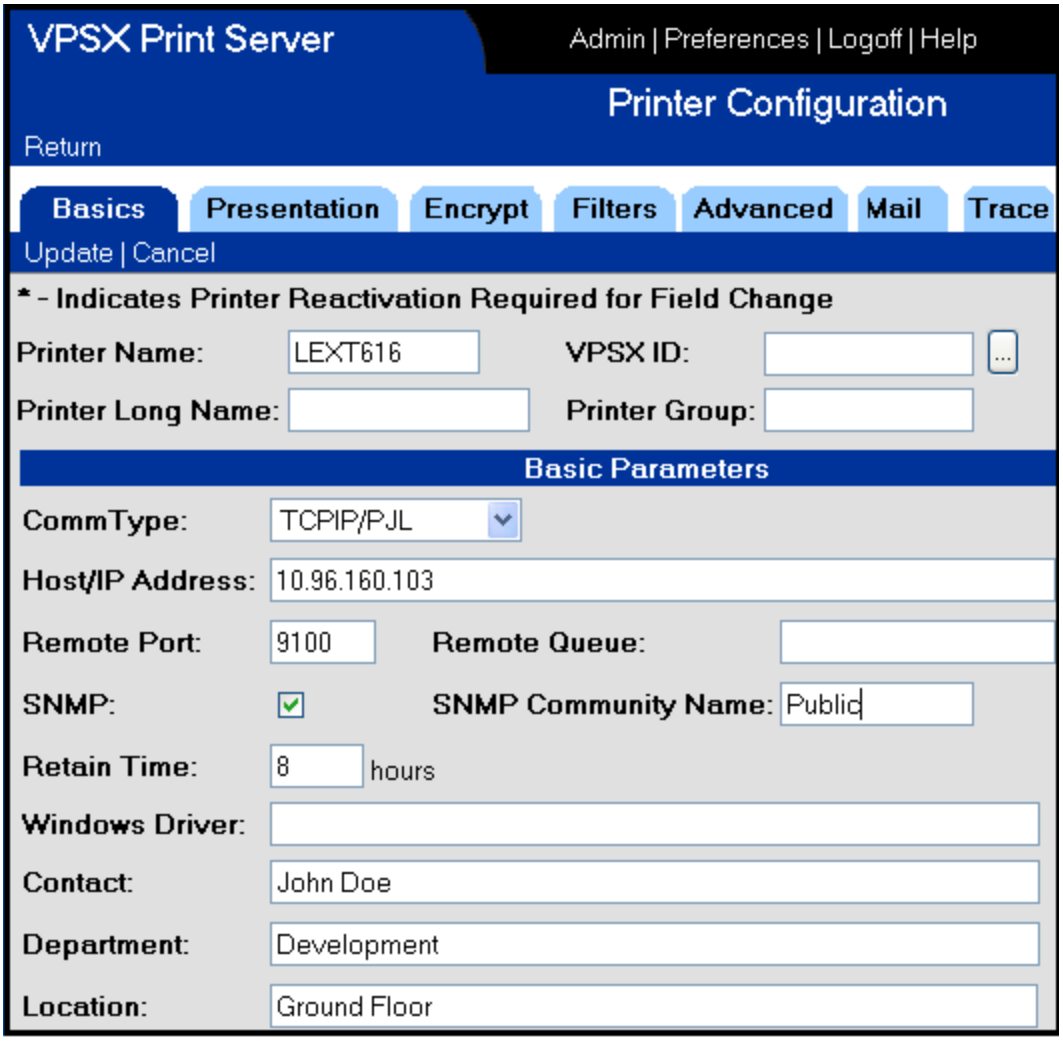
- Web interface.
- VPSCFG command line interface.
- SOAP Application Programming Interface.

It is expected that most users will modify the VPSX printer configuration values using the Web interface. The description of the printer keywords is organized based on the screen layouts. Each configuration option is described using the keyword name that will appear in the printer configuration file, and the field description as it appears in the Web interface.

Syntax of Printer Configuration Files

- Comments may be included in configuration files by specifying an * in the first character position.
- Only a single keyword can be specified per line.
- All keywords must be followed by an equal (=) sign and a keyword value.
- White space around keywords is ignored.

Basic Printer Parameters



Web page field: Printer name

The printer name specifies a unique name for a printer within the VPSX print server. Printer names do not need to be unique across VPSX servers as the printer name is qualified with the VPSX System Identifier to uniquely identify a printer within the enterprise. The printer name is used as the file name for the printer configuration parameters which are saved in the printer directory identified via the PRTRDIR system keyword.

Valid Values: 1-32 alphanumeric characters, the underscore or hyphen symbols. Name cannot contain embedded blanks.

Default: None.

Web page field: Printer Long Name
Printer keyword: PRTLNAME

The printer long name parameter allows a longer descriptive name to be associated with a printer definition. This name is displayed in the Web interface printer list display and can be used to sort or locate a printer.

Valid Values: 1-50 characters.

Default: None.

Web page field: VPSX ID
Printer keyword: None

Specifies the name of the VPSX server that is the target for the printer add request. (Printer Add screen only.)

Valid Values: 1-8 character VPSX system identifier.

Default: None.

Web page field: Printer Group
Printer keyword: GRPNAME

The printer group provides a method to group together printers of a similar type or in the same geographic area. The group name does not need to be predefined and can be used in the Web interface to mask the list of printers displayed. For example, you might want to define all the printers in the Accounts Department with a group name of ACCOUNTS. It is possible to mask the printer list display to only show printers in the ACCOUNTS group.

Valid Values: 1-23 characters.

Default: None.

Web page field: Comm Type
Printer keyword: COMMTYPE

The communication type is the most important parameter when defining a printer. It defines the way that VPSX will communicate with the remote printer or host. The choice of communication type will depend on the destination device, its capabilities, and the level of control and feedback required from the device.

Communication types:

None - Specifying a communication type of **None** provides the ability to define a null printer definition that will only be used to feed files to a filter process. After executing the filter process no further processing will occur. The output from the filter process will not be delivered and the filter process does not need to create an output file. This can be used to automatically feed print files to a filter routine that will pass the data to an archival or other external solution. If a filter process is not defined for the input data type, the action specified for the **Error Action** will be taken (by default the file will be held and the error indication set).

TCPIP/IPP - This value instructs VPSX to use the Internet Printing Protocol (IPP) to deliver documents to IPP enabled devices or servers. The IPP standard was developed by an internet working group, consisting on all major printer manufacturers, and defines a sophisticated protocol for communication with network-attached printers or IPP enabled servers (such as VPSX). The IPP protocol provides more sophistication than the LPD or SOCKETS communication types and enables VPSX to retrieve information about the device status before delivery. This means that VPSX will detect printer problems and set the printer status to intervention-required if the device is offline due to a paper-jam, no-paper, or other conditions requiring attention. The IPP protocol also includes commands that enable VPSX to start or stop the remote device and query pending or completed jobs queued remotely on the device or server. The VPSX Web interface provides additional queue displays for IPP connected devices to display the remote printer status and manipulate jobs queued on the remote device. Remote jobs can be held, released, restarted, or deleted. IPP does not provide the guaranteed delivery to the output hopper that PJL communication offers, but it will give improved performance when printing large numbers of small documents and still provide feedback of device errors.

TCPIP/LPD - This is the most common communication type used in TCP/IP environments to send print data between hosts and to deliver output to devices. The LPR/LPD protocol was defined in RFC1179, although it was never formally accepted as a standard. The LPD (Line Printer Daemon) protocol was originally intended as a mechanism to transfer print files between hosts although it has been implemented by all printer network card manufactures as a simple protocol to deliver output to a device. This protocol is the lowest common denominator and can be used for most devices or hosts but it provides very limited feedback from devices about the success of a print request and provides no facilities for checkpoint restart of a failed request.

TCPIP/LRSQ - The LRSQUEUE protocol is implemented by all LRS products and provides a sophisticated mechanism for transferring print files between LRS print management products. The LRSQUEUE protocol provides data compression and encryption between LRS print servers and provides more direct control over the print attributes at the destination host.

TCPIP/MAIL - The Mail protocol enables spool files to be routed to email recipients via a mail server using the Simple Mail Transfer Protocol (SMTP). Text documents can be sent in the body of the email or as a text attachment controlled via the MAILSIZE keyword. Binary files will always be delivered as mail attachments. This communication type can be used in combination with filter processing to enable documents to be transformed into a readable format. (For example, the PCL to PDF conversion.)

TCPIP/PJL - This protocol uses the same direct sockets connection as the TCPIP/SOCK communication type but implements a bi-directional communication channel with the printer engine using the PJL (Printer Job Language) job management language. PJL is a job management language supported by most HP compatible printers, that resides over the Page Description Languages like PCL and postscript. Using PJL commands, it is possible to establish a two-way conversation with the printer and receive direct feedback about the device status, job status, and current pages printed. The TCPIP/PJL communication type provides the most sophisticated control of print delivery, including guaranteed delivery of each page to the output hopper, checkpoint restart in the event of a failure, and full device status information (i.e. page jam, load paper, etc.)

TCPIP/SECURE - The Secure protocol provides for the encryption of print data from VPSX to printers supporting decryption. This protocol uses the same PJL control commands as the TCPIP/PJL communication type but with the added benefit on data encryption. (Note: The printer must be fitted with a suitable decryption feature.)

TCPIP/SOCK - The direct sockets protocol is only supported by network-attached printers and provides a simple direct communication channel between VPSX and the printer engine. A connection is established to a special TCP/IP port (commonly 9100) supported by the network card and all data sent by VPSX is passed through directly to the printer. This protocol provides the same limited feedback as the LPD protocol.

Valid Values: None
TCPIP/IPP
TCPIP/LPD
TCPIP/LRSQ
TCPIP/MAIL
TCPIP/PJL
TCPIP/SECURE
TCPIP/SOCK

Default: TCPIP/LPD

Web page field: Host/IP address
Printer keyword: TCPHOST

This keyword defines the TCP/IP host name or IP-address associated with the remote host or printer. Host names that are not explicitly qualified with a domain name will be qualified with the default domain name specified via the TCPDMN system keyword (if specified).

Valid Values: A dotted decimal IP address or symbolic host name.

Default: None.

Web page field: Remote Port
Printer keyword: TCPRPORT

This keyword defines the TCP/IP port number that the remote device or host is using for inbound connections. The remote port number specified will depend on the communication type selected and the configuration of the remote devices or host.

Common port numbers:

COMMTYPE	Device type	Port
TCPIP/IPP	All	631
TCPIP/LPD	All	515
TCPIP/SOCK TCPIP/PJL	Lexmark HP	9100, 9102 9100,9101,9102
	IBM	2501
TCPIP/MAIL		25

Web page field: Remote Queue
Printer keyword: TCPPRTR

This keyword defines the remote queue name when using the LPD or LRS/Queue communication types or the path component of the URL for IPP devices. In both cases this represents the destination printer name as it is known at the receiving host.

For IPP devices, the keyword specifies only the path component of the device URL. For example, when defining a printer with URL http://hostname:631/ipp/port1, the TCPPRTR keyword should specify ipp/port1.

Valid Values: 1-63 characters.

Default: Printer name for communication type LPD; otherwise ‘None’.

Note: For printers using the LRSQ protocol to transfer files to another LRS server. This keyword defines the default remote queue to receive documents. This value can be overridden at the individual document level using the remote-queue spool file attribute. The remote queue name can be specified at document submission time by qualifying the local printer name with the remote queue name (e.g., localprt.remotequeue).

Web page field: SNMP
Printer keyword: SNMP

This keyword defines whether the remote device supports SNMP and specifically the Printer MIB (Management Information Base). The Printer MIB (RFC1759) defines a standard set of management information that should be maintained by the SNMP agent in a printer. The printer MIB was standardized in 1995 and has been implemented in most network cards and network attached printers. SNMP support enables VPSX to continually monitor the device, even when it is not actively printing, and display the status in the VPSX log and the Web interface. Detailed information about the current device status, console message, input trays, output hopper, language interpreters, and total pages printed can also be retrieved in response to a user request.

Note: If VPSX detects that a device does not support one of the required printer MIB fields it will disabled SNMP support for this device and issue a message to the LOG.

Valid Values: Yes/No

Default: No

Web page field: SNMP Community name
Printer keyword: SNMPCOMM

As a simple form of security, all SNMP devices can be configured with a Community name that must be specified to retrieve information from the MIB. The default Community Name is “public”. If the devices have been configured to use a different Community Name, that Community Name must be specified to be used for the devices.

Valid Values: 1-31 characters.

Default: public

Web page field: Retain time
Printer keyword: RETAIN

The keyword specifies the time, in hours, that files printed on this device should be retained after successfully printing. This keyword defines the default retention period for the device. This value can be overridden for individual spool files by specifying a retention period when creating the file using the LRSQ print submission command or by modifying the spool file attributes via the Web or SOAP API interfaces.

A retention period of zero will cause the spool file to be deleted immediately after successfully printing.

Valid Values: 0-9999 hours.

Default: 0

Web page field: Windows Driver
System keyword: DRIVER

This keyword specifies the name of the Windows printer driver that should be used by Windows IPP clients. The Windows Add-Printer-Wizard will query VPSX for the driver name during installation and will use this value to select the appropriate printer driver. If a driver name is not specified, or the driver is not available on the requesting system, the user will be prompted to select a driver from a list, or provide an alternate location to search for the driver files. Printer driver names are case sensitive and a complete list of the printer drivers provided with Windows 2000 and above can be found in file **ntprint.inf**. This file is located in the Windows directory in a subdirectory named **inf**.

Default: None.

Valid Values: Any valid Windows printer driver name.

Example: HP LaserJet 5

The above example will select the HP LaserJet 5 printer driver. **Note:** The driver name is case sensitive and must be entered as shown.

Web page field: Contact
Printer keyword: CONTACT

The keyword enables the administrator to identify a primary contact for the device that will be displayed via the Web interface.

Valid Values: 1-63 characters.

Default: None.

Web page field: Department
Printer keyword: DEPT

The keyword enables the administrator to identify the department the printer belongs to.

Valid Values: 1-63 characters.

Default: None.

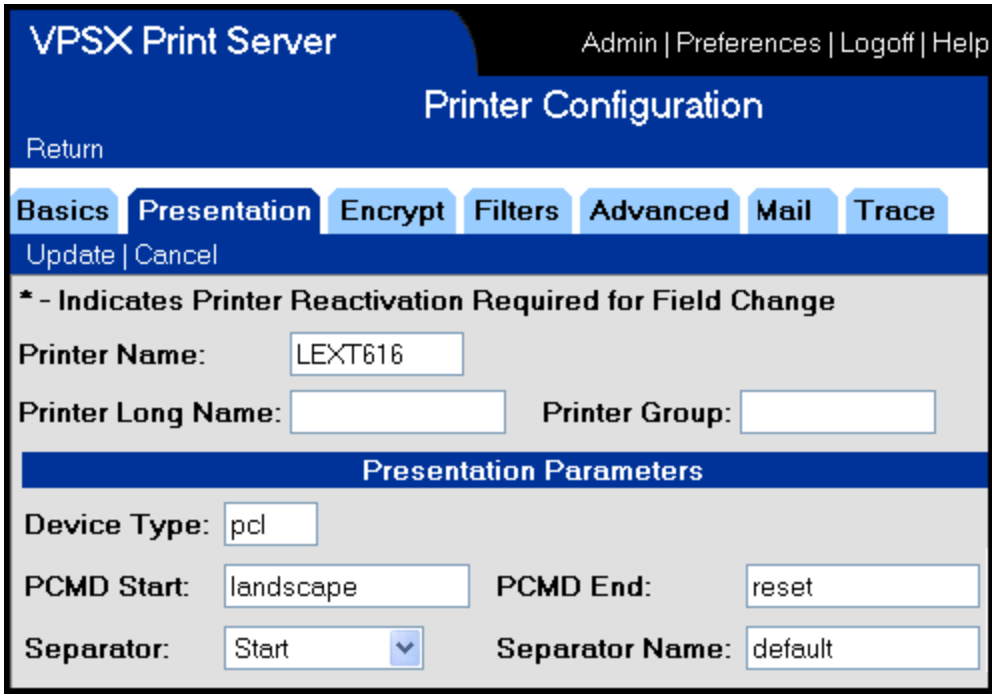
Web page field: Location
Printer keyword: LOCATION

The keyword enables the administrator to identify the location of this printer for documentation purposes.

Valid Values: 1-127 characters.

Default: None.

Presentation Parameters



Web page field: **Device type**
Printer keyword: **DEVTYPE**

The device type keyword is used to identify a generic device type for the device and is used to qualify the file names when selecting printer command files and separator page templates. For example, if a device is defined with a device type of PCL and separator page LRS is selected, VPSX will use the device type to qualify the separator page name (i.e. LRS.PCL).

This enables multiple resource files to be created for devices supporting different languages and commands.

Valid Values: 1-4 alphanumeric characters.

Default: txt

Web page field: PCMD Start
Printer keyword: PCMDSTRT

The Printer Command (PCMD) keywords can be used to send simple printer command sequences to a device before and after a document to provide simple presentation control (i.e. landscape, portrait, duplex, etc.). The PCMD processing only occurs for text spool files as binary files are assumed to already contain formatting controls. The PCMDSTRT keyword identifies a printer command file, in the directory specified via the PCMDDIR system keyword, that should be sent to the device immediately before the spool file print data. The file name specified is qualified with the printer device type (DEVTYPE keyword) to select the appropriate printer command file for the destination device.

Example:

DEVTYPE = PCL

PCMDSTRT = LANDSCAPE

This will cause VPSX to load the contents of file **landscape.pcl** and send it to the device before the print data. **Note:** The file name is converted to all lowercase.

After sending the print data, if no specific PCMDEND file has been defined, VPSX will attempt to load a file with the same name as the PCMDSTRT file but with **.end** appended to the file name. In the example above, VPSX will look for a file called **landscape.pcl.end** and, if found, will send it to the printer after the print data.

This enables definition of start command specific reset files to possibly delete a resource downloaded by the PCMDSTRT file.

The printer command file selected can be overridden for individual spool files using the FORMAT spool file attribute. This can be specified when submitting a print file using the LPR or LRSQ command by qualifying the printer name with the format name (i.e. **lpr -P PRT1/LANDSCAPE**).

Web page field: PCMD End
Printer keyword: PCMDEND

The PCMDEND keyword identifies a printer command file, in the directory specified via the PCMDDIR system keyword, that should be sent to the device immediately after the spool file print data. The file name specified is qualified with the printer device type (DEVTYPE keyword) to select the appropriate printer command file for the destination device.

Example:

DEVTYPE = PCL

PCMDEND = RESET

This will cause VPSX to load the contents of file **reset.pcl** and send it to the device after the print data. **Note:** The file name is converted to all lowercase.

Web page field: Separator
Printer keyword: SEPAR

The SEPAR keyword indicates if banner pages are required for this printer by default. Individual spool files can override this default with the SEPAR spool file attribute.

Valid Values:
- **N** - No separators.
- **S** - Start separator.
- **E** - End separator.
- **B** - Both, start and end separators.

Default: **N**

Note: This keyword can be specified using VPSX symbolic variables that will be resolved at print time. Refer to Appendix B for a list of available variables.

Web page field: Separator name
Printer keyword: SEPNAME

The SEPNAME keyword identifies the separator page template file, in the directory specified via the SEPARDIR system keyword, that should be used to generate a separate page for this device. The file name specified is qualified with the printer device type (DEVTYPE keyword) to select the appropriate separator template for the destination device.

Example:

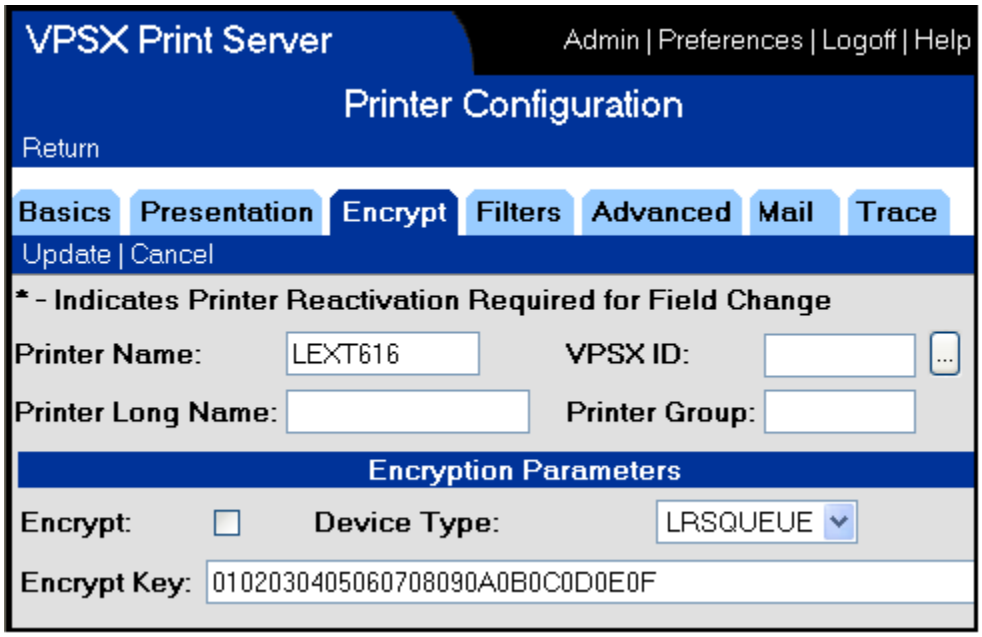
DEVTYPE = PCL

SEPNAME = DEFAULT

This will cause VPSX to load the separator page template with filename **default.pcl**. **Note:** The file name is converted to lowercase.

When generating an End separator page, VPSX will attempt to locate a separate template file qualified with **.end** (i.e. **sepname.pcl.end**). If a specific end separator template has not been defined for the specified separator name, VPSX will use the default separator template for the end banners (i.e. **default.devtype.end**).

Encryption Parameters



Web page field: Encrypt
Printer keyword: ENCRYPT

The ENCRYPT keyword specifies whether encryption is required for this device. Encryption is supported for COMMTYPE of TCPIP/SECURE and TCPIP/LRSQ.

Valid Values: Yes/No

Default: No

Web page field: Device Type
Printer keyword: EDEVICE

The EDEVICE keyword indicates the type of device VPSX is communicating with and controls the type of encryption that is used.

Valid Values: HP
ISPP
LEXMARK
LRSQUEUE

Default: LRSQUEUE

Web page field: Encrypt key
Printer keyword: EKEY

This keyword specifies the encryption key that will be used to encrypt outbound print data to the device or host. The keyword can specify an explicit encryption key value or specify 'dynamic' in which case VPSX will dynamically generate an encryption key for each file. If an explicit key is specified, the key must match the key that has been configured in the device or LRS product that will receive the data.

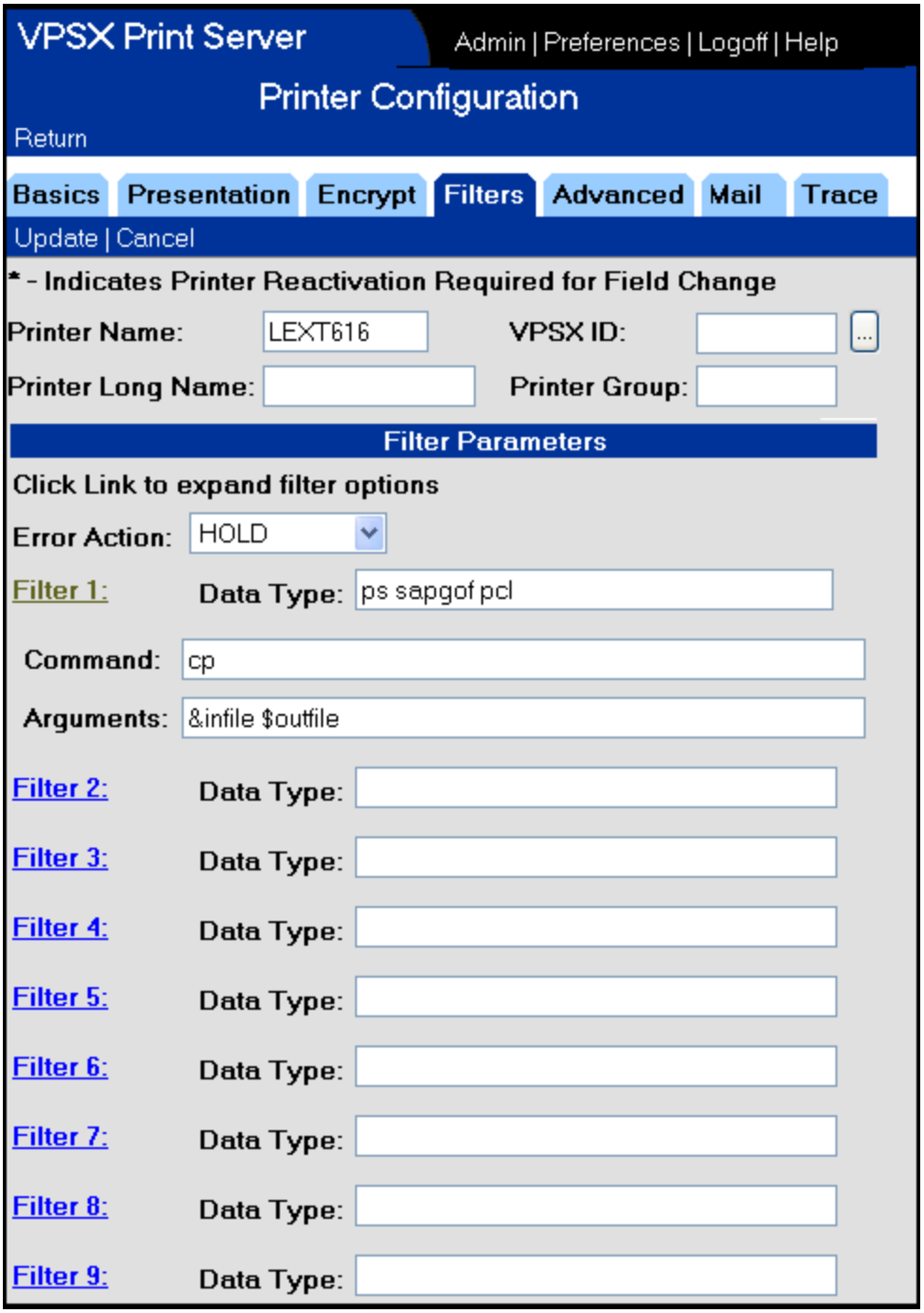
The encryption key is specified as 16, 24, or 32 character HEX bytes to indicate 128, 192, or 256 bit encryption is to be used.

Valid Values: To use an explicit encryption key the value must be specified in character hex format (i.e. 2B = 0x2B) and must consist of 16, 24, or 32 character hex bytes. To request dynamic encryption specify 'dynamic'.

Default: Dynamic

Example: EKEY = 0102030405060708090A0B0C0D0E0F

Filter Parameters



VPSX provides the ability to define up to nine data filter processes for each printer. The filter processes are triggered by the data type of the active spool file and will be executed as a separate process. The filter process will be passed an input file and will be expected to create an output file that will be delivered by VPSX to the printer. VPSX will monitor the status of the filter process and handle recovery in the event of a failure or if the filter process returns a non-zero return code. All messages issued by the filter process will be captured and issued to the VPSX log.

Web page field: Error Action
Printer keyword: ERRACTN

The error action keyword indicates the action that should be taken if a filter process fails or returns a non-zero return code.

Valid Values: **EDRAIN** - Stop the printer and set the status to error drained.

HOLD - Hold the current spool file and continue processing.

DELETE - Delete the current spool file and continue processing.

Default: Hold

Web page field: Data Type
Printer keyword: FNDTYPE

The filter data type keyword specifies the input spool file data types that should be processed by the data filter. VPSX will auto detect the data type of all spool files and will indicate the data type in the spool queue displays. The filter data type can specify one or more data types separated by a space (i.e. PCL PS). Specifying a data type of 'ALL' will cause all files to be passed to the filter process.

Valid Values: 1-63 characters indicating the data types that should be passed to this filter separated by spaces.

Default: None.

Web page field: Command
Printer keyword: FILTERN

The filter command keyword specifies the name of the executable that should be invoked by VPSX when the input data type matches one of the filter data types. The filter command can specify a binary executable or a shell script and should specify the fully qualified path to the executable, unless the command is available in the PATH for the VPSX process. If the executable requires any shared libraries, it will be necessary to export the library path in the VPSX shell script or build a wrapper shell script around the filter command that exports any required environment variables.

Valid Values: 1-255 character command string including full path.

Default: None.

Web page field: Arguments
Printer keyword: FNARGS

The filter arguments keyword specifies a template that will be used to build the arguments that will be passed to the filter command. The argument template can contain constant text and VPSX symbolic variables that will be substituted at execution time.

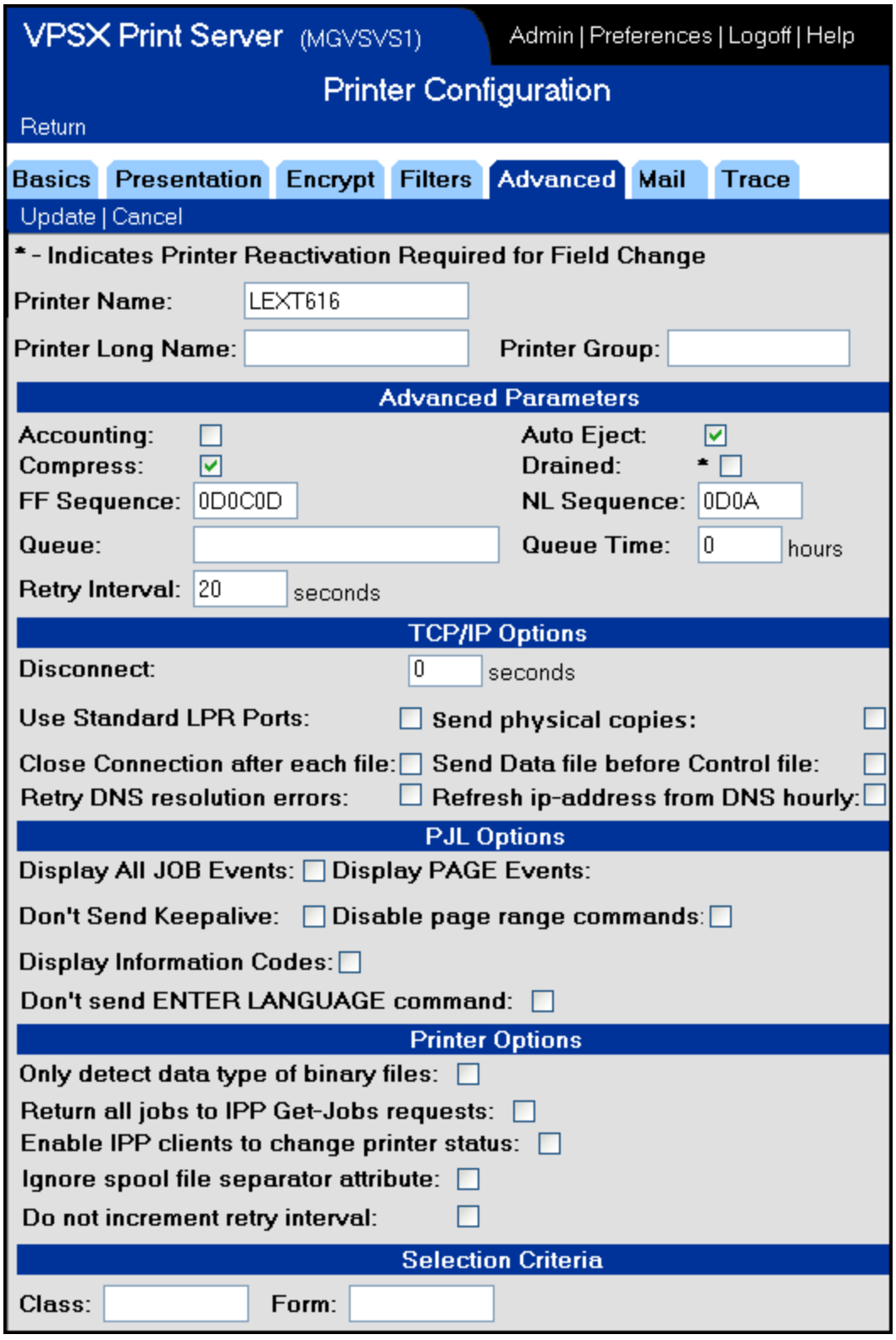
The argument template must contain the symbolic variables **&infile** and **&outfile** that identify the names of the input data file that is being passed to the filter command and the output file name that the filter must use when generating the output file.

If a filter process requires disk space for temporary work files during execution, the **&tmpdir** symbolic variable can be used to pass the location of the VPSX temporary directory that has been defined in the VPSX System configuration.

The argument template can also contain symbolic variables that provide access to spool file attributes for the currently active file or to VPSX system or printer keyword values.

For a complete list of the spool file and other symbolic variables available please refer to page B.1.

Advanced Parameters



Web page field: Accounting
Printer keyword: ACCT

The ACCT keyword indicates whether accounting is active for this printer. If accounting is enabled, VPSX will write an accounting record for every successfully printed document.

Valid Values: Yes/No

Default: No

Web page field: Auto Eject
Printer keyword: AUTOEJCT

The AUTOEJCT keyword indicates whether VPSX should automatically generate a formfeed sequence if the current document does not contain a final formfeed. This option only applies to text documents as binary documents are assumed to contain formatting controls.

Web page field: Compress
Printer keyword: COMPRESS

The COMPRESS keyword applies only to printers defined with a communication type of TCPIP/LRSQ and indicates whether VPSX should compress the data sent to the remote host.

Valid Values: Yes/No

Default: Yes

Web page field: Drained
Printer keyword: DRAINED

The DRAINED keyword indicates whether VPSX should set the initial status of the printer to DRAINED during startup. VPSX will not select any work for drained printers until the printer is explicitly started with a START command.

Valid Values: Yes/No

Default: No

Web page field: FF Sequence
Printer keyword: FFSEQ

The FFSEQ keyword defines the character sequence that should be sent to a device to eject the current page. This keyword only applies to text documents and VPSX will scan the input document for formfeed characters (0x0C) and replace them with the defined formfeed sequence. For most laser printers the formfeed character (0x0C) will cause the printer to eject the current page but will not return the cursor to the left margin on the next page. For these devices it is necessary to send a carriage return (0x0D) in addition to the formfeed character to return the cursor to the left margin on the next page.

The formfeed sequence is specified as 1-3 character hex bytes.

Valid Values: 1-3 character hex bytes.

Default: 0D0C0D

Web page field: NL Sequence
Printer keyword: NLSEQ

The NLSEQ keyword defines the character sequence that should be sent to a device to move to the next line. This keyword only applies to text documents and VPSX will scan the input document for newline characters (0x0A) and replace them with the defined newline sequence. For most laser printers the newline character (0x0A) will cause the printer to move to the next line but will not return the cursor to the left margin. For these devices it is necessary to send a carriage return (0x0D) in addition to the newline character to return the cursor to the left margin on the next line.

The newline sequence is specified as 1-3 character hex bytes.

Valid Values: 1-3 character hex bytes.

Default: 0D0A

Web page field: Queue
Printer keyword: QUEUE

The QUEUE keyword specifies the queue name that this printer should select work from. By default each printer has its own spool queue with the same name as the printer. The QUEUE parameter makes it possible to define two or more printers that share a common queue. Any output sent to the shared queue can be selected by any printer using this queue. Queue names must be unique within the VPSX configuration. If you plan to define a pool of printers, it is a good idea to define the first printer using the default queue name (printer name) and then define the additional printers specifying the QUEUE parameter with the name of the first printer. No two printers can have the same name and this ensures that the queue name is unique.

Valid Values: 1-8 alphanumeric characters

Default: Printer name

Web page field: Queue time
Printer keyword: QTIME

The QTIME keyword specifies a maximum time limit that a spool file should remain in a queue without printing. This feature is intended to stop obsolete queues or queues where the printer is no longer available from gradually filling up with spool files that will never print. By default output will remain in a queue until it is printed or explicitly purged.

Valid Values: 0-9999 Hours.

Default: 0

Web page field: Retry Interval
Printer keyword: RETRY

The RETRY keyword defines the interval, in seconds, between retries of recoverable printer error conditions. When a printer error occurs, VPSX will set the printer status to EDRAINED and will flag the error as retryable or non-retryable. EDRAINED printers with retryable error conditions will be automatically re-started after the retry interval.

To avoid excessive retry attempts, VPSX will double the retry interval after every five consecutive retry attempts.

Valid Values: 0-99999 seconds. A value of zero will disable retries.

Default: 20 seconds.

Web page field: Disconnect Interval
Printer keyword: TCPDISC

The TCPDISC keyword specifies a delay, in seconds, between disconnecting from a device and attempt to establish a new connection. Using the LPD protocol it is necessary to disconnect from the device after each print request. Some printer network cards will not accept a new connection immediately after a connection is closed and can cause the printer to go error drained. The TCPDISC keyword makes it possible to specify an artificial delay after disconnecting to circumvent this problem.

Valid Values: 0-300 seconds.

Default: 0

Web page field: TCP/IP option flags
Printer keyword: TCPOPTS

The TCPOPTS keyword specifies option flags to control specific TCP/IP processing options.

TCP/IP option flags:

0x00000001 - Use standard LPR ports. The LPD protocol (RFC1179) defines a standard range of port numbers that should be used by the sending LPR client (721-731). Standard client port numbers are not required for most LPD servers and impose an artificial restriction on the number of consecutive print requests (11) that can be sent to an LPD server within a 2 minute period.

0x00000002 - Send physical copies. This option instructs VPSX to physically send multiple copies of the document, when copies are requested, as the receiving LPD or IPP server does not honor the copies attribute.

0x00000004 - Close connection after each file. This option flag requests that VPSX close the TCP/IP connection after every individual file.

0x00000008 - Send data file first. This flag instructs VPSX to send the LPD data file before sending the LPD control file.

0x00000010 - Retry DNS resolution errors. This option instructs VPSX to treat DNS resolution errors as a retryable error condition.

0x00000020 - Refresh ip-address from DNS hourly. This flag instructs VPSX to refresh the printer's ip address from the DNS server every hour. DNS resolution will only occur when the printer has work to process.

Web page field: PJL option flags
Printer keyword: PJLOPTS

The PJLOPTS keyword specifies option flags to control specific PJL processing options.

PJL option flags:

0x00000001 - Display all job events. VPSX will issue a message to the log for all PJL job events.

0x00000002 - Display page events. VPSX will issue a message to the log each time a page is printed.

0x00000004 - Display information codes. VPSX will issue a message to the log for all device events including informational codes.

0x00000008 - Don't send keep alive. When using the TCPIP/PJL communication type, it is possible that the connection to a printer will be idle for a period of time if the printer goes offline because of a paper jam, etc. Some printer network cards will timeout any connection that is idle for a configured period. To prevent this timeout from occurring VPSX will periodically send a keep alive signal to a PJL printer to keep the connection active. This option flag will disable this keep alive signal.

0x00000010 - Disable page range command. This option will disable the use of the PJL page range keywords in the PJL START JOB command. The commands have been found to cause problems with some IBM NP21 printers. **Note:** Disabling these commands will disable page level checkpoint restarting of jobs and page range printing.

0x00000020 - Do not send the PJL ENTER LANGUAGE command to explicitly set the printers active Page-Description-Language (PDL).

Web page field: Printer Options
Printer keyword: PRTROPTS

The PRTROPTS keyword specifies option flags to control printer specific features.

Printer option flags:

0x00000001 - Only detect data type of binary files. This option will tell VPSX to only attempt to detect the data type of print files that have been explicitly submitted as Binary (i.e. LPR command with the -l filter or LRSQ command with /BIN=Y).

0x00000002 - Return all jobs to IPP Get-Jobs requests. This option tells VPSX to return jobs in both the output and retained queues to an IPP Get-Jobs request (if the requester doesn't explicitly specify the queue). This is primarily intended for Windows IPP clients and will cause the Windows queue display to show both waiting and retained jobs. This enables Windows users to reprint documents that have been retained after printing.

0x00000004 - Enable IPP clients to change printer status. This option will enable IPP clients to stop and start the VPSX printer.

0x00000008 - Ignore spool file separator attribute. This option instructs VPSX to ignore the separator attribute associated with a spool file and always use the separator page option defined in the printer definition.

0x00000010 - Do not increment retry interval. This option instructs VPSX to not increase the printer retry interval after successive failed retry attempts. By default VPSX will increase the retry period after every five unsuccessful retry attempts.

0x00000020 - Do not pass events to external command. This option instructs VPSX to not generate external command events for this device or jobs queued to this printer. By default, VPSX will generate device and job external events for all printers and files if external command notification is enabled.

Web page field: Class
Printer keyword: CLASS

The CLASS keyword specifies the classes of spool files that should be selected by this device. By default, VPSX will select the next available file for a printer. This option limits the selection to files matching the specified class(es).

Note: The printer SELECT command can be used to change the selection criteria.

Valid Values: 1-8 spool file classes that should be selected by this printer.

Default: None.

Web page field: Form
Printer keyword: FORM

The FORM keyword specifies a FORM selection criteria for a printer. VPSX will only select spool files for this printer that match the specified form name.

Note: The printer SELECT command can be used to change the selection criteria.

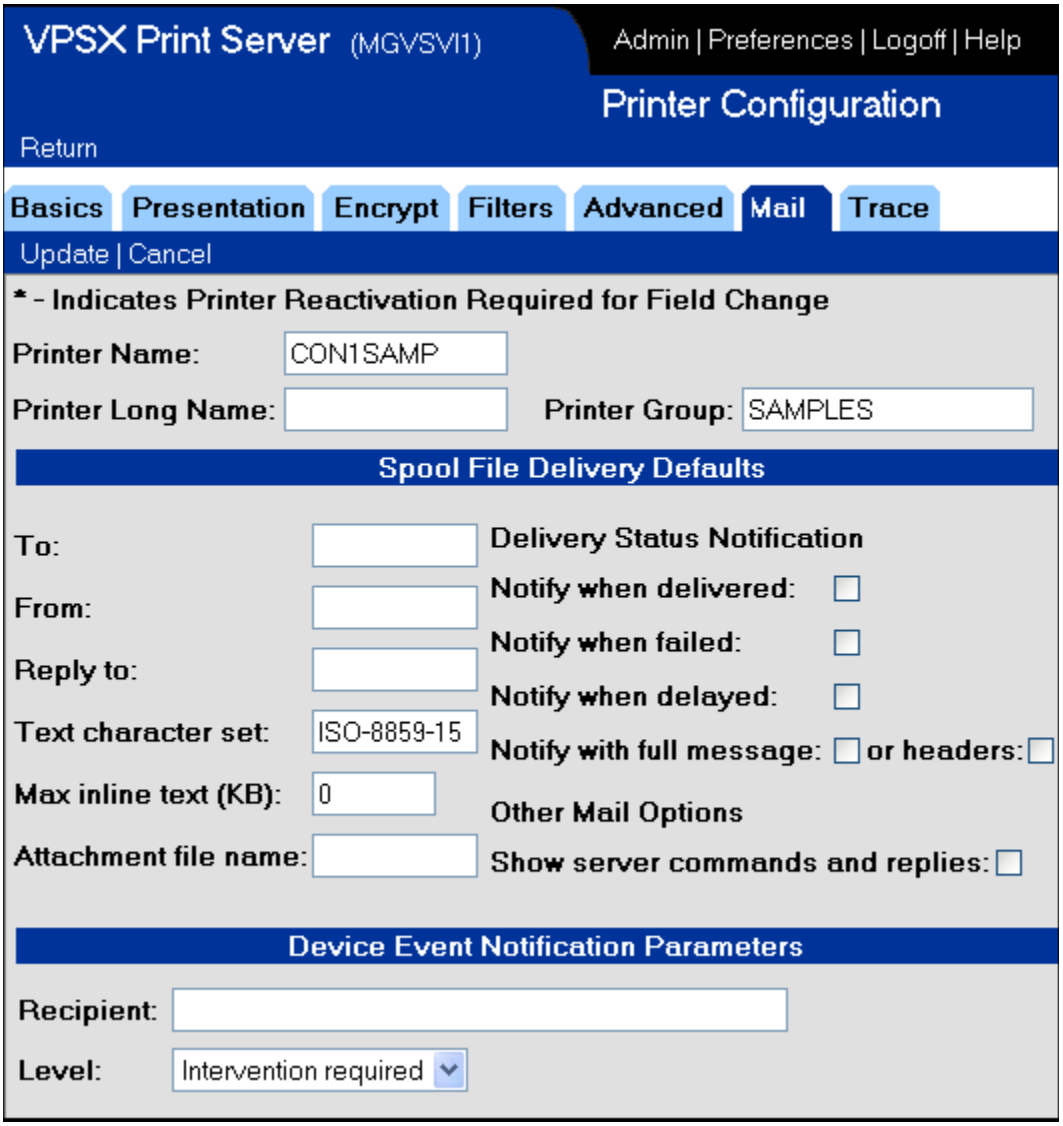
Valid Values: 1-8 character form name.

Default: None.

Mail Parameters

The MAIL parameters are divided into two separate sections.

- **Spool file delivery defaults** - These provide default mail parameters for printers using the TCPIP/MAIL communication type to deliver spool files to a mail server.
- **Device event notification parameters** - Apply to all printer types and indicate an email recipient to receive email notification of device events for this printer.



Web page field: To
System keyword: MAILTO

The MAILTO keyword specifies the default email recipient for spool files that do not have an explicitly MAILTO attribute value. Individual spool files can override this value using the LRSQ **/mailto** argument. Refer to "LRSQ Command" on page 3.61 for details

Valid Values: One or more email addresses separated by a semi-colon.

Default: None.

Web page field: From
System keyword: MAILFROM

The MAILFROM keyword specifies the default sending email address for spool files that do not have an explicitly MAILFROM attribute value. Individual spool files can override this value using the LRSQ **/mailfrom** argument. Refer to "LRSQ Command" on page 3.61 for details.

Valid Values: One or more email addresses separated by a semi-colon.

Default: None.

Web page field: Reply to
System keyword: REPLYTO

The REPLYTO keyword specifies the default reply address for spool files that do not have an explicitly REPLYTO attribute value. Mail clients will use the sending (FROM) email address when replying if an explicit replyto value is not specified. Individual spool files can override this value using the LRSQ **/mailreply** argument. Refer to "LRSQ Command" on page 3.61 for details.

Valid Values: One or more email addresses separated by a semi-colon.

Default: None.

VWeb page field: Text character set
System keyword: MAILCSET

The MAILCSET keyword identifies the default character set that should be used by the receiving mail client when displaying text in the body of an email. Individual spool files can override this value using the LRSQ **/mailcharset** argument. Refer to "LRSQ Command" on page 3.61 for details.

Valid Values: Any valid character set name.

Default: ISO-8859-1

Web page field: Max inline text
System keyword: MAILSIZE

The MAILSIZE keyword applies only to text spool files and defines the maximum size, in Kilobytes, that should be included inline (in the body of the email). Text documents over this size will be sent as an attachment. Specifying a value of zero will cause all text files to be sent as attachments.

Valid Values: 0 - 99,999 Kilobytes

Default: 0

Web page field: Attachment file name
System keyword: MAILFNAM

The MAILFNAM keyword specifies the default name that should be used for file attachments. This keyword can specify a constant value or a symbolic spool file variable that will be dynamically replaced by the value of the spool file attribute (i.e. &title will be replaced with the Title attribute associated with the current spool file). Individual spool files can explicitly set this value using the LRSQ **/mailfile** argument. Refer to "LRSQ Command" on page 3.61 for details. If the spool file does not specify a file attachment name, and no default is defined for the printer, the originating file name will be used or the spool file number if no file name is available.

Valid Values: 1-60 byte constant or symbolic spool file variable (refer to Appendix B, "Spool Attribute Substitution Variables" on page B.1 for details).

Default: None (spool file originating file name or spoolid will be used).

Web page field: Delivery Status Notification
Printer keyword: MAILOPTS

The MAILOPTS keyword specifies option flags to control specific MAIL processing options. The first five option flags control Mail Delivery Status Notification (DSN). This is an optional feature that is implemented by most MAIL servers and allows the sender to indicate that they would like to receive status feedback from the MAIL server of the delivery status of their emails. Delivery status information will be returned in the form of an email to the sender and can include either the mail headers or the entire contents of the original email.

MAIL option flags:

0x00000001 Notify when delivered. Indicates that the sender would like to receive notification when the email has been delivered.

0x00000002 Notify when failed. Indicates that the sender would like to receive notification if delivery fails.

0x00000004 Notify when delayed. Indicates that the sender would like to receive notification if the email is delayed.

0x00000008 Notify with full message. Indicates that status notifications should include the full contents of the original email.

0x00000010 Notify with headers only. Indicates that status notifications should include only the headers of the original email.

0x00000020 Show server commands and replies. Indicates that the SMTP commands and responses should be displayed in the VPSX log for diagnostic purposes.

Web page field: Recipient (Device event notification)
System keyword: NOTMAIL

The NOTMAIL keyword specifies an email address that should receive status notifications for device related events. Device event notification can be requested for any printer type and is not related to the email delivery of spool files keywords described above. The email notification recipient will receive status information for this device irrespective of the owner of the spool files being printed and is intended to enable the primary printer operator to receive notification of device specific problems. Users submitting spool files can also request job related event notifications using the LRSQ submission command (**/notmail** keyword) or IPP interface which is independent of the device notification options.

Note: The email notification feature must be enabled in the VPSX system configuration options (MAIL and MAILHOST keywords).

Valid Values: 1-60 byte email address.

Default: None**.**

Web page field: Level (Device event notification)
System keyword: NOTLEVEL

The NOTLEVEL keyword specifies the event notification level requested for this device. Email notification of device events 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.

Notification levels:

1 - Errors requiring operator action (i.e. load paper, paper jam).

2 - Error not requiring operator action (i.e. retryable errors).

3 - Print Completion.

4 - Status changes (i.e. printer stop/started, etc.).

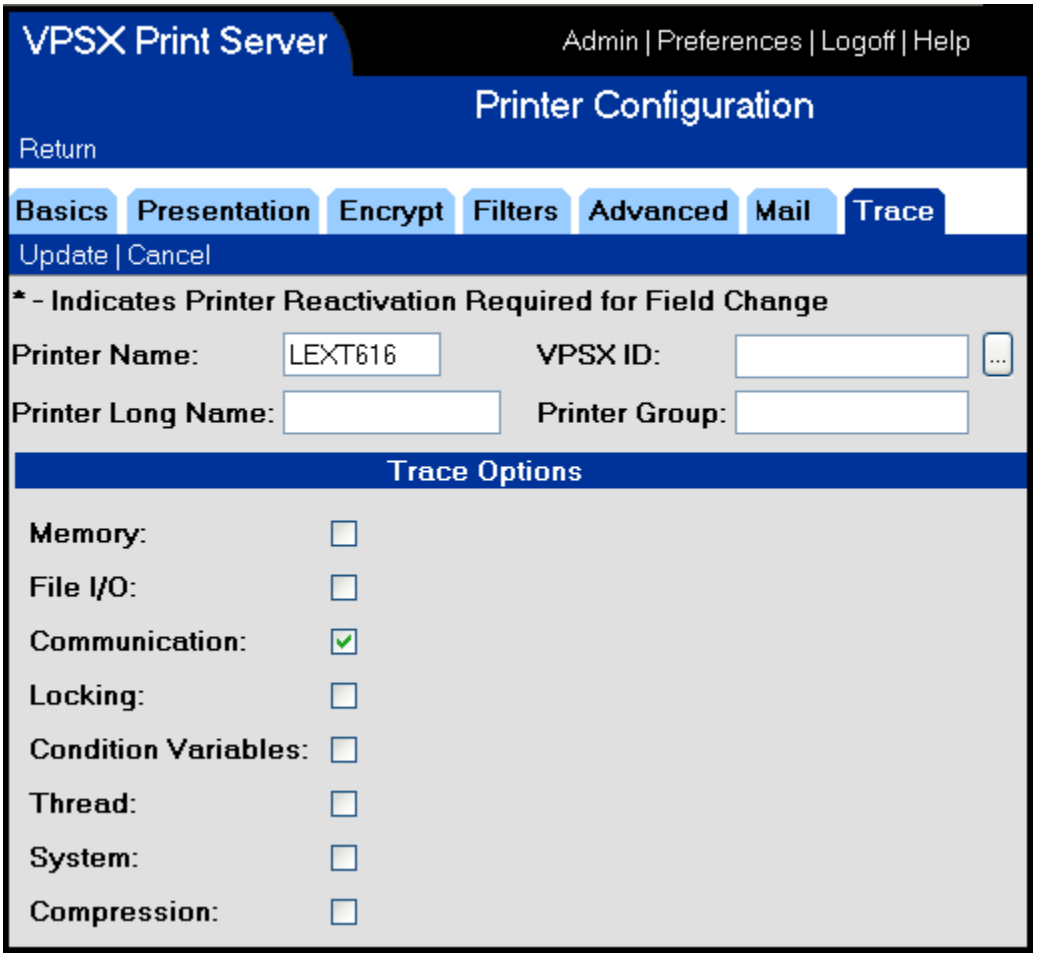
5 - All status events.

Note: The email notification feature must be enabled in the VPSX system configuration options (MAIL and MAILHOST keywords).

Valid Values: 1-5

Default: 1 (error requiring operator action).

Trace Parameters



Web page field: Trace options
Printer keyword: TRACE

This keyword specifies the tracing flags that control the level of trace information that is generated by VPSX for this printer. The trace options are specified as 1-8 hex bytes and each bit relates to a specific trace flag. The tracing flags control the level of tracing required.

Tracing flags:

00000001 - Memory.
00000002 - File I/O.
00000004 - Communication.
00000008 - Lock and Mutex processing.
00000010 - Condition variables.
00000020 - POSIX thread functions.
00000040 - System level trace events.
00000080 - Compression.
00000100 - Web Services API.
00000200 - Database functions.

LRSQ Command

LRSQ is a command line interface that can be used to submit, query, and delete print requests to the VPSX print server. The LRSQ command is available for most platforms and provides additional control over the spool file attributes assigned to print requests. The LRS/Queue interface also provides data compression between the client and the VPSX print server.

The LRSQ command for UNIX platforms is executed via the **LRSQ** shell script located in the installation directory; for Windows platforms the **NLRSQ.EXE** executable is provided.

LRSQ command arguments can be specified directly via the command line or can be read from a parameter file. Installation defaults can also be specified in a special parameter file called **LRSQDFLT** located in the product installation directory. An alternate location for the **LRSQDFLT** file can be specified by setting the fully qualified path in the LRSQDFLT environment variable.

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 {Spool file attribute keywords}

{Query or Cancel keywords}

LRS/Queue keywords can be saved in a parameter file with one keyword per line and referenced via the /parmfile=xxx keyword. Any keywords specified in the **LRSQDFLT** parmfile in the installation directory will be used as keyword defaults unless explicitly overridden via the command line.

Required Keywords

Name	Alias	Description
/port	/p	Specifies the remote port number that VPSX has opened for inbound LRS/Queue connections (TCPPORTQ system keyword).
/server	/s	Specifies the IP address or host name of the target VPSX print server.

Operational Keywords

Name	Alias	Description
/?	None	Display help information.
/AltServer	/AS	Alternate IP address or host name of a machine executing VPSX. If LRSQueue cannot connect to VPSX 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 VPSX for connection requests. If LRSQueue cannot connect to VPSX that is listening on the port number specified by the /Port keyword, it will try to connect to this alternate port number.
/Compress	/cmp	Indicates whether the print data should be compressed for transmission to the VPSX server. **Valid value:** Y/N **Default:** Y
/Encrypt	/enc	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.) **Valid value:** Y/N **Default:** N
/File	None	Specifies the file to be submitted. **Valid value:** Input file path. **Default:** None
/Logfile	/Log	Specifies the name of a log file that should receive all messages from the LRS/Queue execution.
/Parmfile	/pfl	Specifies the name of a parameter file that contains additional LRS/Queue keywords that should be processed in addition to the command line arguments. When coding LRS/Queue keywords in a parameter file, the keyword syntax is exactly the same, but only one keyword can be specified per line. LRS/Queue will look for a default parmfile called **LRSQDFLT** in the installation directory. If an **LRSQDFLT** file exists, 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>**. **Valid value:** Parameter file path. **Default:** None

Name	Alias	Description
/Queue	/Que	This keyword specifies the name of the VPSX printer that will receive the document. The printer name can be qualified with a remote queue name if the target VPSX printer definition has been configured to forward documents to another LRS server. The remote queue name is specified in the form 'localprt.remotequeue'. If you wish to control the printed presentation of text documents the printer name can also be qualified with a VPSX format name. This name will be used to select the printer command file that should be used to control the presentation of the output. **Example:** **/Queue=PRT1** VPSX printer name. **/Queue=PRT1.RMTQUEUE** Name qualified with remote queue. **/Queue=PRT1/LANDSCAPE** Name qualified with format name. **Valid value:** 1-32 character printer name with optional remote queue and format name. **Default:** None.
/Removelff	/rlff	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. **Valid value:** Y/N **Default:** N
/TabSize	None	This keyword is not supported in VPSX.
/TabStop	None	This keyword is not supported in VPSX.

Spool Attribute Keywords

Name	Alias	Description
/AFPDS	None	Specifies to input the print file as AFPDS. **Value value:** Y/N **Default:** N
/Binary	/Bin	Specifies that the input file contains binary data which should not be translated. VPSX will auto detect the data type unless the **/filetype** keyword is explicitly specified. **Valid value:** Y/N **Default:** N
/Class	/c	Spool file class. **Valid value:** Single alpha-numeric character. **Default:** A
/Copies	/cpy	Specifies the number of copies required. **Valid value:** 1-255 **Default:** 1
/Filetype	/ftyp	Identifies the spool file data type of the binary file (i.e. PCL, PS, AFP, etc.). If this keyword is not specified, VPSX will automatically detect the data type. **Valid value:** 1-3 characters. **Default:** None.
/Form	/f	Form name used to control selection of spool files. **Valid value:** 1-8 characters. **Default:** None.
/FORMDEF	/FMD	AFP FORMDEF name. **Valid value:** 1-6 characters. **Default:** None.
/Hold	/hld	Indicate the initial hold status of the spool file. **Valid value:** Y/N **Default:** N
/Jobname	/j	Job name. **Valid value:** 1-8 characters. **Default:** None.
/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 value:** 1-32 email addresses separated by a semi-colon. **Default:** None.

Name	Alias	Description
/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 value:** 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 value:** 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 value:** 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 value:** 1-60 byte email address. **Default:** None. (Default sender will be taken from VPSX printer definition.)
/Mailreply	/mrply	Specifies an email address that should be used as the email reply-to address for this document. **Note:** This parameter is only valid when sending documents to a VPSX printer defined for email delivery. **Valid value:** 1-60 byte email address. **Default:** None. (Default reply-to will be taken from VPSX printer definition.)

Name	Alias	Description
/Mailto	/mto	Specifies 1-32 email addresses that will be used as the primary recipient for this document. **Note:** This parameter is only valid when sending documents to a VPSX printer defined for email delivery. **Valid value:** 1-32 email addresses separated by a semi-colon. **Default:** None. (Default recipient will be taken from VPSX printer definition.)
/Notlevel	/nlevl	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. **Notification levels:** 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. **Valid value:** 1-5 **Default:** 1 (Errors requiring operator action.)
/Notmail	/nmail	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. **Valid value:** 1-60 byte email address. **Default:** None.
/Pagecount	None	Explicitly specifies the number of pages in the document being submitted. If specified, this value will override any page count calculated by VPSX. **Valid value:** 0 - 4294967295 **Default:** 0
/Prty	None	Spool file priority. **Valid value:** 1-255 (255 = high). **Default:** 10
/Retains	/rts	Specifies the number of hours this document should be retained in the spool after printing. Retained documents can be re-printed or re-queued to other devices. **Valid Value:** 0 - 9999 hours **Default:** The default retention period is defined in the VPSX printer definition.

Name	Alias	Description
/Separator	/Sep	Indicates whether separator pages are required for this output. **Valid value:** **N** - No separators. **S** - Start separators. **E** - End separators. **B** - Both start and end separators. **Default:** None. Printer defined separator value will be used.
/Title	ttl	Spool file title to be displayed on the separator page. **Valid value:** 1-60 characters. **Default:** None.
/UDATA1 - 16	/UD1 - 16	16 user data fields containing any text information. **Valid value:** 0-64 characters. **Default:** None.

Query and Cancel Keywords

Name	Alias	Description
/Query	None	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 VPSX report tracking token. This consists of the VPSX printer name and the VPSX spool file identifier assigned to the report (e.g., PRINTER:123). The spool file identifier 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 VPSX printer name.
/Cancel	/Can	This keyword is used to cancel a previously submitted print request. The Cancel keyword must specify a VPSX report tracking token. This consists of the VPSX printer name and the VPSX spool file identifier assigned to the report (e.g., PRINTER:123). The spool file identifier is returned by the submit request or can be displayed by querying the output queue.

LRSLPR Command

The **LRSLPR** command is a sample LPR client that can be used to submit print requests to the VPSX print server using the LPR/LPD protocol. The command implements the standard LPR arguments but has the advantage that a remote LPD port other than 515 can be specified.

Syntax:

```
lrslpr -P <print queue>
       [-S <server:port>]
       [-C <classification>]
       [-J <job name>]
       [-l]
       [-h]
       Filename
```

Argument	Description
-P	Name of printer on the VPSX server. The printer name can also be qualified with the format name to indicate the printer command file that should be used to control the presentation of text output (i.e. PRT1/LANDSCAPE).
-S	Remote server name or IP address and port number. If the server name is omitted, 127.0.0.1 will be used; if port is omitted, 515 will be used. If the port is specified, it is separated from the server name by a colon.
-C	Classification to be printed on the separator page.
-J	Job name to be printed on the separator page.
-l	Indicates a binary file which will not be formatted before printing.
-h	Displays usage only.
Filename	Name of the file to be printed.

Controlling the Presentation of Text Reports

VPSX provides a technique to control the presentation of text based reports during delivery to the printer. The **PCMD** (Printer Command) printer definition keywords provide the ability to identify a file containing printer initialization commands that should be sent to the device before and after the print data.

Any number of printer command files can be created in the directory identified by the **PCMDDIR** system initialization keyword and can be selected via a combination of the **DEVTYPE** and **PCMDSTRT** or **PCMDEND** printer keywords.

The **DEVTYPE** printer keyword identifies a generic device type that is used to qualify the file names when selecting printer command files for this device.

For example, if a device is defined with a device type of PCL and printer command file landscape is requested, VPSX will use the device type to qualify the printer command file name (i.e. landscape.pcl).

The **PCMDSTRT** and **PCMDEND** printer keywords identify the default printer command files that should be used when delivering text reports to a printer. The **PCMDSTRT** keyword in combination with the **DEVTYPE** value identifies the commands that should be sent immediately before the print data, and the PCMDEND keyword defines any reset commands that should be sent immediately after the print data.

The printer command file used for an individual spool file can be overridden by specifying the **FORMAT** spool file attribute. The **FORMAT** attribute can be specified during print submission by qualifying the printer name with the required format.

Example:

lrsq /queue=PRT1/LANDSCAPE /file:print.txt

or

lrslpr -P PRT1/LANDSCAPE print.txt

The format attribute can also be modified via the Web interface.

The following sample printer command files are provided to control the presentation of output on PCL compatible devices.

PCMD file name	Description
ls132x60a4.pcl	Landscape, Simplex, 132 characters by 60 lines A4 paper.
ld132x60a4.pcl	Landscape, duplex, 132 characters by 60 lines A4 paper.
ls132x66a4.pcl	Landscape, Simplex, 132 characters by 66 lines A4 paper.
ld132x66a4.pcl	Landscape, Duplex, 132 characters by 66 lines A4 paper.
ls132x60ltr.pcl	Landscape, Simplex, 132 characters by 60 lines Letter paper.
ld132x60ltr.pcl	Landscape, duplex, 132 characters by 60 lines Letter paper.
ls132x66ltr.pcl	Landscape, Simplex, 132 characters by 66 lines Letter paper.
ld132x66ltr.pcl	Landscape, Duplex, 132 characters by 66 lines Letter paper.
ps85x60a4.pcl	Portrait, Simplex, 85 characters by 60 lines A4 paper.
pd85x60a4.pcl	Portrait, Duplex, 85 characters by 60 lines A4 paper.
ps85x66a4.pcl	Portrait, Simplex, 85 characters by 66 lines A4 paper.
pd85x66a4.pcl	Portrait, Duplex, 85 characters by 66 lines A4 paper.
ps85x60ltr.pcl	Portrait, Simplex, 85 characters by 60 lines Letter paper.
pd85x60ltr.pcl	Portrait, Duplex, 85 characters by 60 lines Letter paper.
ps85x66ltr.pcl	Portrait, Simplex, 85 characters by 66 lines Letter paper.
pd85x66ltr.pcl	Portrait, Duplex, 85 characters by 66 lines Letter paper.
reset.pcl	PCL reset sequence.

Example:

To set a default presentation for text reports to Portrait, Simplex, 85 characters by 60 lines on A4 paper the following printer keywords should be specified:

DEVTYPE=PCL

PCMDSTRT=ps85x60a4

PCMDEND=reset

To print an individual spool file using an alternate presentation of Landscape, duplex, 132 characters by 66 lines on A4 paper the required format can be selected by qualifying the printer name with the format name (i.e. prt1/ld132x66a4).

Defining Command Specific End Commands

If the printer command file used to initialize a printer downloads any resources it may be necessary to send specific commands to delete the resources and reset the printer environment. To handle this requirement it is possible to create a specific **end command file** to be used in combination with the **start command file**. Before using the reset file defined via the **PCMDEND** keyword, VPSX will first check for a printer command file with the same name as the start file name but with '**.end**' appended.

For example: If a printer command file called **download.pcl** is specified for the start file, VPSX will first look for a file called **download.pcl.end** before using the default reset sequence defined via the **PCMDEND** keyword.

Separator Pages

VPSX provides the ability to generate separator pages before and after each document. The separator pages are generated using templates located in the **SEPARATOR** directory defined via the **SEPARDIR** system initialization keyword. VPSX provides two sample separator templates for PCL and TEXT devices.

Sample Separator templates

Name	Description.
Default.txt	Sample text based separator page.
Default.pcl	Sample PCL separator page.

The separator template used by a printer is selected via the **SEPNAME** printer keyword. This name is then qualified with the value of the **DEVTYPE** keyword to build the full file name.

Example:

DEVTYPE=PCL

SEPNAME=default

The above printer definition keywords will select a separator page template called **default.pcl**.

The types of separators generated are controlled via the **SEPAR** printer keyword which defines the default separators required for this device (None, Start, End or Both). Individual spool files can then override this value via the **SEPAR** spool file attribute that can be specified using the LRSQ command or can be modified via the Web interface.

When building an end separator page, VPSX will check for a special end template by appending '**.end**' to the file name (i.e. default.pcl.end). If a specific **end** separate template is found, it will be used to create the separator page; otherwise the same template will be used to generate both the **start** and **end** separators.

Customizing Separator Page Templates

The separator page templates contain constant data and VPSX symbolic variables that are replaced dynamically with the associated spool file attributes at print time. The symbolic variables can occur anywhere within the template.

Example Separator Template File

```
*****************************************************************
*                                                               *
*  VPSX Print server                                            *
*                                                               *
*****************************************************************

  Jobname : <?JOBNAME>

  Owner   : <?OWNER>
  Host    : <?HOST>
  Title   : <?TITLE>
  Filename: <?FILENAME>
  Class   : <?CLASS>
  Form    : <?FORM>
  Bytes   : <?BYTES>
  Copies  : <?COPIES>
  Prty    : <?PRIORITY>

  Created : <?CTIME>
  Printed : <?STIME>
  Printer : <?PRINTER>

  Retained for: <?RETAIN> Hours
```

The VPSX symbolic variables imbedded in the template must be prefixed with the less-than and question mark characters (<?) and terminated with the greater-than symbol (i.e. <?owner>).

For a complete list of symbolic variables that can be included in a separator page template, please refer to page B.1.

The example separate template shown above contains only simple text data but it is possible to create separator page templates containing PCL, Postscript, or any other printer language.

VPSX/OutputManager for SAP R/3

VPSX/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 VPSX to 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.

VPSX/OutputManager implements the following features of the BC-XOM standard:

- Report submission.
- Callback Interface for Output status notification.
- Callback Interface for Device status notification
- Operations Supplement (Queue Query, Output query, and report cancellation).
- Multilingual support.

VPSX/OutputManager for SAP R/3 has been designed to provide a highly scalable 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 VPSX print server 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 VPSX 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.

Once a print request is submitted to VPSX/OutputManager, no further processing is required on the SAP R/3 server. VPSX 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 provide notification 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. VPSX/OutputManager also relays all device status information back to the SAP R/3 environment, enabling users and administrators to access the current status of all devices even while they are not actively printing.

Install SAP R/3 RFC Communication API

VPSX/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 VPSX and SAP R/3 servers.

The SAP RFC API is available as a shared library called **LIBRFCCM** and it is required that this library be available on the host that will execute the VPSX process. The installation material for the SAP RFC API software development kit is provided on the 'Presentation CD2' that is shipped with the SAP R/3 installation material. The latest RFCAPI libraries are also available for download from the SAP Service Marketplace.

To download the latest RFC API software development kit:

- Log on to the SAP Service Market Place SAP Support portal.
- Choose the **downloads** link to access the SAP Software Distribution Center.

  Support Packages and Patches.

  Entry by Application Group

  SAP NetWeaver.

  SAP NetWeaver components.

  SAP Web AS.

  SAP Web AS 6.20.

  SAP RFC SDK.

The download files are packaged as SAP Archive files (.SAR). After downloading the appropriate Software Development Kit for your execution platform the package can be expanded using the SAPCAR utility. (SAPCAR is a SAP-provided utility that can also be downloaded from the Web site.)

Example:

sapcar -xvf RFC_32-10002220.SAR

After executing the above command an **RFCSDK** directory will be created. The **LIBRFCCM** library can be found in the **/rfcsdk/lib** subdirectory. To make this library accessible to the VPSX process, the appropriate library path must be exported in the VPSX execution shell script. If you use the Fast-Configure shell script to create the VPSX runtime environment you will be prompted for the SAP RFC API library location and the VPSX execution shell script will be updated automatically.

Define a SAP R/3 User ID

VPSX/OutputManager requires a SAP R/3 user ID 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 user ID must be authorized to establish an RFC connection to the SAP R/3 system and to log on 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 user ID:

1. From the SAP R/3 main menu select:

Tools

Administration

User Maintenance

Users (SU01)

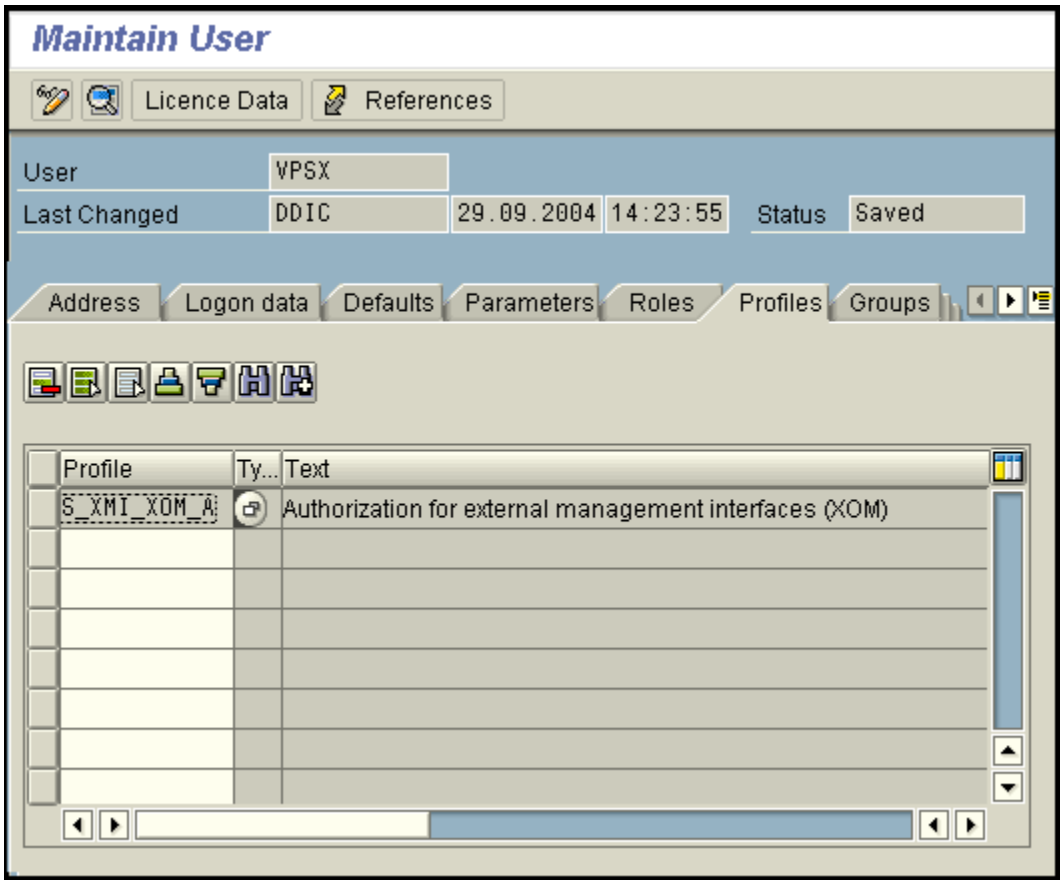
2. Enter a user ID for VPSX/OutputManager and press **F8** to create a new user.

Enter VPSX/OutputManager in the **Last Name** field.

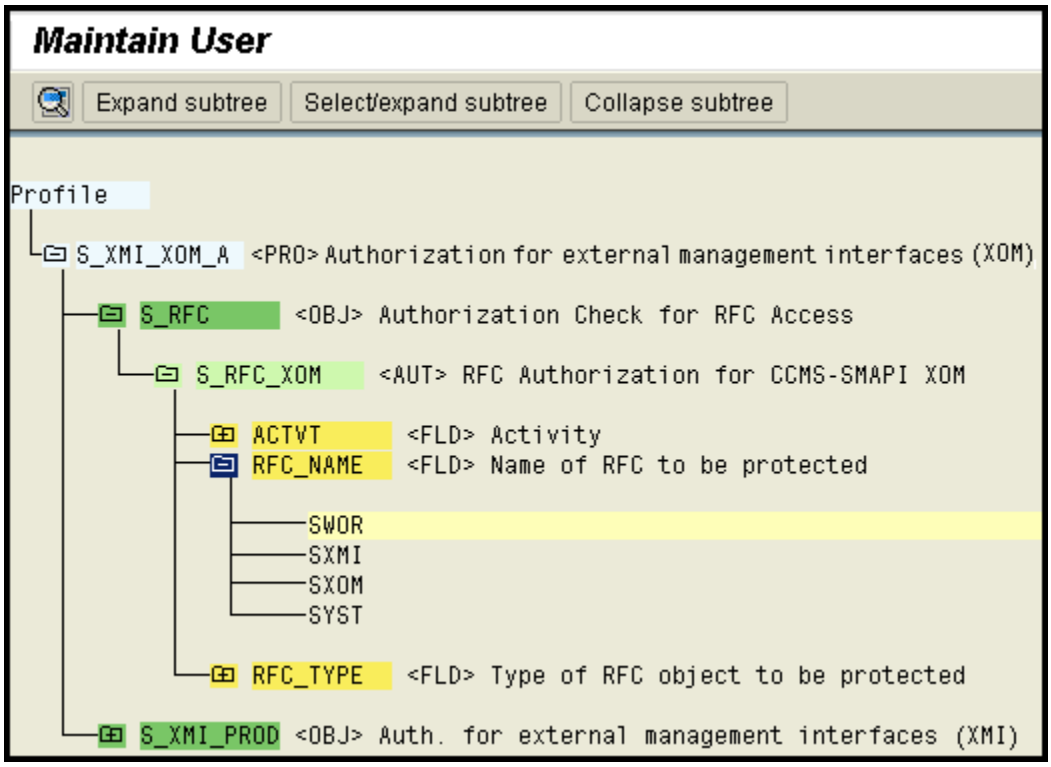
Select the **Logon Data** tab and enter an initial password.

Select a **User Type** of **System**.

Select the **Profiles** tab and add the S_XMI_XOM_A profile.



With some versions of SAP, the S_XMI_XOM_A security profile is missing a required authority. By clicking on the S_SMI_XOM_A profile name in the previous user administration display, it is possible to expand the permissions granted by this profile.



If your security profile is missing the SYST - RFC_NAME then it will be necessary to manually add this RFC name to the profile.

The SYST RFC name can be added as follows:

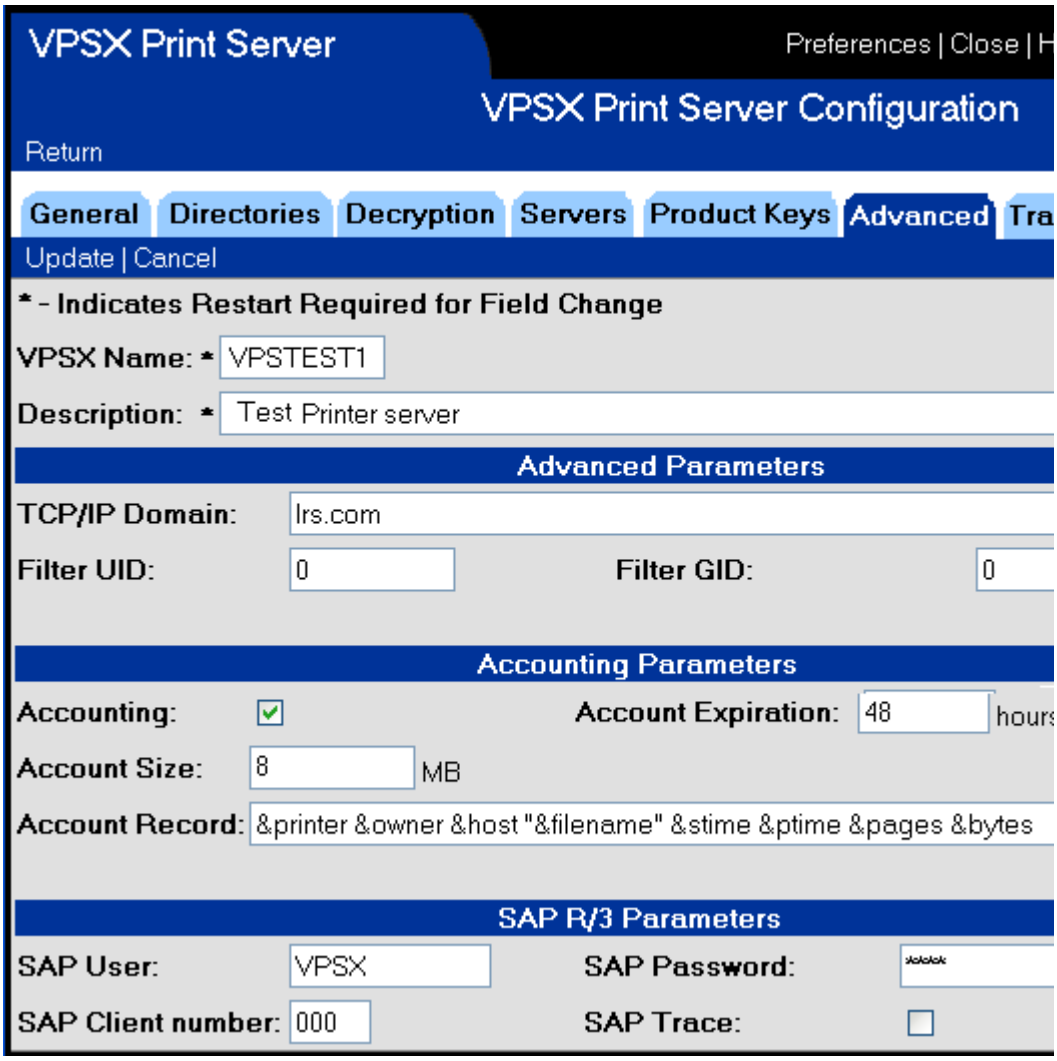
- Enter transaction SU03 “Maintain Authorizations: Object Classes”.
- Select ‘AAAB’ “Cross-Application Authorization Objects” and click “List authorizations”.
- Select ‘S_RFC’ from the object list.
- Locate ‘S_RFC_XOM’ in the authorization list and double-click.
- In the “Maintain Authorizations” screen it will display the current RFC names (SWOR,SXMI,SXOM); double-click on the names to add the SYST RFC name.
- Return to the “Authorizations list” and select the ‘S_RFC_XOM’ object that isn’t flagged as active and click on the Activate button (F7).

Update the VPSX Configuration

After defining the SAP user ID and password that will be used by VPSX/OutputManager for callback notification, it is necessary to update the VPSX System Configuration with the user details.

To access the VPSX System Configuration screen:

- Select ‘Admin’ from the VPSX printer list display and choose ‘VPSX Admin’.
- Check the box next to VPSX server in the VPSX List display.
- Click on the ‘Configure’ link.



Note: If different login credentials are required for specific SAP systems, a ‘saplogin’ configuration file can be used. Please refer to the description of the SAPUSER system keyword on page 3.25 for details.

Installing the LRS/Queue Client

The LRS/Queue client is a command line interface that is used to communicate with VPSX to process report submission, output queries, and cancel requests. This is the only software component that must be installed on the SAP R/3 spool servers that will be using the VPSX/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**. Since 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 VPSX/OutputManager interface. (By default the LRS/Queue client will be installed in to directory **/usr/lrs/lrsq.**)

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 "LRSQ Command" on page 3.61.

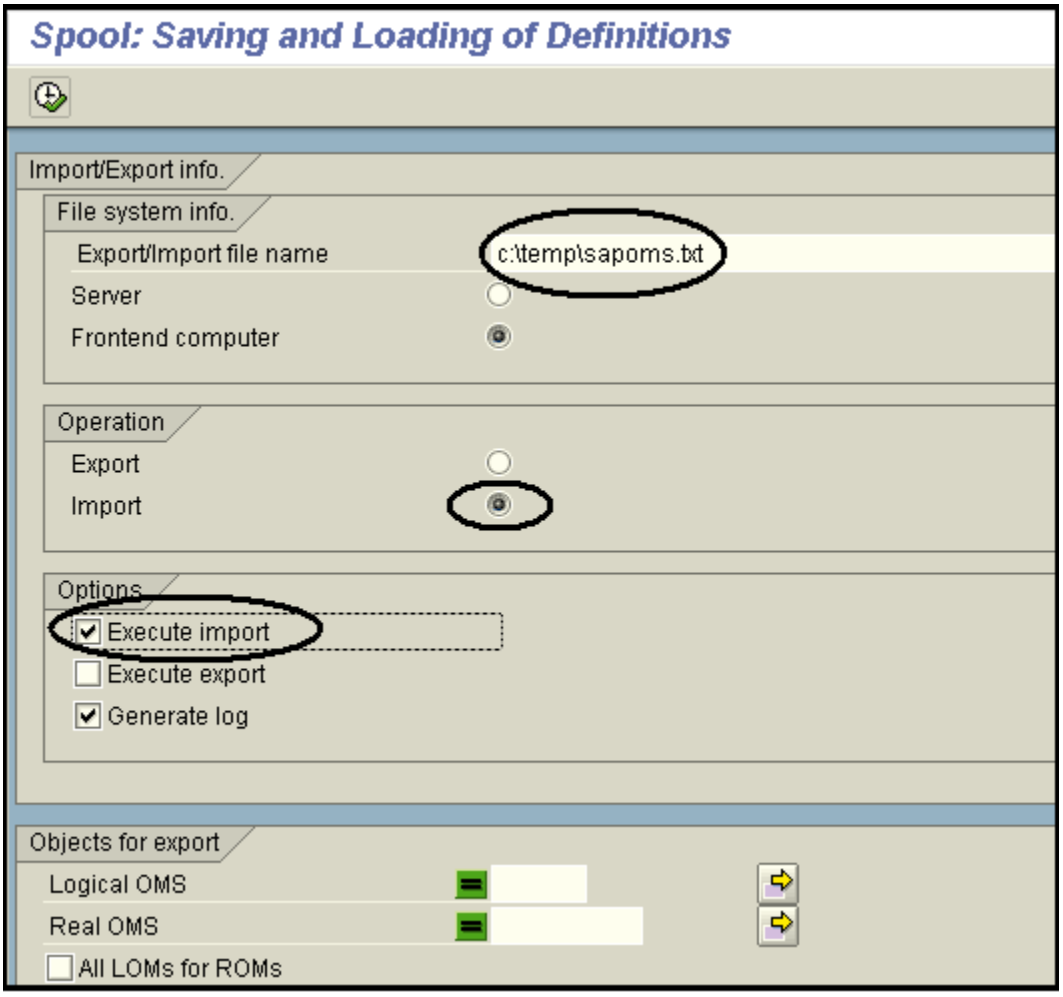
Define VPSX/OutputManager to SAP R/3

The VPSX/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 ROMS definition:** This is a Real Output Management System definition and identifies a specific VPSX print server and defines the basic characteristics of 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.

Import Sample OMS Definitions

To simplify the installation process, the Fast-Configure shell script will have created a customized set of OMS definitions that can be imported directly into SAP. The import file is called **SAPOMS.TXT** and will have been created in the directory identified as the Server-root directory for this instance of VPSX.



To import the sample definitions into SAP R/3:

3. Transfer the SAPOMS file onto a PC running the SAP R/3 GUI interface using a text transfer.
4. Logon to SAP R/3 using an administrator user ID.
5. Select:

   Tools

   CCMS

   SPOOL

   SPOOL ADMINISTRATION (SPAD)
6. On the command bar at the top of the window select:

   UTILITIES

   FOR OUTPUT MANAGEMENT SYSTEMS

   IMPORT
7. In the Import/Export utility transaction:

   A. Enter the fully qualified name of the SAPOMS export file you transferred from the VPSX installation directory.

   B. Select Frontend Computer.

   C. Select Import in the Operation section.

   D. Select Execute Import in the Options section.

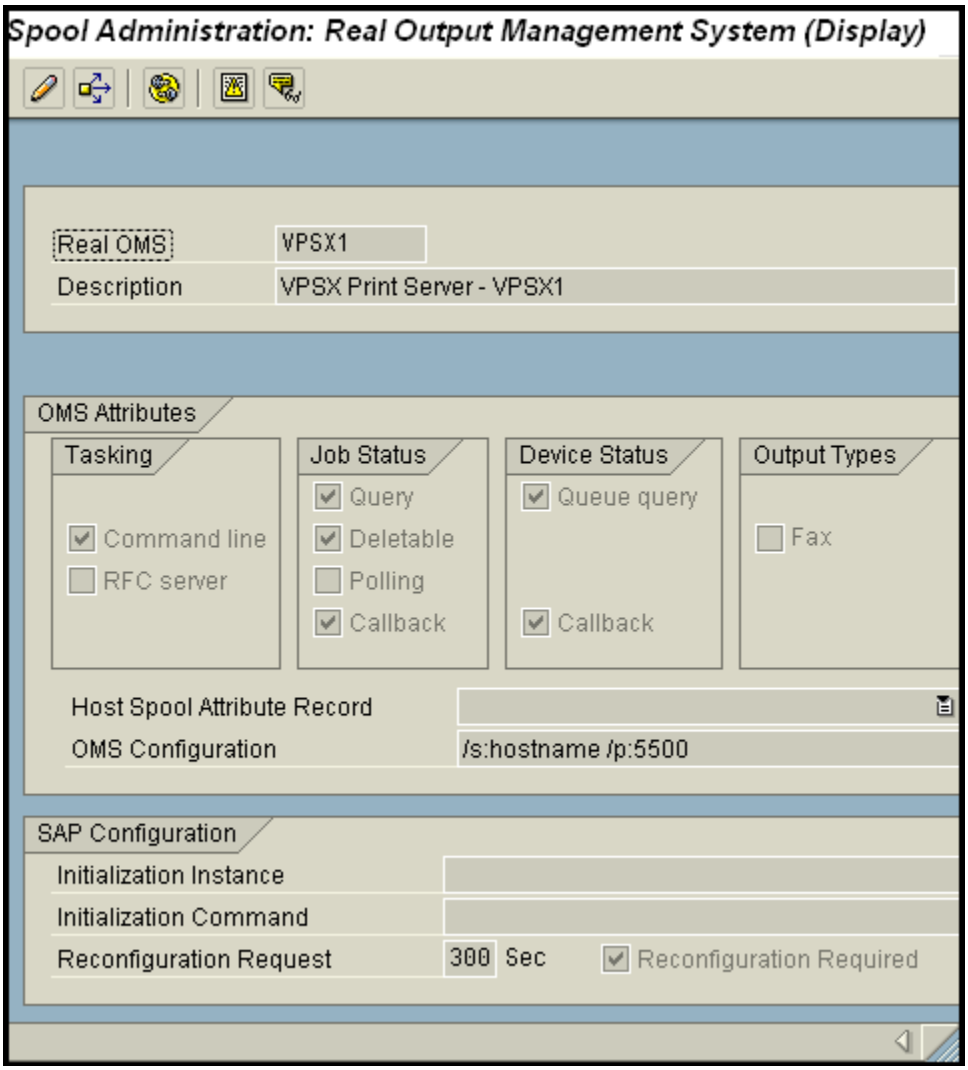
   E. Press F8 to execute the import operation.

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 with a name that matches the VPSX print server system identifier. (**Note:** The ROMS name must match VPSX System Identifier for callback communication to work correctly.) The ROMS definition contains basic details of the functions supported by VPSX/OutputManager for SAP R/3.

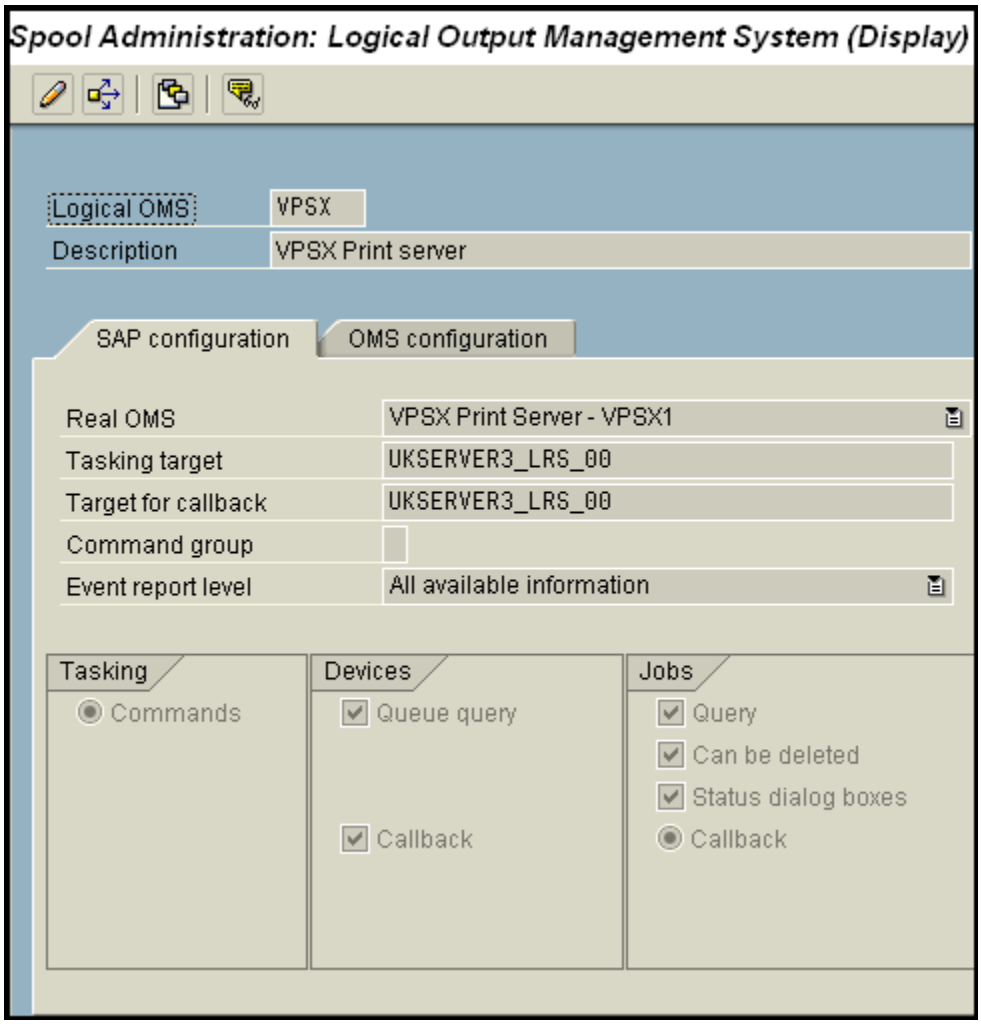
The diagram below shows the ROMS definition.



The 'OMS Configuration' field identifies the host name or IP address of the server running VPSX and the port number that the VPSX server is using to accept inbound LRS/Queue connections. Update the hostname and port number to match the VPSX hostname and port number defined for inbound LRS/Queue connections (**TCPPORTQ** Keyword).

Logical Output Management System Definition (LOMS)

The import process will create a single Logical OMS definition although additional definitions can be created if you wish to use different processing options for specific groups of printers. The Logical OMS definitions consist of general processing options and an associated set of command templates that are used to define the commands that will be executed to Submit, Query, and Cancel requests in the external output management system.



Before using this definition you will need to update the following fields to identify valid servers in your SAP R/3 configuration.

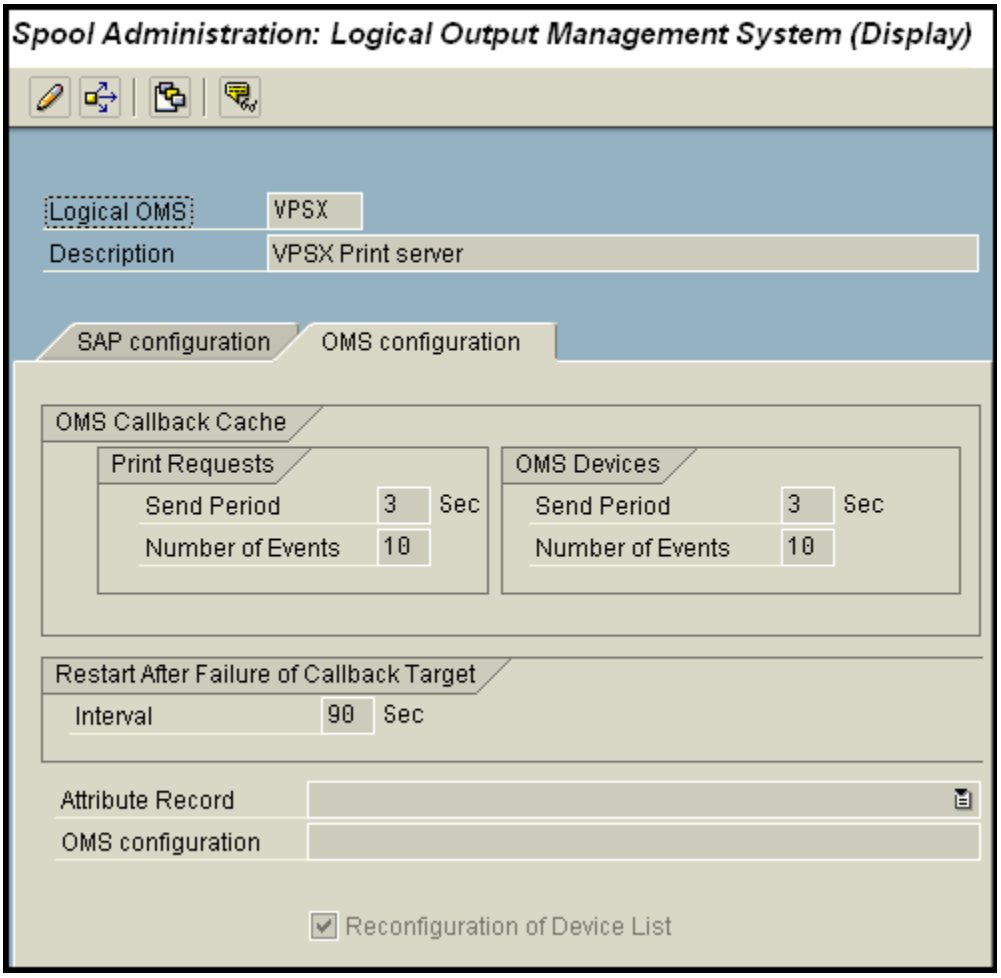
- Tasking Target
- Target for Callback

Description of Logical OMS Fields

Field	Description
Real OMS	This field relates the Logical OMS definition to the associated Real OMS definition.
Tasking Target	This field specifies the name of a SAP R/3 application server that will execute the **Query** and **Cancel** commands issued by users. The **Submit** command will always be executed on the Spool server processing the print request. **Note:** The LRS/Queue client must be available on any server defined as a tasking target and all Spool servers using the VPSX/OutputManager interface.
Target for callback	This field identifies a SAP R/3 server that should be used as the primary target for callback event notifications. This field does not need to specify the same host as the tasking target as 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, VPSX/OutputManager will automatically route callback requests to another callback target for the same system. **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 targets for **Query** and **Cancel** requests.
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 automatically based on the execution platform (i.e. AIX, HP-UX etc.)
Event Report Level	This field specifies the level of detail that is required for output and device events for this Logical OMS. SAP R/3 supports 6 levels of events: **Final Messages** - This limits event notification to only completion events (i.e. printed, cancelled, etc.) **Also Problems (Interaction Required)** - Requests events defined above plus problems that require operator intervention. **Also Warnings** - Requests events defined above plus problems that don't require operator intervention. **Also Status changes** - Requests events defined above plus any event that changes the status of the output request. **Also Information** - Requests events defined above plus informational events. **All Available Information** - Requests all output events. 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.
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.

Field	Description
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 VPSX/OutputManager to retrieve the current status.
Can be deleted	Indicates whether users can delete output requests associated with this Logical OMS after submission to VPSX/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 ‘OMS Configuration’ screen. **Note:** To display all configuration options shown, you may need to select the Extended Config icon or press CTRL+F1.

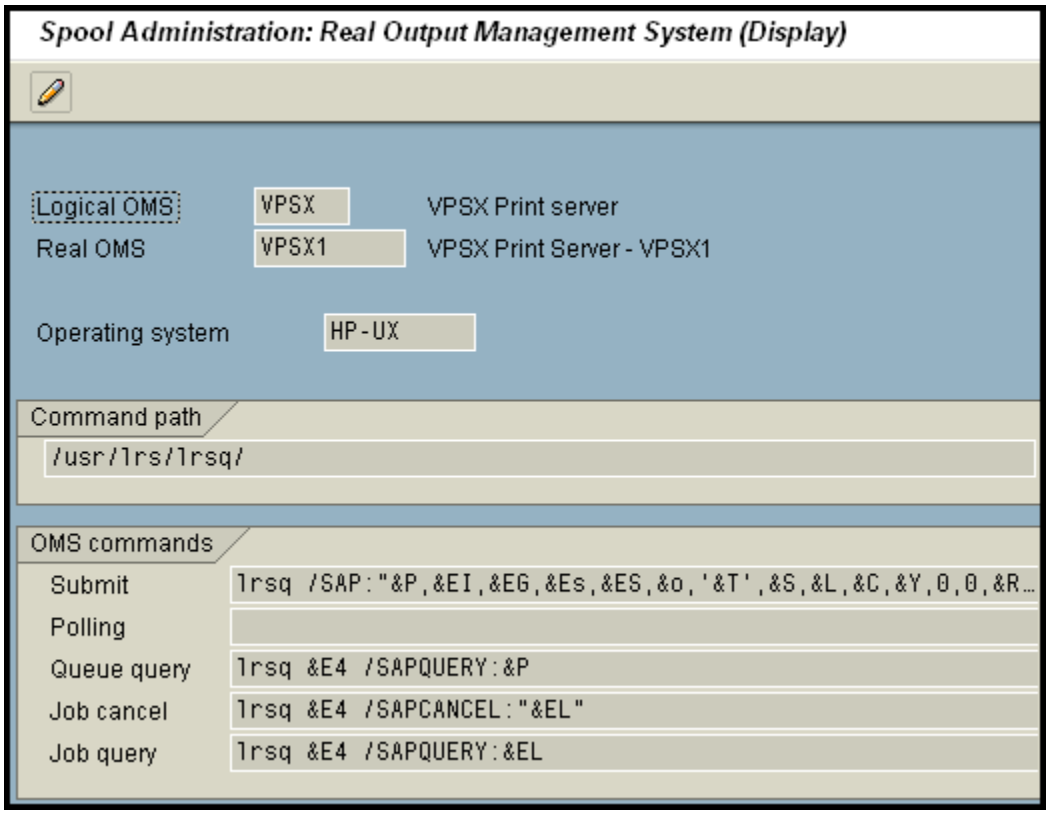


Field	Description
Send Period	This field defines a delay period that should be applied to output event callback requests. When an output event occurs, VPSX/OutputManager will delay the callback transaction by the delay specified in this field. Delaying the callback transaction enables VPSX/OutputManager 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 connections to failed callback servers.
OMS Configuration	This field specifies configuration keywords that are common to all VPSX/OutputManager commands (Submit, Query, Cancel, etc.). This field is used to specify the VPSX/OutputManager server IP address or host name and the TCP/IP port number used by VPSX/OutputManager for connection requests (**TCPPORT** System Initialization parameter). **Note:** These keywords are substituted into the command templates using the &E2 variable

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 VPSX/OutputManager commands that will be executed to submit reports to VPSX, 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 and must 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. **Note:** The path must include the final '/'.
Submit	This field defines the command template for the report submission command. The report submission process uses the LRSQ command line interface. For details of available parameters, please refer to page "LRSQ Command" on page 3.61
Polling	This command is not used by VPSX/OutputManager as the callback interface is used for event notification.
Queue Query	This field defines the command template for the VPSX/OutputManager Queue **Query** command.
Job Cancel	This field defines the command template for the VPSX/OutputManager **Cancel** command.
Job Query	This field defines the command template for the VPSX/OutputManager **Job Query** command.

Define a SAP R/3 Output Device

The final step in the installation of VPSX/OutputManager is to define an Output device.

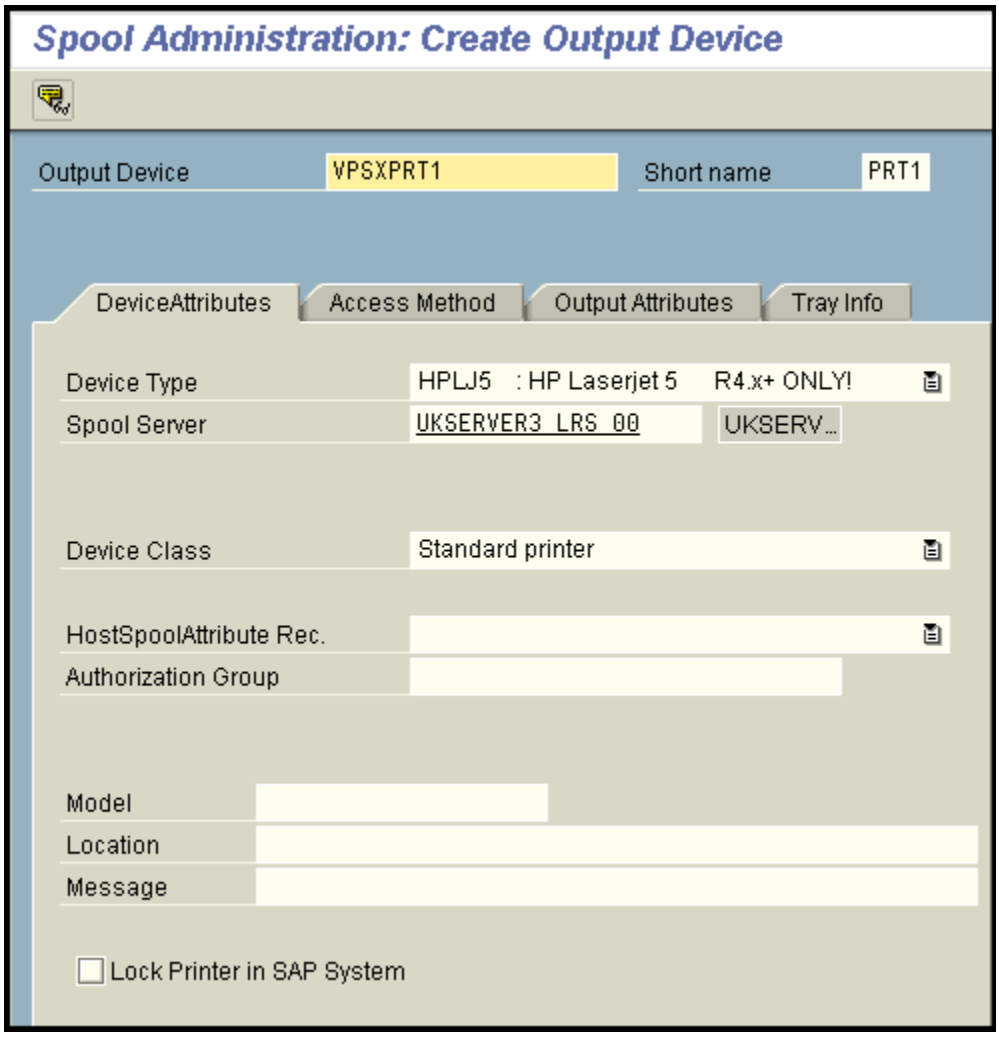
To do this:

- 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.

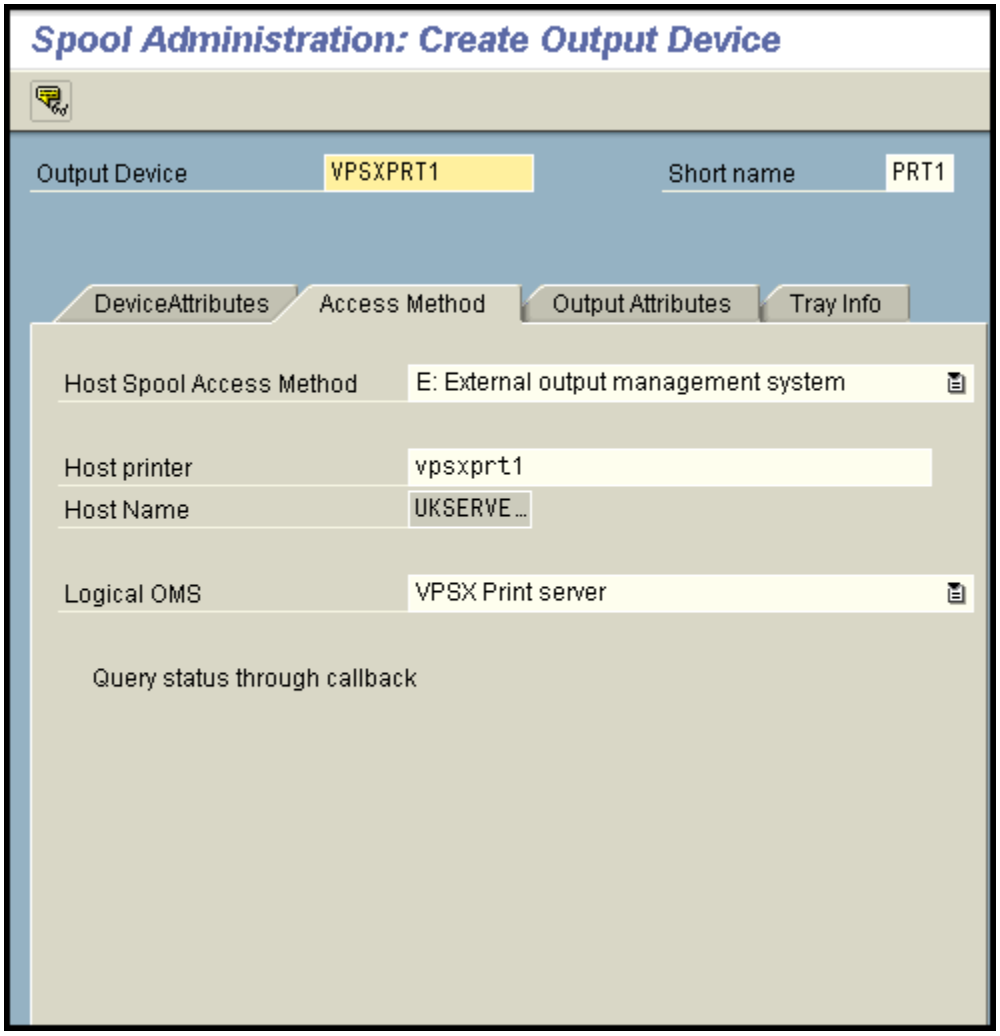
- Select the **Change** icon or press F8 to enter update mode.
- Select the **Create** icon or press Shift+F1 to create a new output device.

Below is an example output device definition which is suitable for a HP PCL printer with printer name VPSXPRT1.



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 VPSX/OutputManager. The **Host spool access method** field must specify **E:External output management system**. The Logical OMS field relates this device to the VPSX/OutputManager Logical OMS definition that will be used for this device. Finally, the **Host-Printer** field specifies VPSX printer name that will process output requests for this printer.



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 VPSX printer queue.

Upload National Language Message Templates

VPSX/OutputManager for SAP R/3 supports the National Language feature of the BC-XOM interface. This feature enables the SAP R/3 GUI interface to display all VPSX/OutputManager messages in the language selected by the user during logon.

All messages issued by VPSX/OutputManager have a unique message ID, in addition to the default English message text. 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 VPSX/OutputManager multi-lingual message templates into the SAP R/3 database. This is done by using the 'vpsxmsgl' command that is provided in the VPSX installation directory.

The National Language message templates are supplied in 'sapmsgs.txt' in the samples directory. The supplied file contains message templates for German and Spanish, although additional templates can be created for any supported language and uploaded using the **vpsmsgl** command.

Command syntax:

```
vpsmsgl -h hostname
        -u userid
        -p password
        [-f filename]
        [-c client]
        [-s sysnumber]
        [-t Yes | No]
```

Where:

-h Specifies the host name of the SAP R/3 application server.

-u Specifies the user ID used to log onto the SAP R/3 application server.

-p Specifies the password used to log onto the SAP R/3 application server.

-f Specifies the file name containing the message templates to upload to the SAP R/3 database (default value is "sapmsgs.txt").

-c Specifies the client number used to log onto the SAP R/3 application server (default value is "000").

-s Specifies the system number used to log onto the SAP R/3 application server (default value is "00").

-t Specifies if tracing should be turned on for communication with the SAP R/3 application server.

Note: As the message templates are loaded into the SAP database, it is only necessary to execute this command once for each SAP system.

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 VPSX 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.

VPSX Product License Processing

Licensing of the VPSX server is controlled via a 60 character product key that must be specified in the system configuration file (vpsstart) and a separate product license file. The license file works in combination with the product key to identify the licensed server names. The license file is a simple text file that lists the specific host machines that are license to execute VPSX and may also specify the number of printers licensed to each host. This license file can be viewed and copied but must not be modified as this will invalidate the license.

Note: If you are transferring the license file between systems you must use a BINARY file transfer to avoid corrupting the file.

Example Product Key:

KEYVPSX=ABCDEF12345678901234567890123456789012345678901234567890123456789012345678901234

Example Product License File:

```
Version 2
*************************************************************************
*                        LRS Product license file                       *
*-----------------------------------------------------------------------*
* Product name: VPSX                                                    *
*                                                                       *
* Customer ID: IL0000                                                   *
*                                                                       *
* Customer Name: Levi, Ray & Shoup Inc.                                 *
*                                                                       *
* Date created: 01/25/2005                                              *
*                                                                       *
* License: VPSX is licensed for execution on the hosts listed below.    *
*                                                                       *
*-----------------------------------------------------------------------*
* WARNING: If this file is modified it will invalidate the license and  *
*          the product will be disabled.                                *
*************************************************************************
 hosta    10
 hostb    20
 hostc     5
```

Note: The host name specified in the license file must match the value returned by the 'hostname' command.

Installing a New Product License

The product license file (keyvpsx.lic) will be provided in the root directory of the product distribution material and must be copied to the product installation directory (i.e. /opt/lrs/vpsx). If this is a first time installation the FastStart (lrsfast) routine will prompt you for the product key and will automatically copy the license file to the appropriate directory. If you have been sent a new product key and license file then it is necessary to implement the new key and license file at the same time. (The key and license file are linked and must be used in combination.)

Install a New Product License

1. Copy the new license file (keyvpsx.lic) into the product installation directory using a binary copy/transfer.
2. Update the product license key using the WEB interface, the **vpscfg** command or by manually updating the **vpsstart** configuration file.

Note: If you update the license key via the WEB interface or using the **vpscfg** command the key and license file will be validated before updating the system configuration and it is not necessary to restart VPSX. If you manually update the **vpsstart** configuration file then you will need to restart VPSX for the change to take effect.

Execution on Unlicensed Hosts

If VPSX is executed on a host that is not named in the product license file a warning message will be issued and VPSX will continue to operate for a period of 30 days.

License File Changes

If you wish to modify the list of licensed hosts define in the product license file, please contact your LRS marketing representative and they will be happy to send you an updated license file and key.

Configuring Email Support

VPSX implements two separate email features:

- Email delivery of documents.
- Email notification of job and device status events.

These two email features both use the SMTP (Simple Mail Transfer Protocol) to deliver information via a mail server but are completely independent of each other and address different requirements.

Email Delivery of Documents

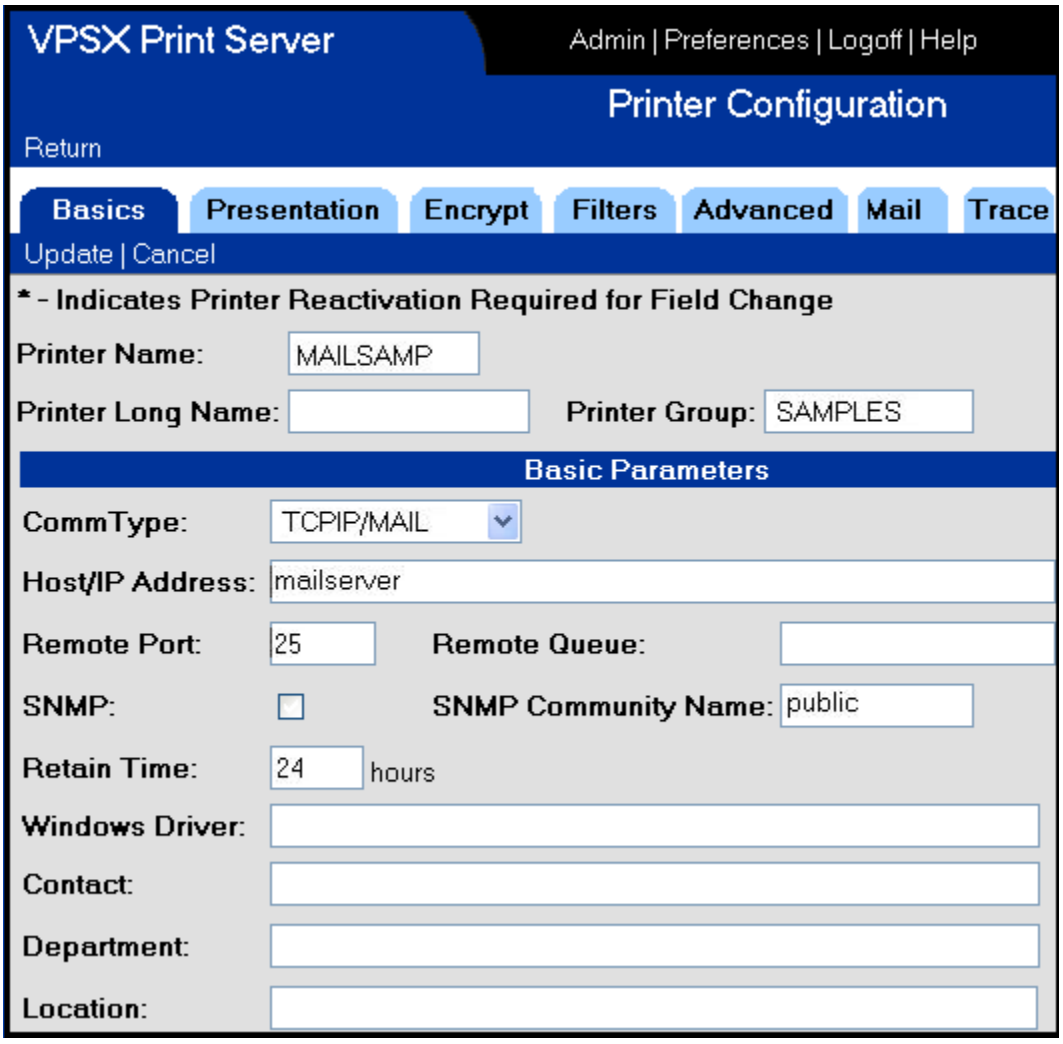
This feature adds a new delivery channel for business documents enabling any output submitted to the VPSX print server to be delivered to one or more recipients via email. The email delivery feature is implemented as a special printer type that selects documents in the normal way and delivers these documents using the SMTP protocol to an email server. Documents can be queued to an email printer using any of the supported inbound protocols (LPR, LRSQ or IPP) and all document types are supported.

If the document to be emailed contains a printer-ready datastream, it is possible to use the standard filter processing support in VPSX to execute a transformation to an email friendly format. For example the LRS PCL to PDF conversion filter can be used to transform a printer-ready PCL datastream into a PDF document that can be easily viewed by the email recipient.

Document recipient information can be specified at the individual spool file level using the LRSQ submission command or default values can be defined in the email printer definition. As a minimum requirement all files must have at least one recipient and must identify a sending email address. Recipients can be specified using the standard TO, CC and BCC mail attributes and the spool file 'title' attribute will be used as the email subject. If a title attribute is not specified, the email subject will contain the sending VPSX server name and spool file number.

Defining an Email Printer

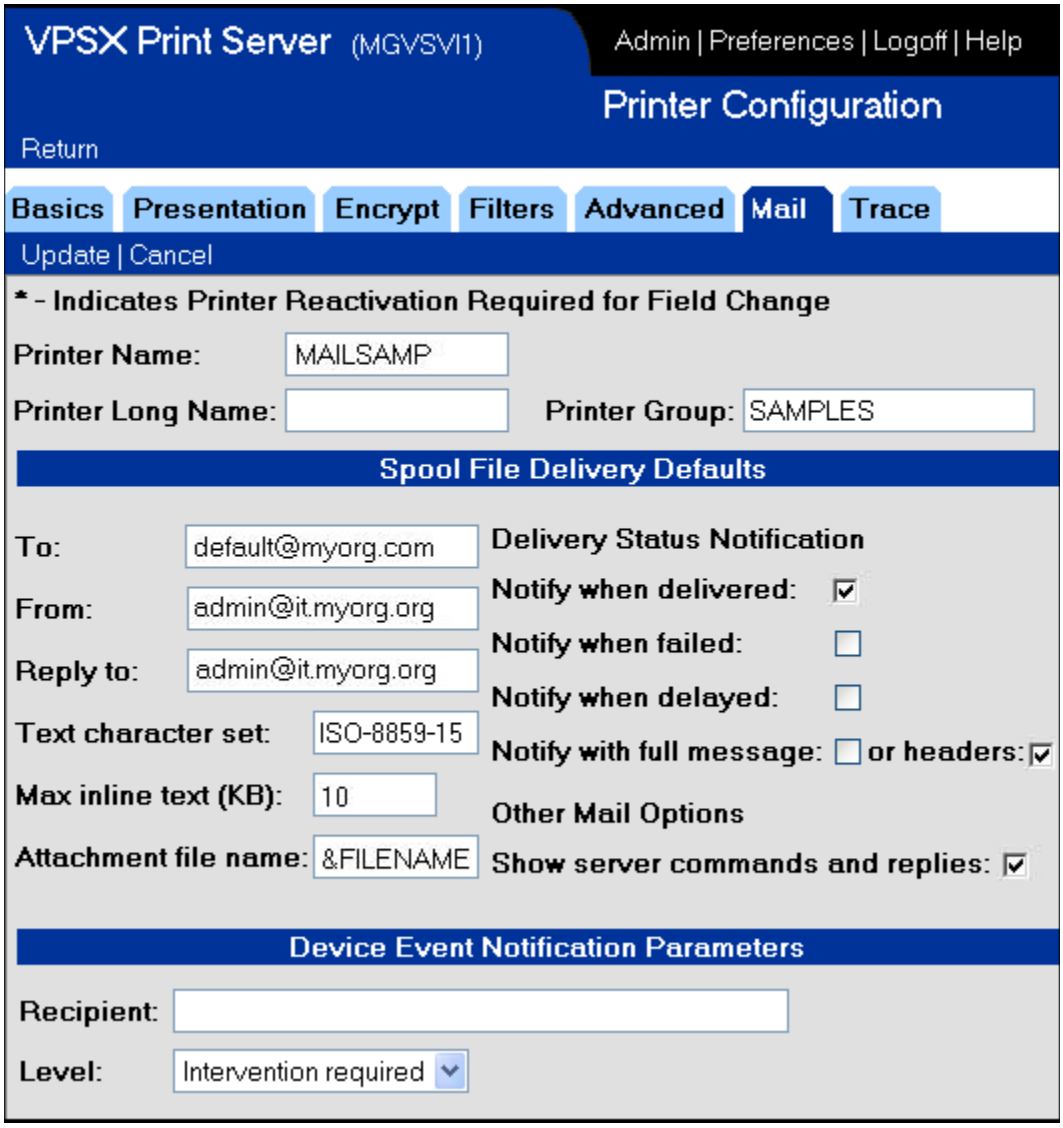
The following screen shows an example email delivery printer.



The important parameters when defining an email printer are:

- CommType - Indicates this printer should use the mail (SMTP) protocol.
- Host/IP Address - Specifies the host name or IP address of the target mail server.
- Remote Port - Specifies the TCP/IP port that the mail server is using for SMTP connections (normally 25).

The MAIL tab on the printer configuration screen enables the administrator to specify default values for mail related document attributes including a default sender and primary recipient. This screen also provides access to other mail specific options.



All documents will normally be sent as mail attachments with the MIME type and file extension set to indicate the data type. Text documents can optionally be sent in the main body of the email. This feature is controlled via the 'Max inline text' configuration value that defines the maximum text document size that should be sent in the body of the email (specifying a value of zero will cause all documents to be sent as attachments). The name given to file attachments is controlled via the 'Attachment file name' value. This can either specify a constant value or can use a symbolic spool file attribute that will resolved from the active spool file (e.g., &owner). If no value is defined for the attachment file name, the originating document filename will be used.

The Delivery Status Notification (DSN) options can be used to request notification of mail delivery events from the remote mail server. You can request notification of successful delivery, failures or delays and can indicate whether you would like the notification response to contain the entire contents of the original mail or just the mail headers. To receive delivery notifications the remote mail server must support the DSN feature.

Specifying Email Delivery Attributes

The LRSQ client provides the ability to specify email delivery attributes to identify document recipients and processing options.

LRSQ Email Delivery Attributes:

/Mailto	/mto	Specifies 1-32 email addresses that will be used as the primary recipient for this document.
/Mailfrom	/mfrom	Specifies an email address that should be used as the email sender's address for this document.
/Mailcc	/mcc	Specifies 1-32 email addresses that will receive copies of this document.
/Mailbcc	/mbcc	Specifies 1-32 email addresses that will receive blind copies of this document.
/Mailreply	/mrply	Specifies an email address that should be used as the email reply-to address for this document.
/Mailfile	/mfile	Specifies a value that will be used as the attachment file name.
/mailcharset	/mcset	Specifies the character set that should be used by email clients when displaying text in the body of an email.

Example LRSQ Command:

```
lrsq     /s:hostname
         /p:5500
         /queue:email
         /file:test.txt
         /mailto:x@y.com
         /mailfrom:y@z.com
         /title:"email subject"
```

Adding Body Text Using Separators

As most documents will be sent as attachments, the body of the email will normally be blank. To add text to the body of the email, describing the contents of the attachment, it is possible to use the separator page processing. A separator page template can be created for use with email printers containing static text and symbolic spool file variables that are automatically replaced and included into the body of the email.

For details on creating separator page templates please refer to “Separator Pages” on page 3.74.

Tracking Email Delivery

Each document successfully received by the mail server is acknowledged with a mail acceptance message that is displayed in the VPSX log and is also saved as a spool file attribute. The acceptance message contains a unique message identifier that can be used by the mail administrator to track the email. The spool file attributes can be displayed by selecting a spool file in the spool queue display and clicking on the ‘attributes’ button.

Email Notification of Job and Device Status

The event notification feature enables users to monitor the status of their documents or devices via email. VPSX provides two separate event notification features:

Job notification - Provides notification of events relating to a specific document.

Device notification - Provides notification of events relating to a specific printer.

All notification events are categorized into one of five event levels. When requesting notification, the user can specify the level of events they would like to receive. If the notification level is not specified, only 'Errors requiring operation action (1)' will be sent.

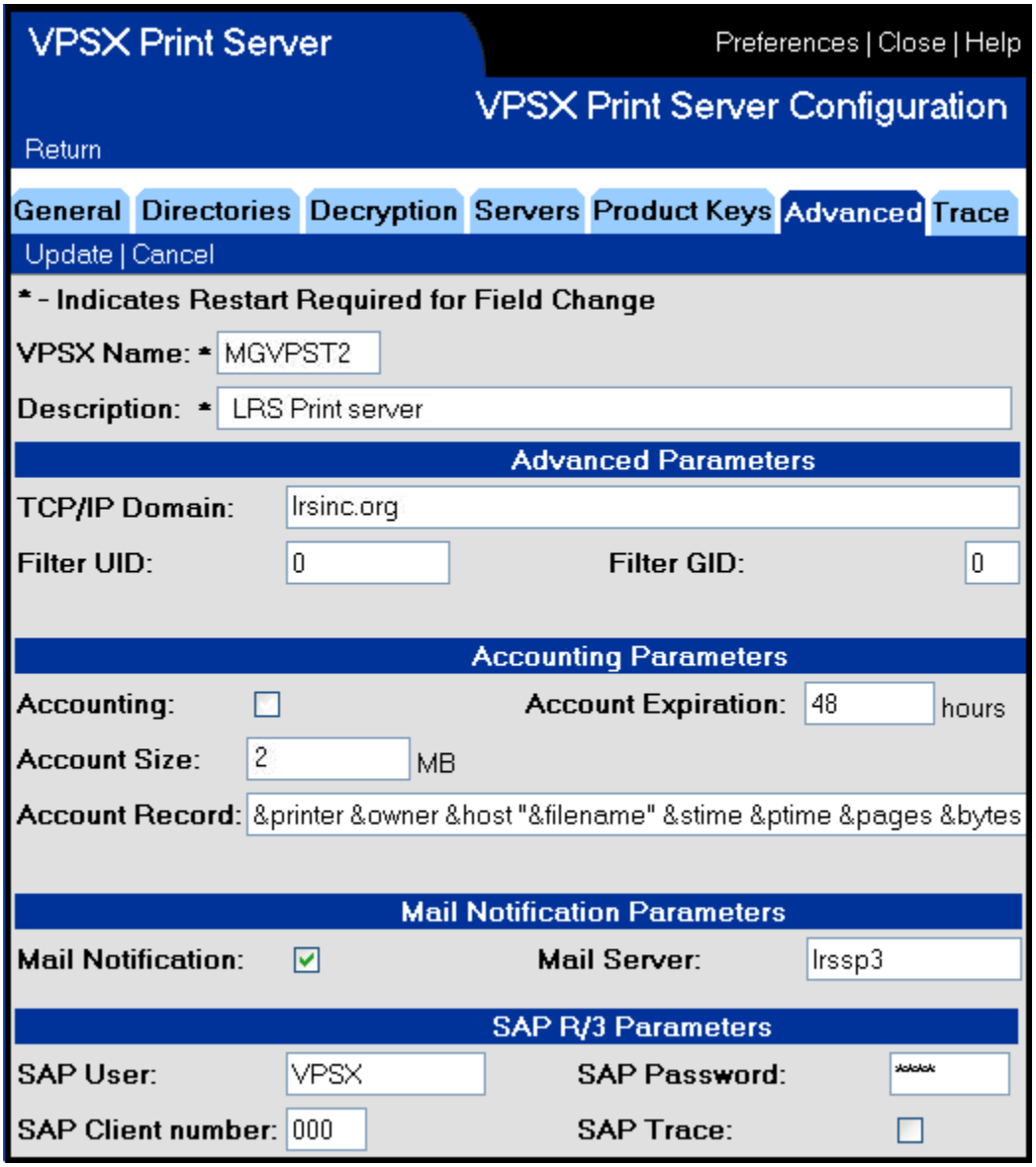
Event Notification Levels

1	Errors requiring operator action.
2	Errors that do not required operator action.
3	Print completion.
4	Status changes.
5	All events.

Note: Higher events levels include all lower level events.

Configuring Email Notification

The email notification facility is configured via the VPSX system configuration screen (Advanced Tab).



Mail Server The mail server configuration value must specify the TCP/IP address or host name of a SMTP mail server. This value may be qualified with a port number if the server is not using the standard SMTP port 25 (e.g., host:1234).

Mail Notification Enables or disables email notification.

TCP/IP Domain If a domain name is specified, this value will be used to qualify the email sender's address; otherwise, the hostname will be used.

The email sender address will be constructed using the printer name and the host or domain name.

Example:

PRINTER1@lrsinc.org

Or

PRINTER1@hostname

Note: If your company uses a spam filter it may be necessary to identify this host or domain as a valid sender.

Note: Changes to the notification parameters do not require a restart of the VPSX server.

Email notifications will contain a link to the VPSX Web interface if the VPSX system configuration has been updated to specify the Web interface URL. This link enables users who receive a notification email to gain direct access to the full VPSX Web interface to monitor and control their output.

Job Event Notification

Job event notification is requested by the user at document submission time by providing a notification email address and, optionally, a notification level. These values can be provided via the LRSQ client using the **/notmail** and **/notlevel** keywords or can be specified for IPP print requests by adding the **notmail** and **notlevel** attributes to the printer URL.

LRSQ Example:

lrsq /s:host /p:5500 /queue:prt1 /file:test.txt /notmail:joe@x.org /notlevel:3

IPP Example:

http://host:631/prt1?notmail=joe@x.org&notlevel=3

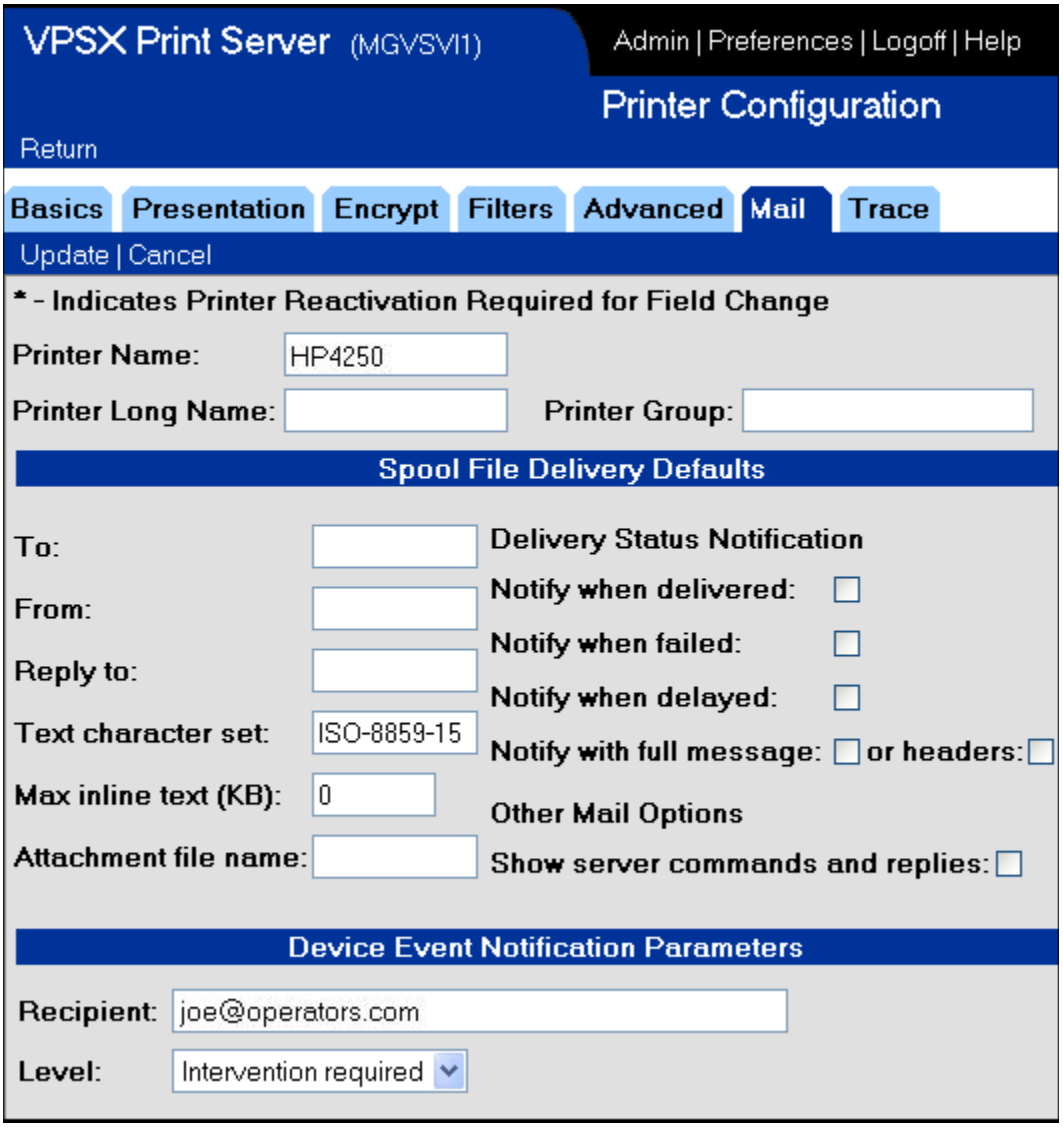
Note: With some IPP clients it may be necessary to encode the @ symbol using URL encoding, i.e. http://host:631/prt1?notmail=joe%40x.org&notlevel=3

Job Notification Events	Event Level
Document created.	4
Document printing.	4
Error printing. (Recoverable errors will have event level 2 unless the error has been retried 10 times.)	1 or 2
Error printing operator action required. (i.e. load paper, paper jam, etc.)	1
Filter processing error printer stopped.	1
Filter processing error document held.	1
Filter processing error document deleted.	1
Printing stopped by operator command.	1
Printing cancelled by operator command	1
Printing cancelled from printer control panel.	1
Document printed successfully and deleted.	3
Document printed successfully and retained.	3
Document deleted without printing.	1
Document held.	4
Document released.	4
Document re-routed to another printer.	4
Document delayed. Printer has been stopped by operator command.	1

Device Event Notification

Device level event notification is primarily intended to enable the main printer operator to receive status notifications for events relating to a specific device. Unlike job level events which relate to specific documents, device level events will be generated irrespective of whose documents are printing on the device.

The recipient for device level event notification is defined in the printer configuration under the MAIL tab.



Device Notification Events	Event Level
Printing.	4
Error printing. (Recoverable errors will have event level 2 unless the error has been retried 10 times.)	1 or 2
Error requiring operator action. (load paper, paper jam, etc.)	1
Printer stopped by operator command.	4
Printer started by operator command.	4
Printer warning. (paper-low, toner-low)	5
Printer Offline. (no-paper, no-toner, paper-jam, door-open, device-not-responding)	1
Printer online.	4

Internet Printing Protocol (IPP) Support

VPSX implements support for the Internet Printing Protocol as an IPP server. The IPP protocol was developed by an IETF working group called the 'Printer Working Group' that consisted of members from most of the major printer and software manufacturers. IPP/1.0 was first published in 1999 as RFC2566 and was later superseded by IPP/1.1 published in 2000 as RFC2911.

The IPP protocol was designed to provide a sophisticated architecture for exchanging print related requests between printing clients and servers or devices. The IPP protocol uses HTTP as the transfer protocol and also uses the URL naming scheme to reference printers and jobs. All IPP printers have a simple URL that can easily be published on the Intranet/Internet and can also be emailed or included in a document.

The IPP URL for VPSX printers consists simply of the hostname that is executing VPSX and the printer name:

HTTP://hostname:631/PRINTER

You will notice that the hostname is qualified with the port number 631. IPP URLs use the HTTP schema and, unless explicitly specified, the port would default to 80. The IPP standard defines port 631 as the well-known port for IPP although any port number can be used.

Documents submitted to an IPP printer are also assigned a URL that can be used after submission to query and control the job status. The JOB URLs created by VPSX consist of the printer URL qualified with the spool file number:

HTTP://hostname:631/PRINTER/123

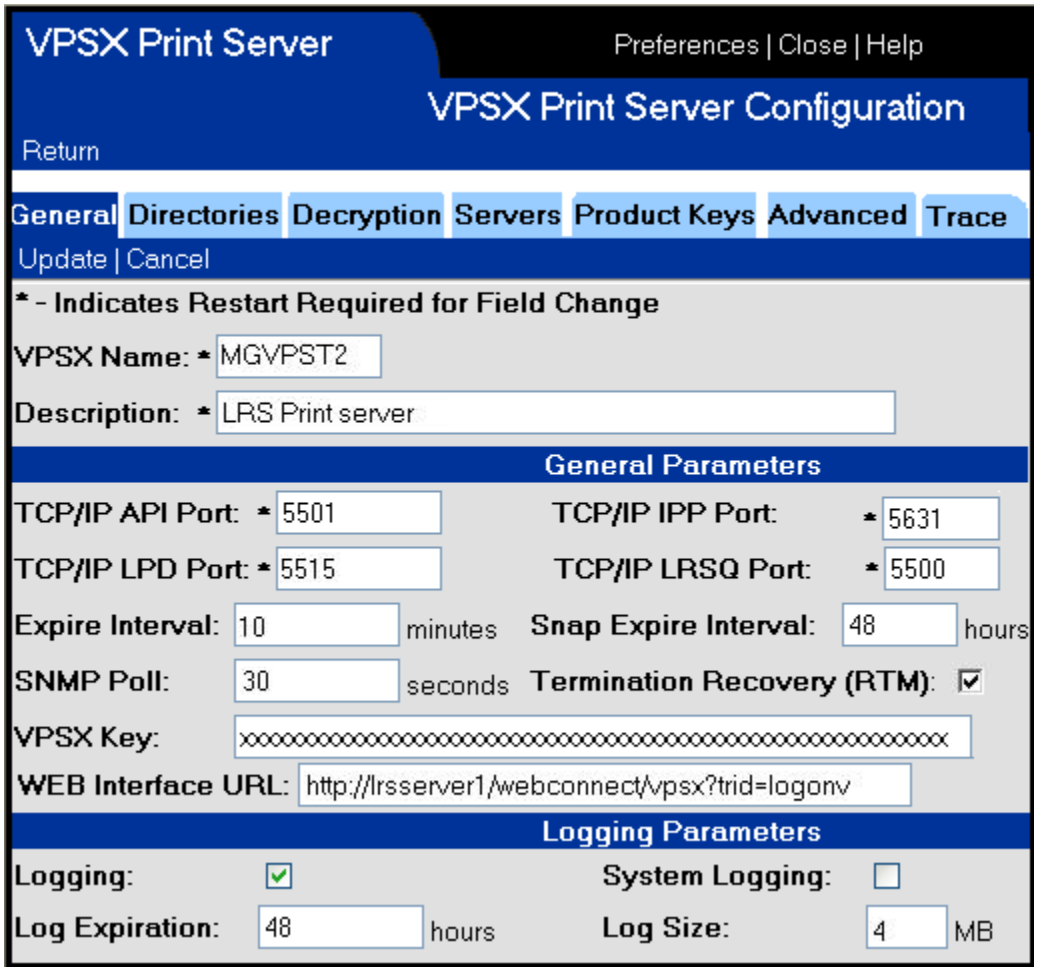
Supported IPP Operations

The IPP protocol defines a set of operations that can be performed against a printer or job. VPSX implements the following IPP operations:

- Print-Job
- Get-Printer-Attributes
- Get-Jobs
- Get-Job-Attributes
- Pause-Printer
- Resume-Printer
- Purge-Jobs
- Cancel-Job
- Hold-Job
- Release-Job

Configuring IPP Support

The IPP interface is configured by simply providing a server port to be used for IPP connections in the VPSX system configuration.



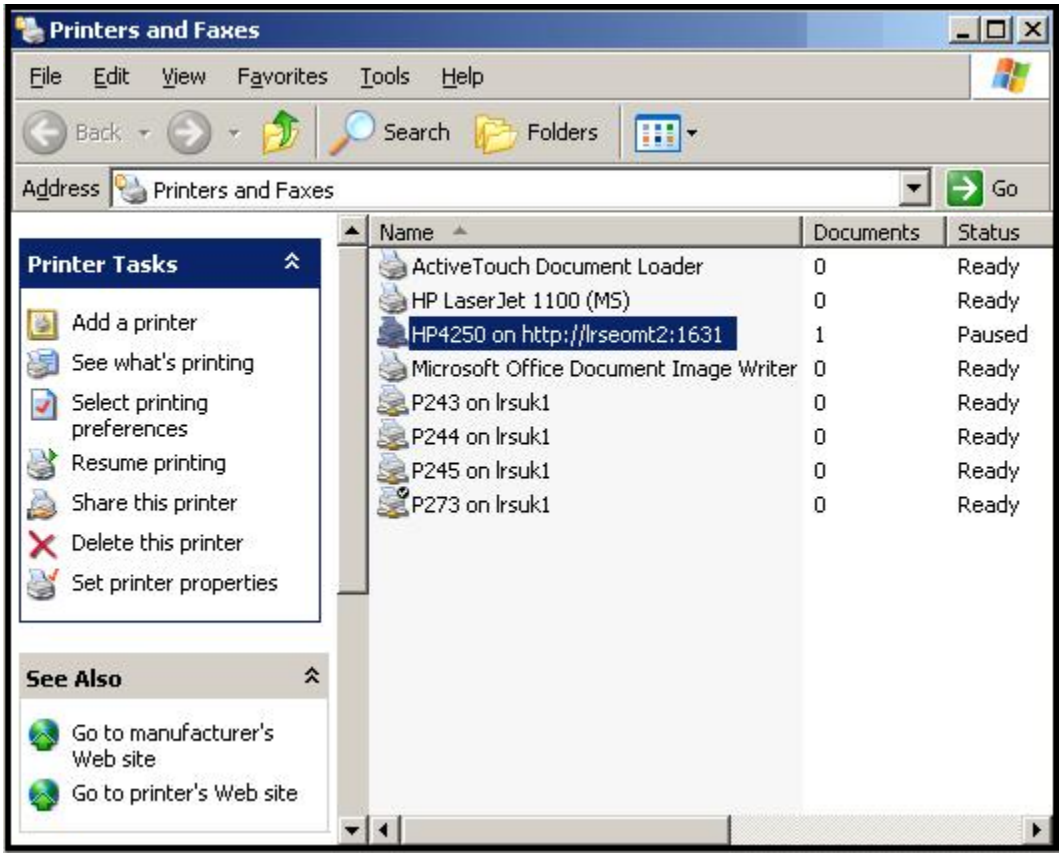
Note: The default port for IPP is 631 and will require VPSX to run with root authority. If you do not want to execute VPSX as root you must specify a port number above 1023.

When configuring IPP support you should also update the 'WEB Interface URL' to specify the URL required to access the VPSX Web interface. If a user attempts to open an IPP printer URL using a standard browser, they will be redirected to the VPSX user interface.

Printing from Windows

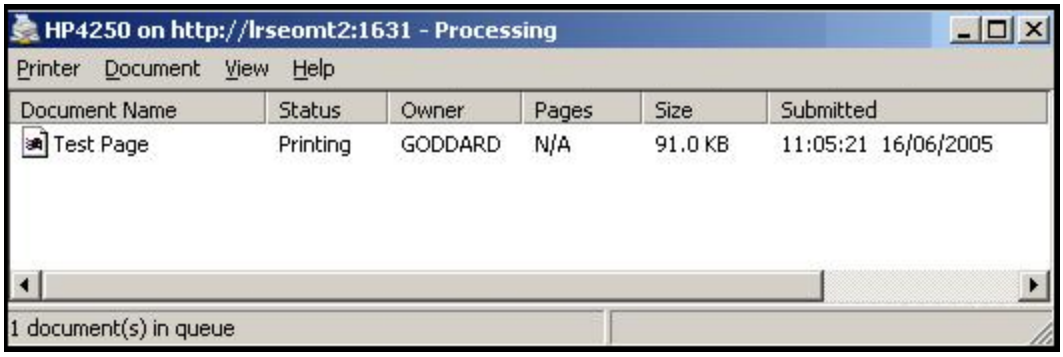
Windows users can define VPSX printers using the IPP interface. These printers will appear as standard Windows printers and can be used from any application. Users can interact with VPSX printers using the normal Windows dialogs and can access and control the printer and documents as they would any other Windows defined printer. IPP support is a standard feature of Windows 2000 and above and is available to download for some earlier versions of Windows.

Once a VPSX printer is defined to Windows, it will appear in the 'Printers and Faxes' folder along with other printers.



The Windows display will show the current status of the printer and the number of documents waiting to print. This information is retrieved directly from the VPSX print server and reflects the current status of the printer and the output queue. From this screen the user can stop and start the printer, if authorized, and can double click on the printer to display the documents queued to this device.

Users can also gain direct access to the VPSX Web interface by selecting a printer and choosing the ‘Go to printer’s Web site’ task on the left of the screen.



The Windows output display will show all documents waiting to print and can optionally show documents that have been retained after printing. The Windows user can manage his print requests using this screen and can cancel, hold, release, or reprint a document. All commands are passed directly to the VPSX server and the status will be reflected in the displays.

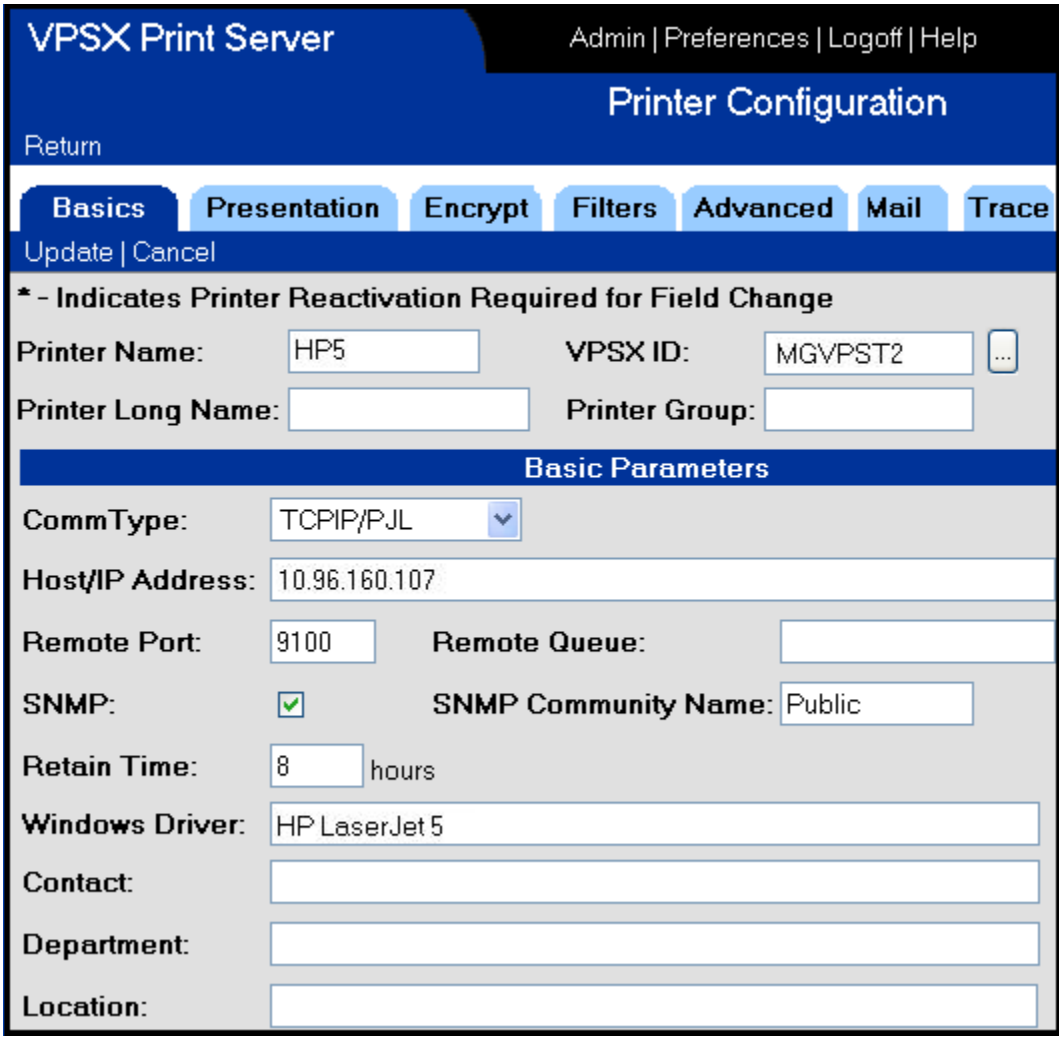
Note: The VPSX printer configuration contains printer options to enable IPP clients to start and stop a printer and to return both waiting and retained jobs in the queue display.

Defining a VPSX Printer to Windows

VPSX printers can be defined to Windows using any of the following methods:

- VPSX 'Connect' dialog.
- Windows Add Printer Wizard.
- Windows command line interface.

During the printer definition process Windows will query VPSX for the name of the printer driver to be used for this device. The printer driver name can be specified in the VPSX printer configuration and consists of a simple string that identifies the make and model of the printer.

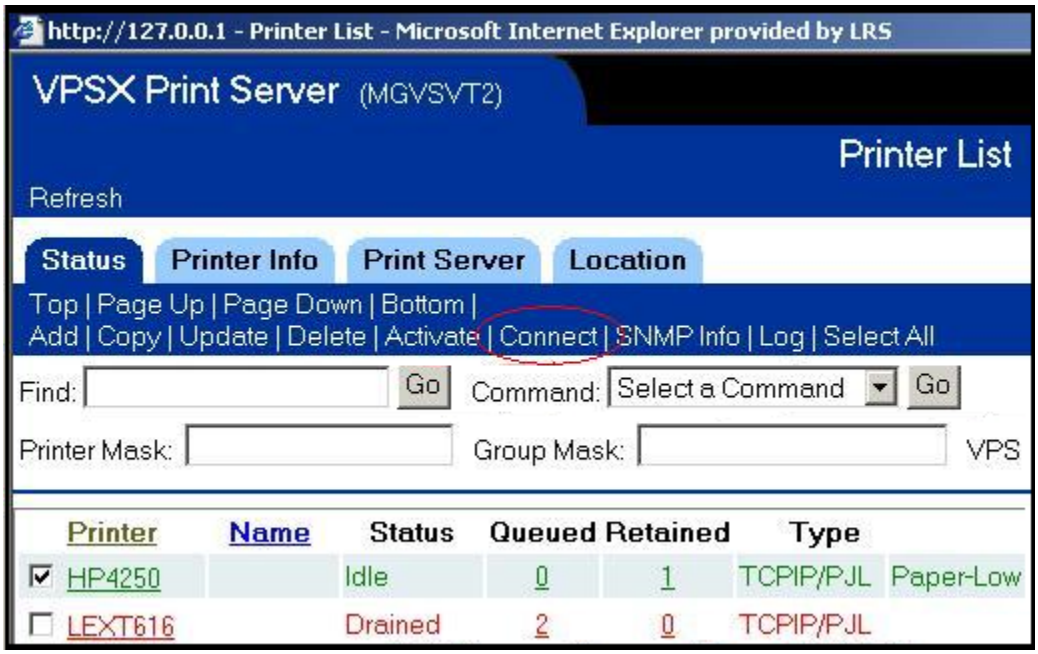


Printer driver names are case sensitive and a complete list of the printer drivers provided with Windows 2000 and above can be found in file **ntprint.inf**. This file is located in the Windows directory in a subdirectory named **inf**.

If a driver name is not configured in the VPSX printer definition, or the Windows client does not have the required driver, the user will be prompted to select the printer type from a list.

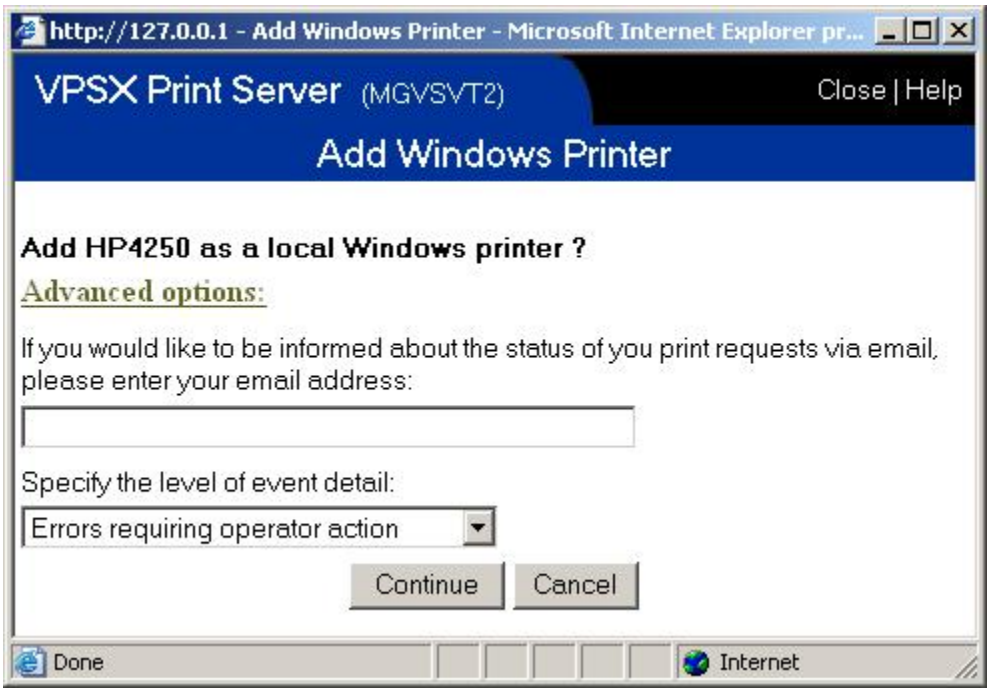
Windows Connect Dialog

The easiest way to add a VPSX printer to Windows is to use the 'Connect' dialog provided with the VPSX Web interface. The 'Connect' button is available in the VPSX 'Printer list' display and can be used by selecting a printer from the list and clicking the 'Connect' button.



Note: The connect button is only available when using Internet Explorer.

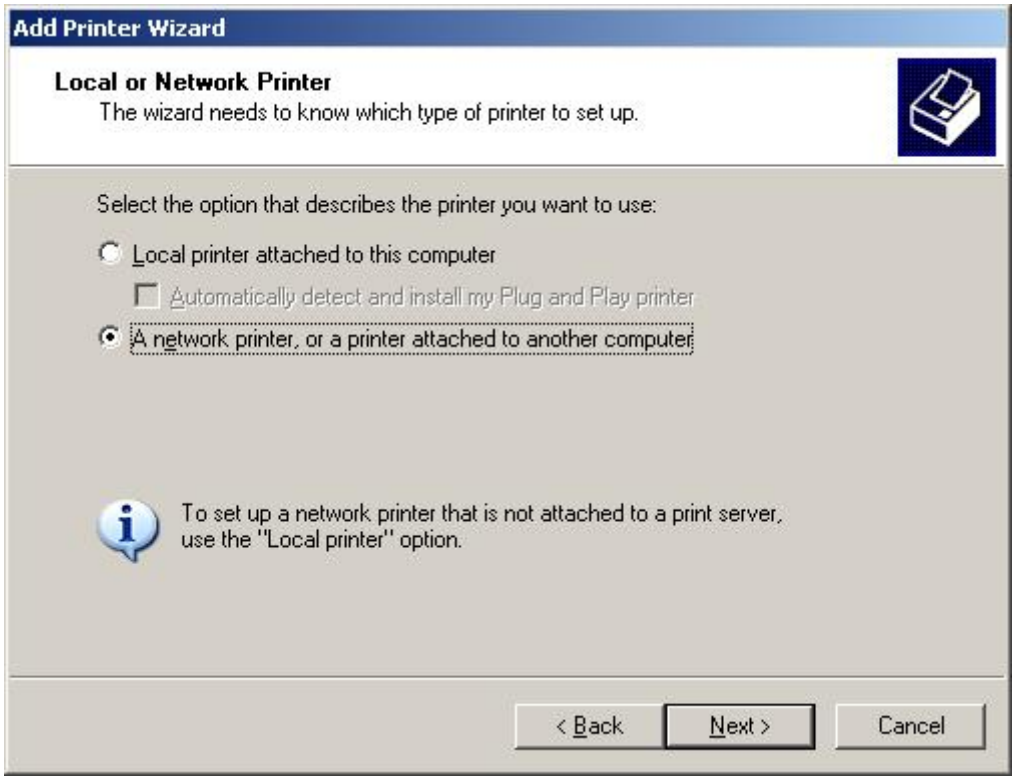
The following window will be displayed asking the user to confirm the action and will also provide the option to receive email status notifications for documents printed on this device. **Note:** The 'Advanced options' will only be displayed if the email notification feature has been configured in the VPSX system configuration.



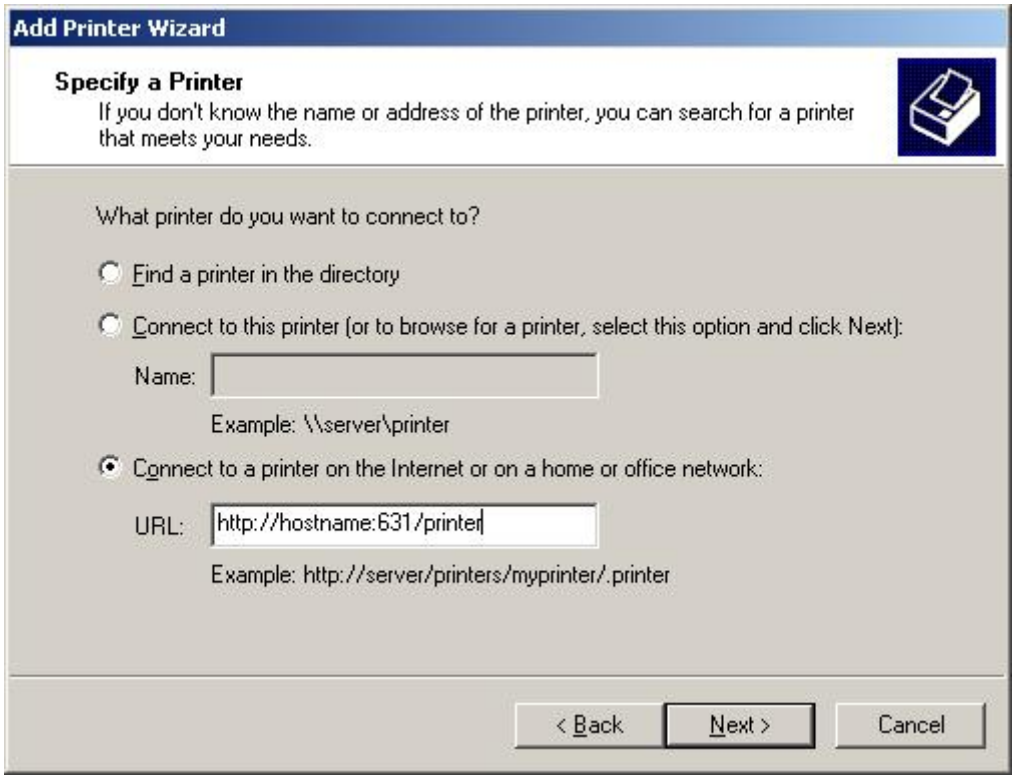
The VPSX connect dialog requires an ActiveX control to add the Windows printer definition. The ActiveX control has been digitally signed by LRS and will be automatically installed the first time the connect dialog is used. Depending on the users' Internet Explorer security settings, they may receive a warning message and be prompted to accept or reject the ActiveX control. This warning can be bypassed by adding the VPSX Web server to the trusted-sites list.

Windows Add Printer Wizard

The standard Windows dialog can be used to add a VPSX printer. Simply open the 'Printers and Faxes' folder and click on 'Add printer'. Then indicate that you want to add a network printer.



To identify the printer simply enter the IPP URL.



Note: The IPP URL for all VPSX printers is available in the Web interface 'Printer list' display under the 'Print Server' tab.

Windows Command Line Add

VPSX printers can be defined to Windows using a command line interface that can be executed from a batch file or from a user login script. The command line interface is a Windows provided administration tool that can be used to perform various printer related functions.

Below is an example of the command required to add a VPSX printer:

```
rundll32 printui.dll,PrintUIEntry
         /b "\\http://hostname:631\hp5"
         /x
         /n name
         /if
         /f %windir%\inf\ntprint.inf
         /r "http://hostname:631/hp5"
         /m "HP LaserJet 5"
         /w
         /u
```

Where:

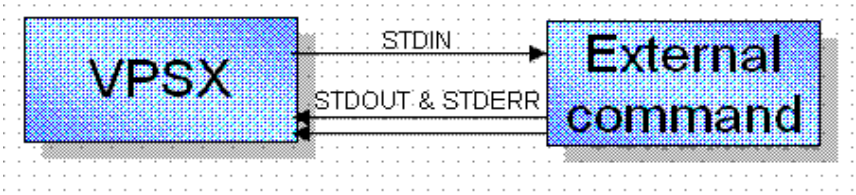
/b	Specifies the base printer name (this is the name displayed in Windows). For IPP printers, this must be specified in pseudo UNC format with two back slashes before the URL and the forward slash before the printer name replaced with a back slash.
/x	Specifies that this is a 'Web point and print' device.
/n	Required by the **/x** argument but not used for IPP printers.
/if	Specifies that the printer driver should be installed using an **inf** file.
/f	Specifies the name of the **inf** file. In this example we are using the Windows provided '**ntprint.inf**' but this could reference a user provided printer driver inf file (in this case you would need to specify the **/l** argument with the location of the printer driver files).
/r	Specifies the IPP URL for the printer.
/m	Specifies the printer model name and is used to select the appropriate printer driver.
/w	Indicates that the user should be prompted to select a driver if the requested driver can not be found.
/u	Indicates that the existing printer driver should be used if already installed.

Note: A complete list of arguments can be displayed by specifying **/?.**

External Event Notification

During normal processing the VPSX print server generates internal notifications of major events in the life cycle of a document. Notifications are also generated for status changes in VPSX printers or remotely managed devices. The external command notification feature (XCMD) provides a mechanism to externalize these events and pass this information to an external process for further processing. The external event handler can use this information to generate notifications to external system management tools, provide feedback to external applications, or simply record the event information for further analysis.

The external command process can be a customer written routine or an OEM supplied tool, providing integration of the VPSX print server with an external application. The command can be a simple shell script or a binary executable and is attached as a co-process by the VPSX server during initialization. Event information is then passed to the command handler via standard input and event confirmation and messages are passed back to VPSX via standard output and standard error.



The external command processor is a simple command line routine that is executed by VPSX when the external notification feature is enabled. Event notifications are passed to the external command as simple text records via standard input and must respond with a confirmation message written to standard output. The confirmation message provides feedback to VPSX of the processing state of each event. Note: The external command is not executed separately for each event and is expected to continue reading and processing events from standard input until an EOF is received, indicating that VPSX wants the co-process to terminate.

Sample External Command processor logic:

```
Initialize
Process command line arguments
While (read event from STDIN != EOF)
    {
    Parse event data
    Process event information
    Write confirmation to STDOUT
    }
Terminate
```

The external command process is continually monitored by VPSX and any messages written to STDOUT or STDERR will be recorded in the VPSX log. In a busy VPSX server it is possible that a large number of events will be generated and it is essential that the external event handler process each event as quickly as possible. If events are generated faster than they are processed, a backlog will build up in the VPSX server. If the backlog exceeds 2000 events, further notifications will be discarded until the queue drops below this threshold. In addition, if the event handler takes more than 30 seconds to process a single event, it will be assumed it has stalled or is looping and will be terminated.

Event Notification Records

Each event is passed to the external command processor as a simple text record terminated with a newline sequence. The event record has the form:

<event-token> <event-number> <variable event data> <NL>

Where:

- <event-token> is a unique string which must be returned with the event confirmation.
- <event-number> is a numeric value that identifies the event type.
- <variable-event-date> Customizable event related data.
- <NL> Newline sequence 0x0A.

The events are categorized as Job or Device related events and the variable data passed with each event type can be customized via VPSX system configuration statements. For details of external command configuration options, please refer to "XCMD System Parameters" on page 3.26.

Event data encoding rules:

- Event data fields that can contain embedded spaces will be enclosed in double quotes and embedded quotes will be repeated.
- Text values that cannot contain embedded spaces which have no value will be replaced by a hyphen '-'.

Event Confirmation Records

After processing each event the command processor must respond with a confirmation record written to STDOUT. The confirmation record has the form:

<event-token> <return-code> <NL>

Where:

- <event-token> is the token associated with the input event data.
- <return-code> Event processing return code.
- <NL> Newline sequence 0x0A.

Event processing return codes:

- 0 - Event data processed successfully.
- 1 - Error processing event, discard event data, and send next event.
- 2 - Temporary error processing event. Retain event data and retry after retry interval.
- All other return codes will be treated as fatal errors and external notification will be disabled.

External Events Types

Job Related Events

Event number	Event name	Description
1	JOB_CREATED	Job created successfully.
2	JOB_PRINTING	Job has started printing.
3	JOB_PRTERROR	Printing stopped due to an error.
4	JOB_INTREQ	Printing paused; intervention required.
5	JOB_CONVERROR	Filter conversion processing failed.
6	JOB_CONVERRORHOLD	Filter conversion processing failed; output held.
7	JOB_CONVERRORDEL	Filter conversion processing failed; output deleted.
8	JOB_STOPOPER	Printing stopped due to operator command.
9	JOB_CANOPER	Printing cancelled by operator.
10	JOB_CANPRTR	Printing cancelled from printer control panel.
11	JOB_PRINTED	Job printed successfully.
12	JOB_PRINTED_RET	Job printed successfully and retained.
13	JOB_PURGED	Job deleted without printing.
14	JOB_HELD	Job held by operator command.
15	JOB_RELEASED	Job released by operator command.
16	JOB_ROUTED	Job routed to alternate printer by operator command.
17	JOB_PRTDRAINED	Job processing delayed as printer is currently stopped.
18	JOB_DELETED	Job expired from retained queue or deleted after successful processing.

Device Related Events

Event number	Event name	Description
100	DEV_PRINTING	Device started printing.
101	DEV_IDLE	Printer idle.
102	DEV_EDRAINED	Printer stopped due to error.
103	DEV_INTREQ	Printer intervention required.
104	DEV_DRAINED	Printer stopped by operator command.
105	DEV_READY	Printer started by operator command.
106	DEV_WARNING	Printer has reported warning condition.
107	DEV_OFFLINE	Printer has gone offline due to an error condition.
108	DEV_ONLINE	Error condition has cleared and printer is online and ready to process jobs.
109	DEV_RETRY	Printer has been restarted after a previously failed print request.

Sample External Command Shell Script

Below is an example of a very simple shell script that can be executed as an external command notification routine. This routine will simply write the event notification data to a file.

xcmd.sh

```
#!/bin/sh
rc_ok=0
while read token event_number event_data
do
  echo $event_number $event_data >> /tmp/event.dat
  echo "$token $rc_ok"
done
echo "Terminating"
exit 0
```

For details of external command configuration options, please refer to "XCMD System Parameters" on page 3.26.

External Filter Support

The VPSX external filter support is a general purpose feature that enables an external routine to be executed to interrogate or modify print data before delivery to its destination. The execution of the filter routine occurs as part of the print delivery process and is triggered by the data type of the input spool file (i.e. PCL, PS, TEXT, etc.). Filters are commonly used to transform documents to a format suitable for the receiving device or to enhance the document by adding additional formatting controls.

A filter is a simple command line routine that can be a binary executable or shell script. In its most basic form a filter must accept an input file and generate an output file with a name specified by VPSX. On successful execution, VPSX will deliver the output file to the printer destination. Each printer can have up to nine separate filter commands that are associated with specific spool file data types.

Defining a Filter

The Printer **FnDTYPE** configuration keyword defines the spool file data type(s) that will be passed to a specific filter routine. The **FILTERn** keyword specifies the location of the filter executable and the **FnARGS** keyword defines the arguments that will be passed to this routine. (Note: The '**n**' in the keyword names indicate the filter number 1-9.)

Example:

F1DTYPE = PCL

FILTER1 = /usr/bin/cp

F1ARGS = &infile &outfile

Please refer to page 3.46 for full details of the filter keywords.

The above printer configuration statements instruct VPSX to pass all PCL documents to the /usr/bin/cp executable. The filter will be passed two arguments that contain the name of the input spool file and the name of the output file to be created by the filter routine. This very simple example uses the UNIX cp command to copy the spool data unchanged to the output file. VPSX will then deliver the output file to the printer destination. (Note: The filter output file will be deleted automatically by VPSX after processing.)

The filter arguments definition provides enormous flexibility in building the input parameters to the filter routine and can consist of static values and VPSX symbolic variables that will be resolved at execution time. All filters must accept the &infile and &outfile arguments to indicate the input spool file name and the output file that must be created on successful execution. If a filter completes with a zero return code and does not create an output file this will be treated as an error.

(Please refer to the description of the FNARGS keyword on page 3.48 for a complete list of symbolic variables.)

Note: Printers defined using a communication type of None (COMMTYPE=None) do not need to create an output file as VPSX will perform no further processing on this file. If a file is created using the &outfile name it will be deleted.

The output file from a filter routine will be processed by VPSX as binary data and will be sent unchanged to the destination device as it is assumed that the filter process has performed any necessary formatting. This means that PCMD formatting controls will not be inserted to control the presentation of the output but separator pages will be generated if requested.

Filter Error Handling

VPSX will monitor the status of all filter routines and will write messages generated by the filter process to the VPSX log. On successful execution, the filter routine must complete with an exit code of zero. All none zero exit codes will be treated as an error.

The printer configuration keyword **ERRACTN** (Error action) defines the default action that will be taken when a filter process fails. The default value for this keyword is HOLD and instructs VPSX to hold the current file and continue processing the next file in the printer queue. Please refer to page 3.47 for full details of the ERRACTN keyword.

Filter Feedback Commands

VPSX supports several filter feedback commands that can be used by the filter process to communicate processing options and status back to VPSX. These commands are simple text strings that can be written by the filter process to STDOUT or STDERR and will be intercepted and processed by VPSX.

Filter feedback commands have the following syntax:

<!VPSX-command>value

Where:

Command - Identifies the VPSX feedback command.

Value - Specifies a value associated with the feedback command.

Feedback commands must appear at the start of a line written to either STDOUT or STDERR and the command value must be terminated with a linefeed character.

Feedback command	Description
<!VPSX-Error>	This feedback command returns a text description of the error condition that has caused the filter to fail. This description will be displayed in the VPSX user interface when the filter exits with a non-zero exit code.
<!VPSX-ERRACTN>	Specifies the error action that VPSX should use if the filter process fails. **Valid values:** HOLD, DELETE or EDRAIN
<!VPSX-RETRY>	Indicates whether VPSX should process a failure as a retryable condition. **Valid values:** Yes or No **Default:** No
<!VPSX-RETRYTIME>	Specifies the retry interval in seconds that should be used instead of the printer defined RETRY interval.
<!VPSX-PAGE>	Indicates the current page being processed by the filter routine. For COMMTYPE=None this value will be displayed in the VPSX user interface to indicate the progress of the filter. On failure this value will be saved as the last page processed (&LASTPAGE symbolic variable) and could be used by subsequent executions of the filter to provide a checkpoint restart facility.

Section 4
ServerX

LRS/ServerX System Configuration

The LRS/ServerX system configuration parameters are specified via a text configuration file normally called VSVSTART in the VSVX installation directory. The configuration options can be changed manually using a text editor or can be updated online using one of the following interfaces:

- Web interface.
- SOAP Application Programming Interface.

Most users will modify the LRS/ServerX configuration values using the Web interface, therefore the descriptions of the system keywords have been organized based on the page layouts. Each configuration option is described using the system keyword name that will appear in the configuration file, and the Web page field as it appears in the Web interface.

Syntax of System Configuration Files

- Comments may be included in configuration files by specifying an * in the first character position.
- Only a single keyword can be specified per line.
- All keywords must be followed by an equal (=) sign and a keyword value.
- White space around keywords is ignored.

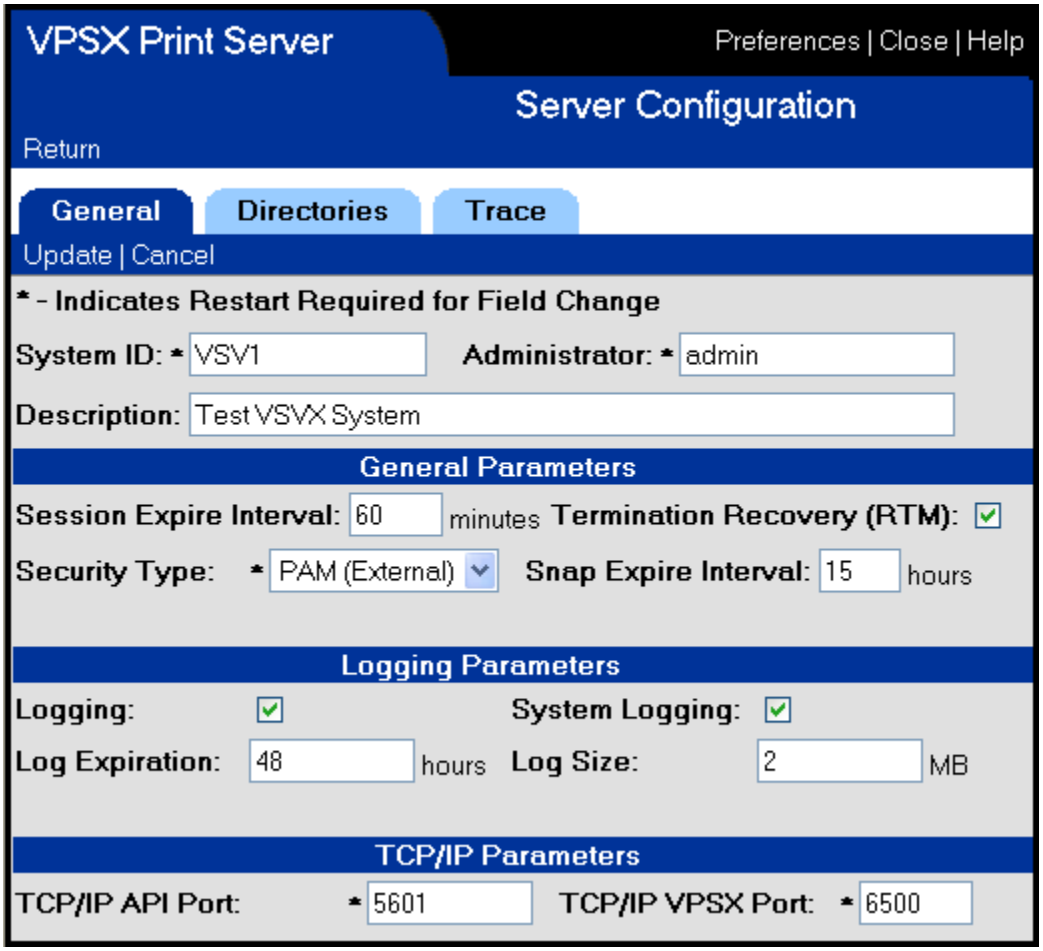
Selecting the Configuration File

The LRS/ServerX system configuration file is specified when the process is started via the **-f** argument.

Example:

```
/opt/lrs/vsvx/vsvx -f /opt/lrs/vsvx/vsvstart
```

General Parameters



Web page field: System ID
System keyword: VSVSYSID

The VSVSYSID keyword defines a unique identifier for this instance of LRS/ServerX. The server identifier is used when multiple LRS/ServerX processes are defined to a single LRS/NetX process. Users of the Web interface or the SOAP Application Programming Interface will use this name to identify the target for their requests.

Valid Values: 1 to 8 alphanumeric characters without embedded spaces.

Default: VSV1

Web page field: Description
System keyword: SYSDESC

Specifies a short description of the LRS/ServerX process. This description will appear in the Web interface server list display.

Valid Values: 1 to 79 characters.

Default: None.

Web page field: Administrator
System keyword: ADMINUSR

The ADMINUSR keyword identifies an initial administrative user ID that will be created during initialization of the security database. This user ID will be granted all privileges to administer the LRS/ServerX and VPSX server configurations and will be granted security administration authority. If you are using internal security this user ID will be created with an initial password of "password". If you are using external security then this user ID must match a user ID that is defined to the external security server.

Valid Values: 1-31 character user identifier.

Default: admin

Web page field: Session Expiration Interval
System keyword: SESSEXPR

The Session Expiration Interval defines a time-out value for inactive users. User sessions that are idle for the interval specified will be automatically logged off. Specifying a value of zero will disable session time-out processing.

Valid Values: 0-9999 minutes.

Default: 60 minutes.

Web page field: Termination Recovery
System keyword: RTM

This keyword controls whether LRS/ServerX should attempt to recover from severe errors that generate hardware context signals that would normally terminate the process (i.e. SIGSEGV, SIGBUS, etc.). LRS/ServerX is a multi-threaded server but SIGNALS only operate at the process level. If a signal is generated by any thread the default operating system action will be to terminate the entire process. With recovery termination enabled LRS/ServerX will capture the signal, take a diagnostic SNAP dump and only terminate the currently active thread.

Note: If the terminating thread holds any locks at the time of error, these will not be released as this could compromise the integrity of the internal process data structures. In this event it may be necessary to restart the LRS/ServerX process.

Valid Values: Yes/No

Default: Yes

Web page field: Security type
System keyword: SECURITY

The security keyword defines the security interface that will be used to authenticate user IDs and passwords during logon.

Supported security interfaces:

Internal - User IDs and passwords will be authenticated against the internal security database.

PAM - User IDs and passwords will be authenticated using the Pluggable Authentication Modules interface to an external security server.

LAM - User IDs and passwords will be authenticated using the Loadable Authentication Modules interface (AIX Only).

The PAM security interface is supported by most platforms and provides a standard interface to a range of external security servers. Before attempting to use the PAM interface, verify that the PAM interface library is available (libpam) and the PAM interface has been configured. The PAM configuration can be found in **/etc/pam.conf**.

Example: pam.conf

```
#
# PAM configuration
#
# Authentication management
#
login    auth required  /usr/lib/security/libpam_unix.1
OTHER    auth required  /usr/lib/security/libpam_unix.1
#
# Account management
#
login    account required    /usr/lib/security/libpam_unix.1
OTHER    account required    /usr/lib/security/libpam_unix.1
#
# Session management
#
login    session required    /usr/lib/security/libpam_unix.1
OTHER    session required    /usr/lib/security/libpam_unix.1
#
# Password management
#
login    password required   /usr/lib/security/libpam_unix.1
OTHER    password required   /usr/lib/security/libpam_unix.1
```

The PAM configuration file defines the security interface modules that should be called to authenticate user IDs and passwords for the indicated service. The example above contains definitions for two services (login and OTHER). The login service is the normal UNIX login authentication and the OTHER service definition is a general catch-all that processes authentication requests for all other services.

LRS/ServerX uses a PAM service name of LRS. In the example above, since there is no explicit definition for the LRS service, the security module associated with the OTHER service will be used.

Refer to the PAM documentation for your platform for full details on the configuration options.

Web page field: SNAP Expire Interval
System keyword: SNAPEXPR

This keyword specifies the expiration period, in hours, for diagnostic SNAP dump files. SNAP dumps are generated in the event of a severe error and contain system diagnostic information that will help LRS determine the cause of the failure. SNAP dumps are created in the directory identified by the SNAPDIR system keyword and will be removed automatically when the specified expiration period has expired. Specifying a value of zero will disable automatic expiration of SNAP files.

Valid Values: 0 - 9999 hours.

Default: 48 hours.

Web page field: Logging
System keyword: LOG

This keyword specifies whether the LRS/ServerX process should write all messages to a LRS/ServerX log file. Log files will be generated in the directory specified via the LOGDIR system keyword and will be actively managed and removed from the system when the log expiration period has expired.

Valid Values: Yes/No

Default: Yes

Web page field: System Logging
System keyword: SYSLOG

This keyword specifies whether the LRS/ServerX process should write all messages to the UNIX system log daemon.

Valid Values: Yes/No

Default: No

Web page field: LOG Expiration
System keyword: LOGEXPR

This keyword specifies the expiration period, in hours, for log files. Log files are created in the directory identified by the LOGDIR system keyword and will be removed automatically when the specified expiration period has expired. Specifying a value of zero will disable automatic expiration of log files.

Valid Values: 0 - 9999 hours

Default: 48 hours

Web page field: LOG size
System keyword: LOGSIZE

This keyword specifies the maximum size of a single log file. When the log size limit is reached LRS/ServerX will close the current log file and start logging to a new file.

Valid Values: 1 - 999 MB

Default: 4 MB

Web page field: TCP/IP API port
System keyword: TCPPORTA

This keyword specifies the local TCP/IP port that LRS/ServerX will open for inbound API requests. The LRS/NetX server will communicate with LRS/ServerX via this port number.

Valid Values: 1 - 65536

Default: 5601

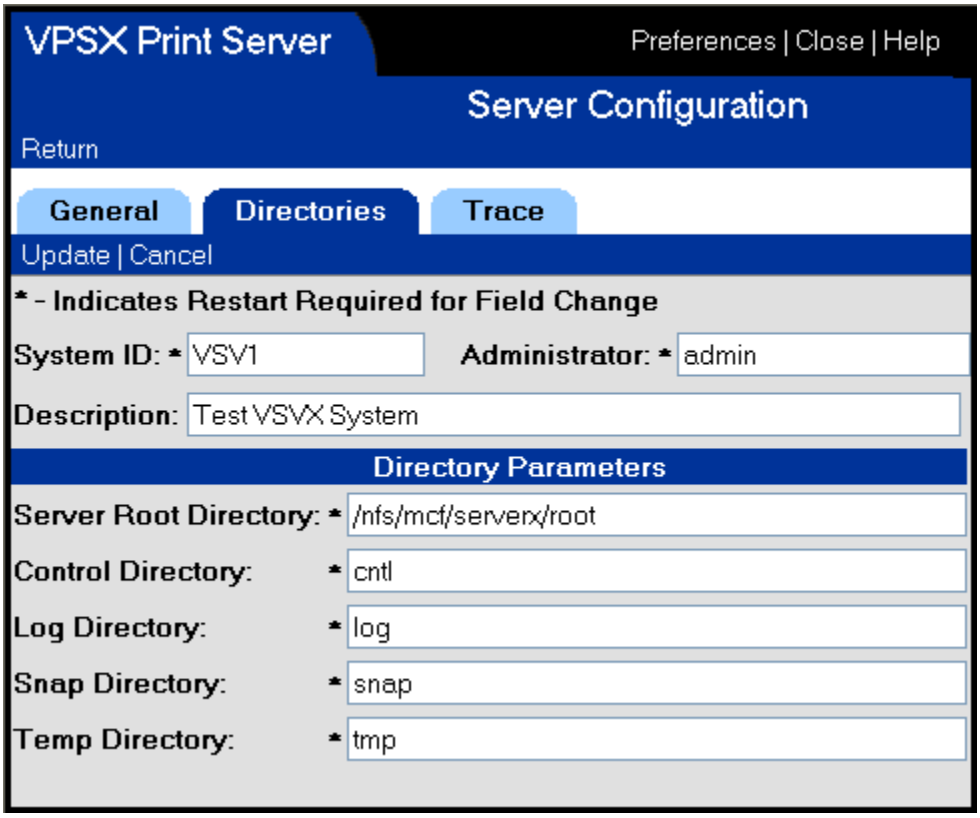
Web page field: TCP/IP VPSX port
System keyword: TCPPORTV

This keyword specifies the local TCP/IP port that LRS/ServerX will open for inbound VPSX monitor connections. VPSX servers will communicate with LRS/ServerX via this port number. **Note:** The VPSX server definition keyword must explicitly specify this port number unless the default port (5600) is being used (i.e. SERVER1=host:8888).

Valid Values: 1 - 65536

Default: 5600

Runtime Directories



Web page field: Server Root Directory
System keyword: SERVROOT

This keyword specifies the root working directory for this instance of LRS/ServerX. This keyword must specify a fully qualified directory name and will be used as the root for all subsequent directory definitions unless a fully qualified directory name is specified.

Valid Values: 1-99 character directory name.

Default: /lrs/vsvx

Web page field: Control directory
System keyword: CNTLDIR

This keyword specifies the directory that will be used as the output location for control information including the security and user profile database. Unless a fully qualified directory name is specified, this directory will be created below the server root directory defined via the SERVROOT keyword.

Valid Values: 1-99 character directory name.

Default: cntl

Web page field: Log directory
System keyword: LOGDIR

This keyword specifies the directory that will be used as the output location for log files generated by this instance of LRS/ServerX. Unless a fully qualified directory name is specified, this directory will be created below the server root directory defined via the SERVROOT keyword.

Valid Values: 1-99 character directory name.

Default: log

Web page field: SNAP directory
System keyword: SNAPDIR

This keyword specifies the directory that will be used as the output location for diagnostic SNAP files generated by this instance of LRS/ServerX. Unless a fully qualified directory name is specified, this directory will be created below the server root directory defined via the SERVROOT keyword.

Valid Values: 1-99 character directory name.

Default: snap

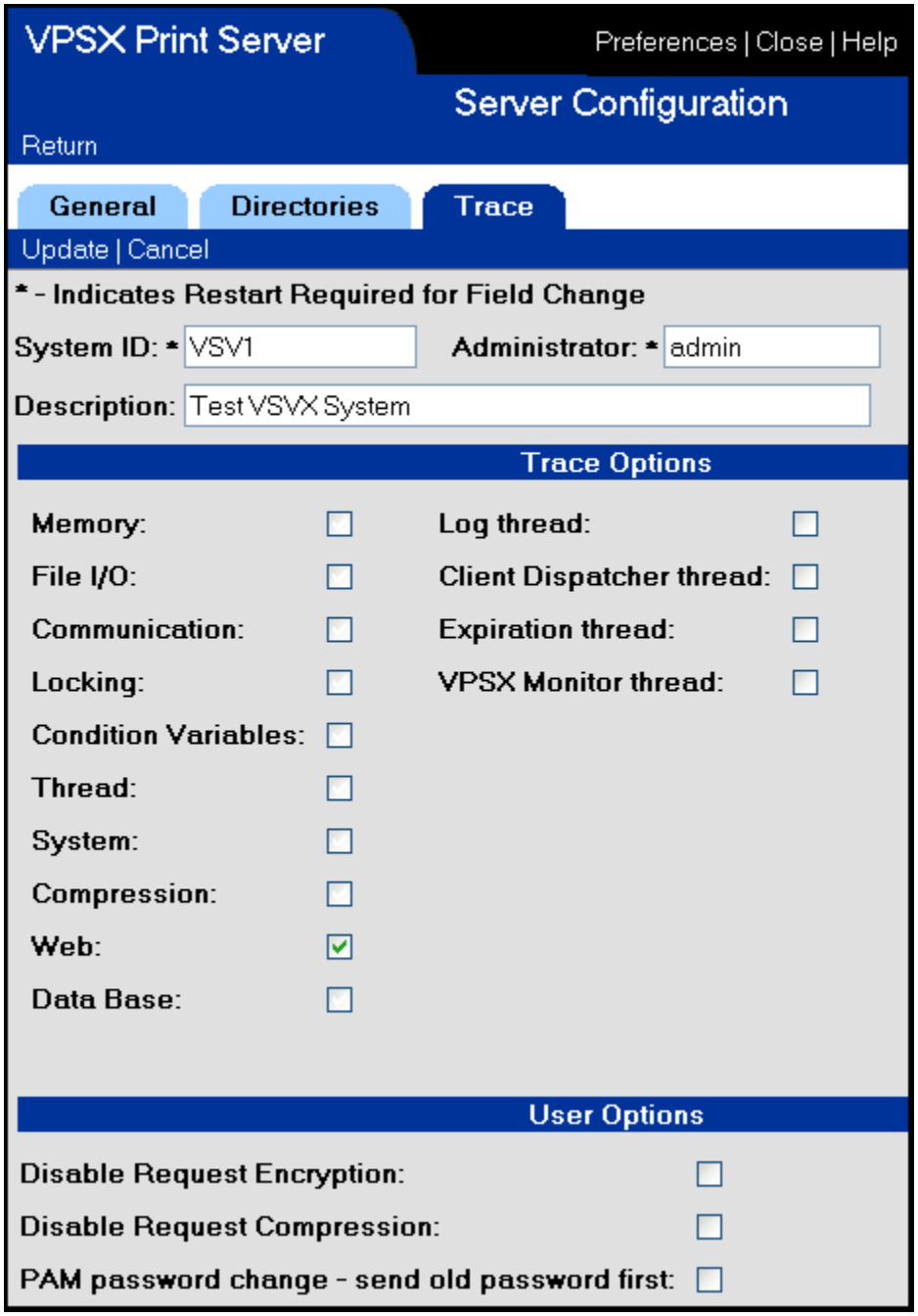
Web page field: Temp directory
System keyword: TEMPDIR

This keyword specifies the directory that will be used as the output location for temporary files generated by this instance of LRS/ServerX. Unless a fully qualified directory name is specified, this directory will be created below the server root directory defined via the SERVROOT keyword.

Valid Values: 1-99 character directory name.

Default: temp

Diagnostic Parameters



Web page field: Trace options
System keyword: TRACE

This keyword specifies the tracing flags that control the level of trace information that is generated by LRS/ServerX. The trace options are specified as 1-8 hex bytes and each bit relates to a specific trace flag or tracing mask. The tracing flags control the level of tracing required and the system mask bits limit the tracing options to specific system threads.

Tracing flags:

00000001 - Memory.
00000002 - File I/O.
00000004 - Communication.
00000008 - Lock and Mutex processing.
00000010 - Condition variables.
00000020 - POSIX thread functions.
00000040 - System level trace events.
00000080 - Compression.
00000100 - Web Services API.
00000200 - Database functions.

System Thread Masks:

00010000 - System log thread.
00020000 - Client threads.
00040000 - Expiration thread.
00080000 - VPSX monitor threads.

Valid Values: 00000000 - FFFFFFFF

Default: 00000000

Web page field: User option flags
System keyword: USEROPTS

The USEROPTS keyword specifies option flags to control specific LRS/ServerX processing options.

User option flags:

0x00000001 - Disable request encryption. This option flag disables encryption of requests passed between LRS/ServerX and the other product components.

0x00000002 - Disable request compression. This option flag disables compression of requests passed between LRS/ServerX and the other product components.

0x00000004 - PAM password change - send old password first. This option flag indicates that, while processing a PAM change password request, the PAM interface module should provide the old password first before providing the new password.

LRS/ServerX Security Administration

The LRS/ServerX process acts as a central directory of all printers and VPSX servers and is also responsible for controlling access to these resources. The LRS/ServerX process sits between the end users and the VPSX print servers and controls all access to system resources based on a user's security profile. Before accessing the system, all users must authenticate with the LRS/ServerX process and establish a session.

The LRS/ServerX process provides three options for user authentication:

- Internal user authentication.
- External user authentication using the PAM (Pluggable Authentication Modules) interface.
- External user authentication using the LAM (Loadable Authentication Modules) interface (AIX only).

The authentication method used is specified via the SECURITY system configuration keyword and will default to **Internal** if not specified.

Authentication Using PAM

The PAM (Pluggable Authentication Modules) interface is supported by most UNIX platforms and provides a single interface to a range of authentication services. The PAM interface is configured via the **/etc/pam.conf** configuration file, which enables users to define authentication services and one, or more, 'pluggable' authentication modules that should be called to perform the authentication checks on behalf of the service. Pluggable authentication modules are commonly available to authenticate against the standard UNIX user definitions, NIS, LDAP servers or Windows active directory. Using the PAM interface, it is possible to implement a single sign-on for VPSX and other services.

To use the PAM interface you must first confirm that PAM has been installed and configured on your system. To initialize the PAM interface LRS/ServerX requires access to the PAM function library (libpam) and must also be executing with root authority.

The PAM interface provides the ability to define different authentication modules for specific services. The PAM configuration can also define a generic authentication definition for services that have not been explicitly defined.

Example PAM configuration file:

```
#
# PAM configuration
#
# Authentication management
#
login    auth required  /usr/lib/security/libpam_unix.1
OTHER    auth required  /usr/lib/security/libpam_unix.1
#
# Account management
#
login    account required       /usr/lib/security/libpam_unix.1
OTHER    account required       /usr/lib/security/libpam_unix.1
#
# Session management
#
login    session required       /usr/lib/security/libpam_unix.1
OTHER    session required       /usr/lib/security/libpam_unix.1
#
# Password management
#
login    password required      /usr/lib/security/libpam_unix.1
OTHER    password required      /usr/lib/security/libpam_unix.1
```

The above configuration file defines two security services: '**login**' - the service name used by the standard UNIX login function; and '**Other**' which is a generic service definition that will be used for all services that have not been explicitly defined. The LRS/ServerX authentication function uses a service name of 'LRS' when calling the PAM interface. If you wish to use specific authentication modules for LRS/ServerX then you must add definitions for the 'LRS' service, otherwise the authentication modules defined for the 'Other' service will be used.

For a complete description of the PAM interface and the configuration options available on your platform please refer to the PAM interface documentation.

Authentication Using LAM

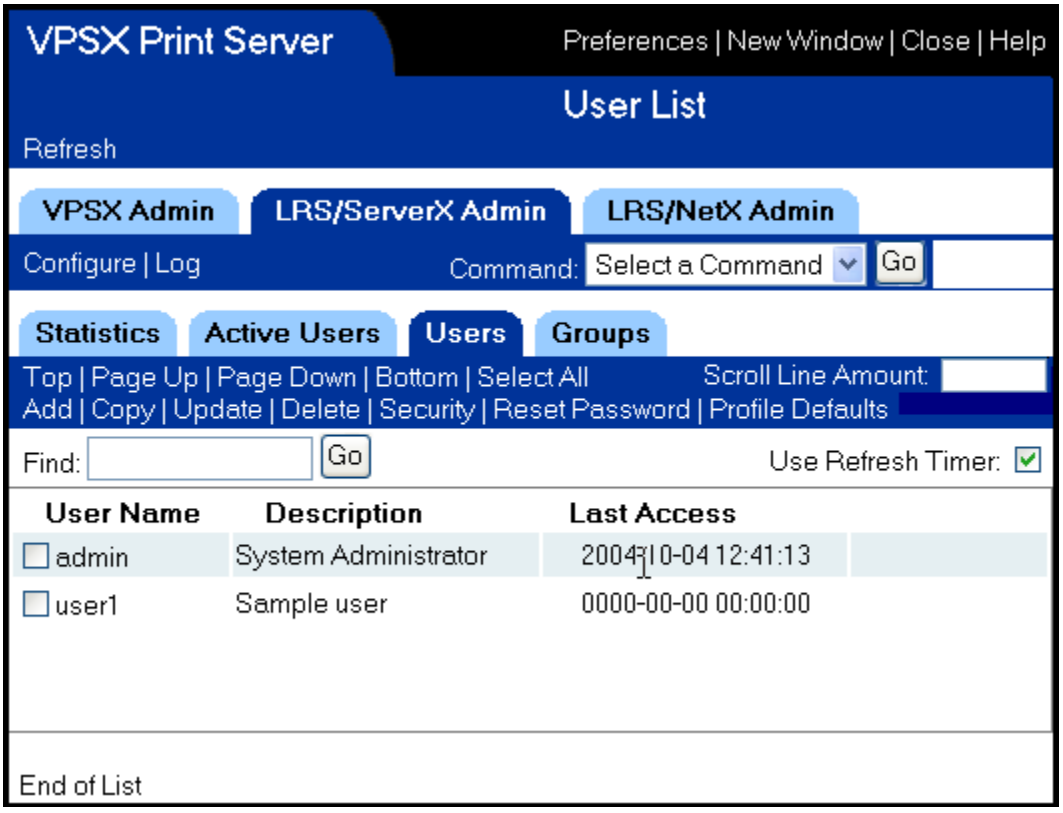
The LAM authentication interface is only supported by AIX and should only be used if the PAM interface is not available (i.e. AIX 4.3). The LAM interface will authenticate users against the AIX user definitions. To use the LAM interface the LRS/ServerX process must execute with root authority.

Controlling Access to Printers and VPSX Servers

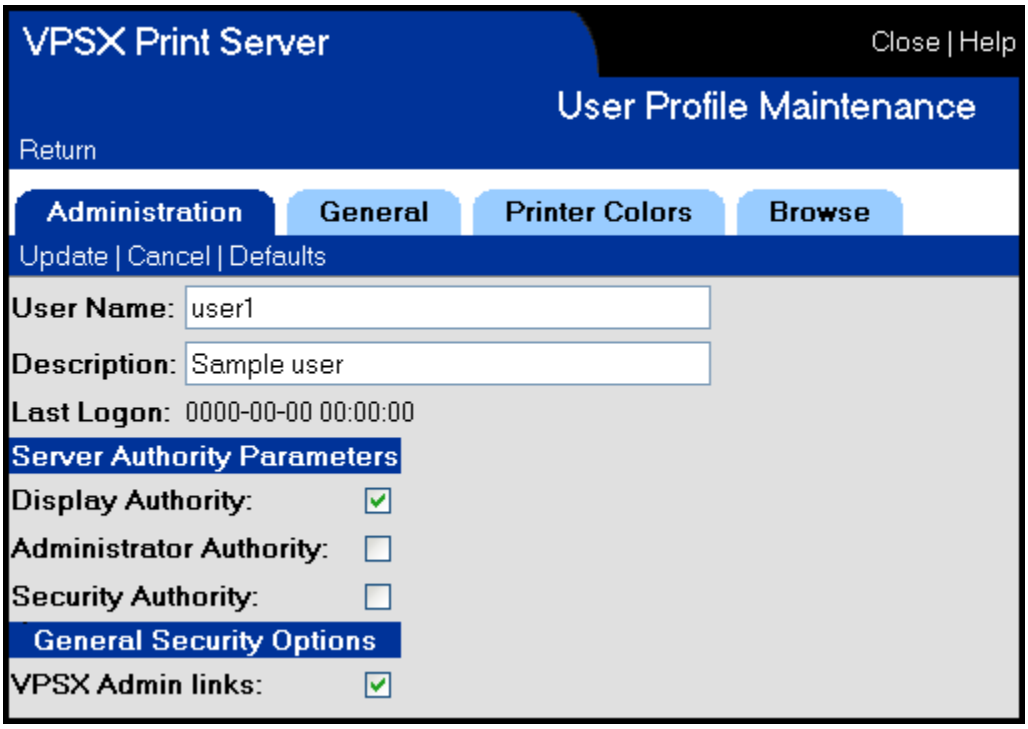
Once a user has been authenticated with the LRS/ServerX process, the access rights to VPSX printers and servers are controlled via internal security rules that are held in the LRS/ServerX security database. The **ADMINUSR** system configuration keyword defines the primary system administrator that will be created during system initialization. This user will have full authority to administer VPSX servers, LRS/ServerX system configuration options, and is the primary security administrator.

A user definition is required for all users to permit access to the system. The user definition defines the user's general authority for the LRS/ServerX process and contains the user's password (internal security only). If you are using an external security server for authentication, a user definition will be created automatically during initial sign-on.

Users can be defined using the LRS/ServerX administration pages that are accessed by selecting '**Admin**' from the VPSX Printer List display and then choosing '**Server**' from the drop down. **Note:** You must have security administration authority to access these pages.



The **User List** page, shown above, provides options to add, copy, update, and delete user definitions. When adding or updating a user you can specify the user's basic authority for the LRS/ServerX process.



The Server authority flags provide the following levels of access.

Display Authority - Enables a user to display the LRS/ServerX statistics and configuration pages.

Administrator Authority - Enables a user to update the LRS/ServerX system configuration parameters.

Security Authority - Enables a user to update the user and security definitions.

General Security Options:

VPSX Admin links - This flag controls whether the user will have any administrative buttons for VPSX printers (i.e. add, delete, update, etc.).

Defining User Authority

Once a user has been created it is necessary to add security rules to define the printers and VPSX servers that the user can display and control.

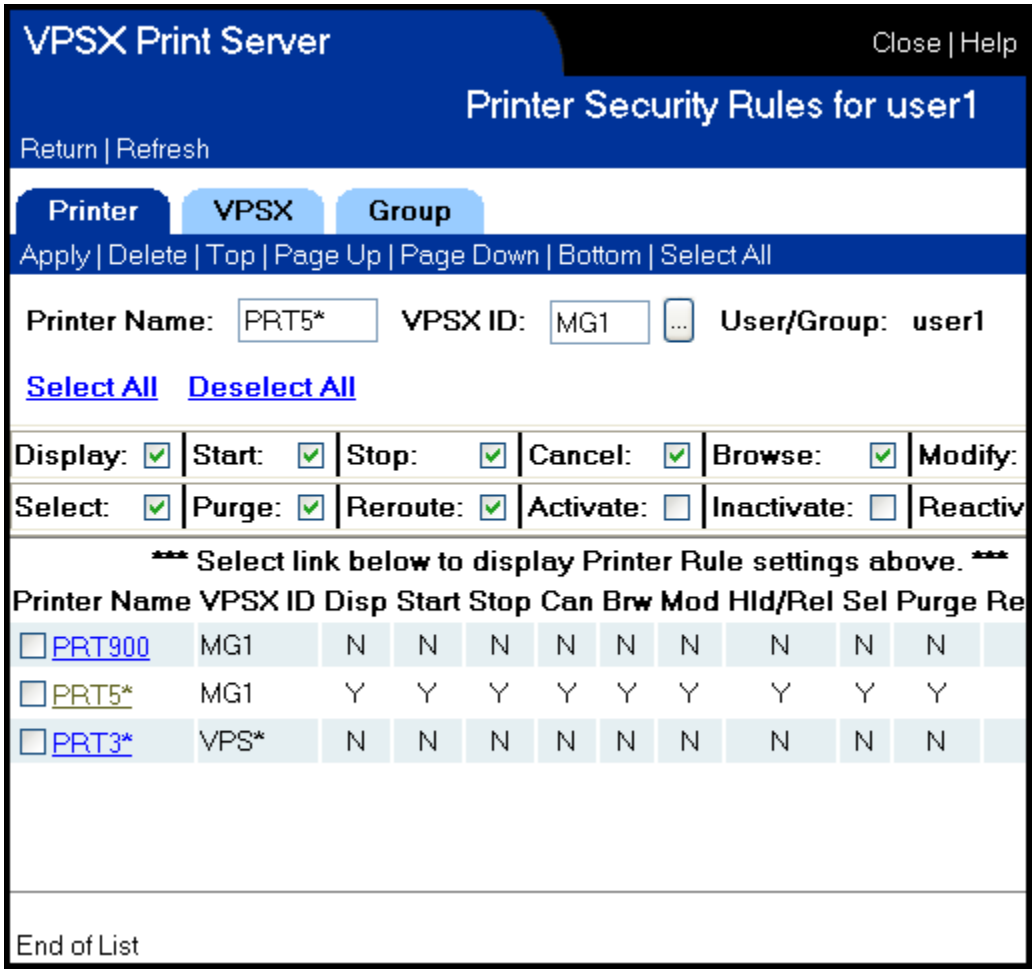
There are two types of security rules:

- Printer security rules - Control the printers that a user can see and the authority for these printers.
- VPSX Security rules - Define the user's ability to display and administer a VPSX server.

Normal users will only require printer security rules as they would not normally be permitted to display the status of a VPSX server or change the VPSX server configuration.

Note: Changes made to the security permissions for a user will take effect the next time the user logs on.

Printer Security Rules



The Printer Security Rules page can be accessed by selecting a user from the user list display and then selecting the '**security**' button.

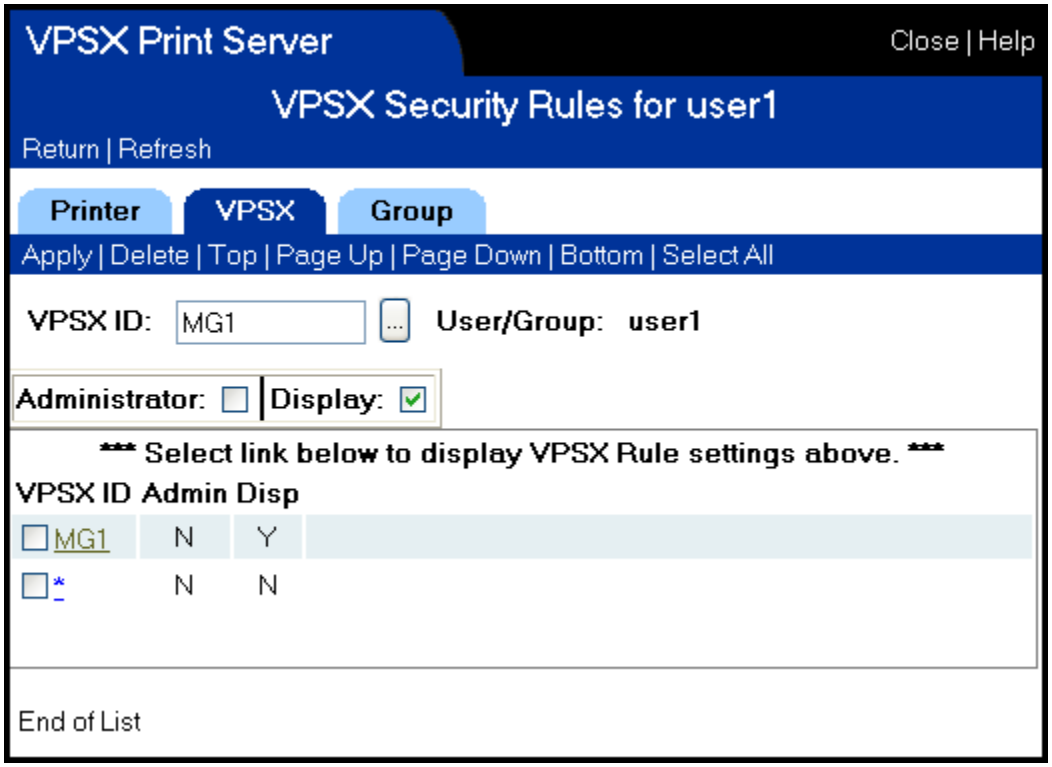
All printers in the enterprise can be uniquely identified by a combination of the printer name and the controlling VPSX print server identifier. Printer rules can identify a specific printer name to grant authority to an individual printer or can use a generic printer or VPSX mask to identify a range of similarly named devices. The associated permission flags then define the authority level granted to this printer or range of printers.

Printer Authorities

Display	- The printer can be displayed and will appear in the printer list.
Start	- The **start** command can be issued to remove a drained or error drained status.
Stop	- The **stop** command can be issued to drain a printer and prevent further work being selected.
Cancel	- The **cancel** command can be issued to cancel the currently active print.
Browse	- The user can browse output in the printer queue.
Modify	- The user can modify spool file attributes of output in the printer queue.
Hold/Release	- The user can hold and release spool files in the printer queue.
Select	- The **select** command can be used to change the active selection criteria for the printer.
Purge	- The user can purge spool files in the printer queue.
Reroute	- The user can re-route output to another printer.
Activate	- The **activate** command can be used to activate a printer definition in the printer configuration directory.
Inactivate	- The **inactivate** command can be used to temporarily remove a printer definition from the system.
Reactivate	- The **reactivate** command can be used to remove and reactivate the printer definition.
Administrator	- The user has administrative authority for the printer and can update the printer configuration.

Any number of printer rules can be defined and the order of the definitions is not important. When checking a user's permissions the most specific rules will take priority over more generic rules.

VPSX Security Rules



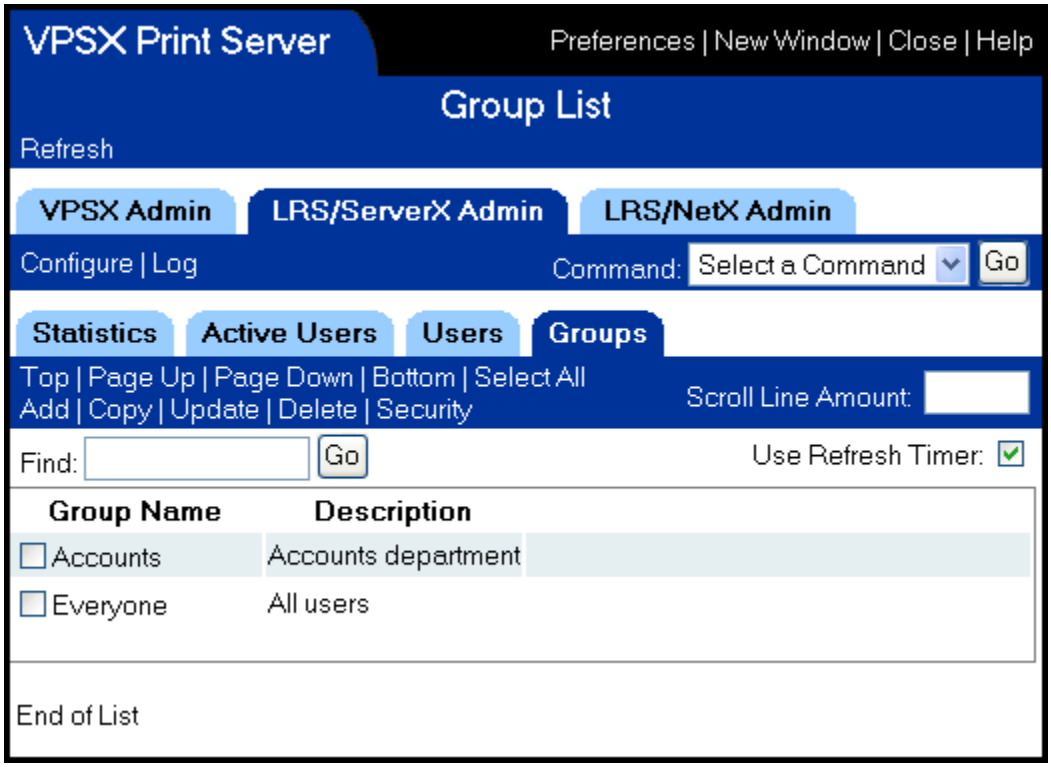
VPSX security rules are only required for users that need the ability to display or update the VPSX server configuration parameters. Each VPSX rule can specify a specific VPSX system identifier or a generic mask.

VPSX Authorities

Display - The user can display the VPSX server configuration and statistics.
Administrator - The user has full administrative authority for the VPSX server.

Any number of VPSX rules can be defined and the order of the definitions is not important. When checking a user's permissions, the most specific rules will take priority over more generic rules.

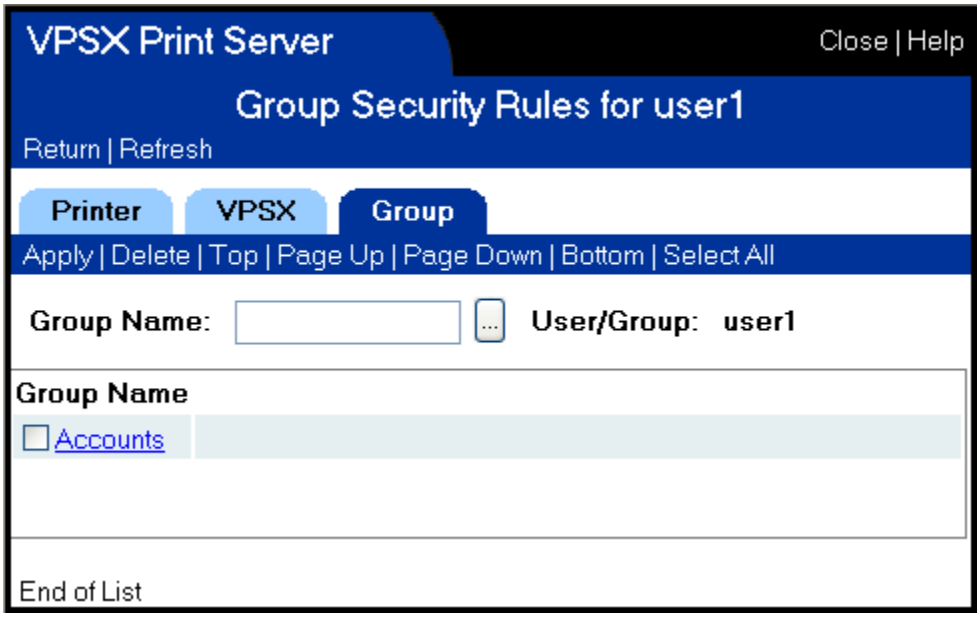
Security Groups



Security groups make it possible to reduce the number of security definitions required when adding or maintaining users. Printer and VPSX security rules can be added to a group definition and users with common access requirements can be connected to the group. Security groups are defined with simple names (accounts, sales, etc.) and could contain rules for all printers in the same department or in the same geographical area. Once a group is defined, users can then be connected to the group and will receive all permissions granted to that group. There is no limit to the number of groups that a user can be connected to.

During initialization, a special group called '**Everyone**' is added to the security database. Any permissions granted to the **Everyone** group will automatically apply to all users of the system. The **Everyone** group can be useful when using external security as it provides a simple mechanism to grant all users some basic permissions when they first log on to the system.

Connecting Users To Groups



Users can be connected to a security group definition by selecting the **Group** tab and then entering the group name. Alternatively you can use the "…" **List** button and select the group from a list. The group display will not show the '**Everyone**' group as all users are automatically connected to this group.

Section 5
LRS/NetX

LRS/NetX System Configuration

The LRS/NetX system configuration parameters are specified via a text configuration file normally called **LNTSTART** in the **NETX** installation directory. The configuration options can be changed manually using a text editor or can be updated online using the Web interface.

Most users will modify the LRS/NetX configuration values using the Web interface, therefore the descriptions of the system keywords have been organized based on the screen layouts. Each configuration option is described using the system keyword name that will appear in the configuration file, and the Web page field as it appears in the Web interface.

Syntax of System Configuration Files

- Comments may be included in configuration files by specifying an * in the first character position.
- Only a single keyword can be specified per line.
- All keywords must be followed by an equal (=) sign and a keyword value.
- White space around keywords is ignored.

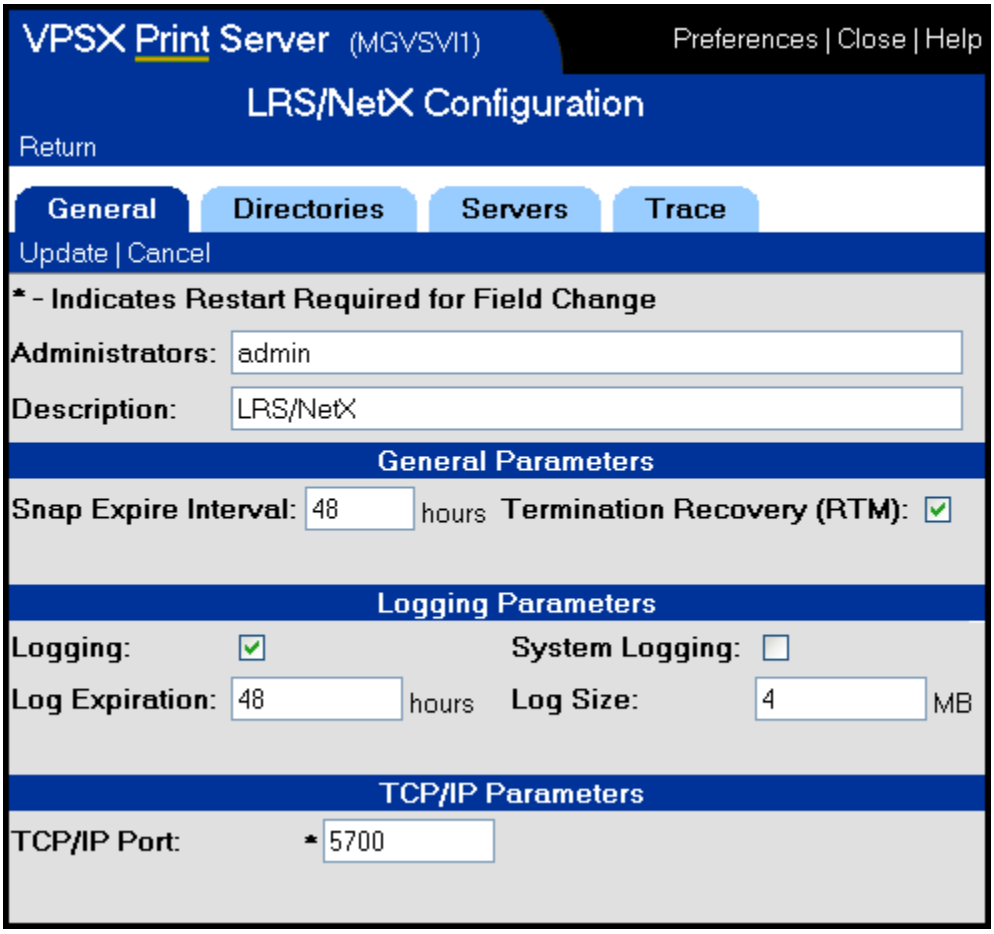
Selecting the Configuration File

The LRS/NetX system configuration file is specified when the process is started via the **-f** argument.

Example:

/opt/lrs/netx/netx -f /opt/lrs/netx/lntstart

General Parameters



Web page field: Administrators
System keyword: ADMINUSR

The ADMINUSR keyword identifies one or more administrative user IDs that will have authority to change the LRS/NetX configuration options via the Web interface.

Valid Values: 1-127 characters specifying one or more user IDs separated with spaces.

Default: admin

Web page field: Description
System keyword: SYSDESC

Specifies a short text description of this LRS/NetX server.

Valid Values: 1 to 79 characters.

Default: None.

Web page field: SNAP Expire Interval
System keyword: SNAPEXPR

This keyword specifies the expiration period, in hours, for diagnostic SNAP dump files. SNAP dumps are generated in the event of a severe error and contain system diagnostic information that will help LRS determine the cause of the failure. SNAP dumps are created in the directory identified by the SNAPDIR system keyword and will be removed automatically when the specified expiration period has expired. Specifying a value of zero will disable automatic expiration of SNAP files.

Valid Values: 0 - 9999 hours.

Default: 48 hours.

Web page field: Termination Recovery
System keyword: RTM

This keyword controls whether LRS/NetX should attempt to recover from severe errors that generate hardware context signals that would normally terminate the process (i.e. SIGSEGV, SIGBUS, etc.). LRS/NetX is a multi-threaded server but SIGNALS only operate at the process level. If a signal is generated by any thread, the default operating system action will be to terminate the entire process. With recovery termination enabled, LRS/NetX will capture the signal, take a diagnostic SNAP dump and only terminate the currently active thread.

Note: If the terminating thread holds any locks at the time of error, these will not be released as this could compromise the integrity of the internal process data structures. In this event it may be necessary to restart the LRS/NetX process.

Valid Values: Yes/No

Default: Yes

Web page field: Logging
System keyword: LOG

This keyword specifies whether the LRS/NetX process should write all messages to a LRS/NetX log file. Log files will be generated in the directory specified via the LOGDIR system keyword and will be actively managed and removed from the system when the log expiration period has expired.

Valid Values: Yes/No

Default: Yes

Web page field: System Logging
System keyword: SYSLOG

This keyword specifies whether the LRS/NetX process should write all messages to the UNIX system log daemon.

Valid Values: Yes/No

Default: No

Web page field: LOG Expiration
System keyword: LOGEXPR

This keyword specifies the expiration period, in hours, for log files. Log files are created in the directory identified by the LOGDIR system keyword and will be removed automatically when the specified expiration period has expired. Specifying a value of zero will disable automatic expiration of log files.

Valid Values: 0 - 9999 hours.

Default: 48 hours.

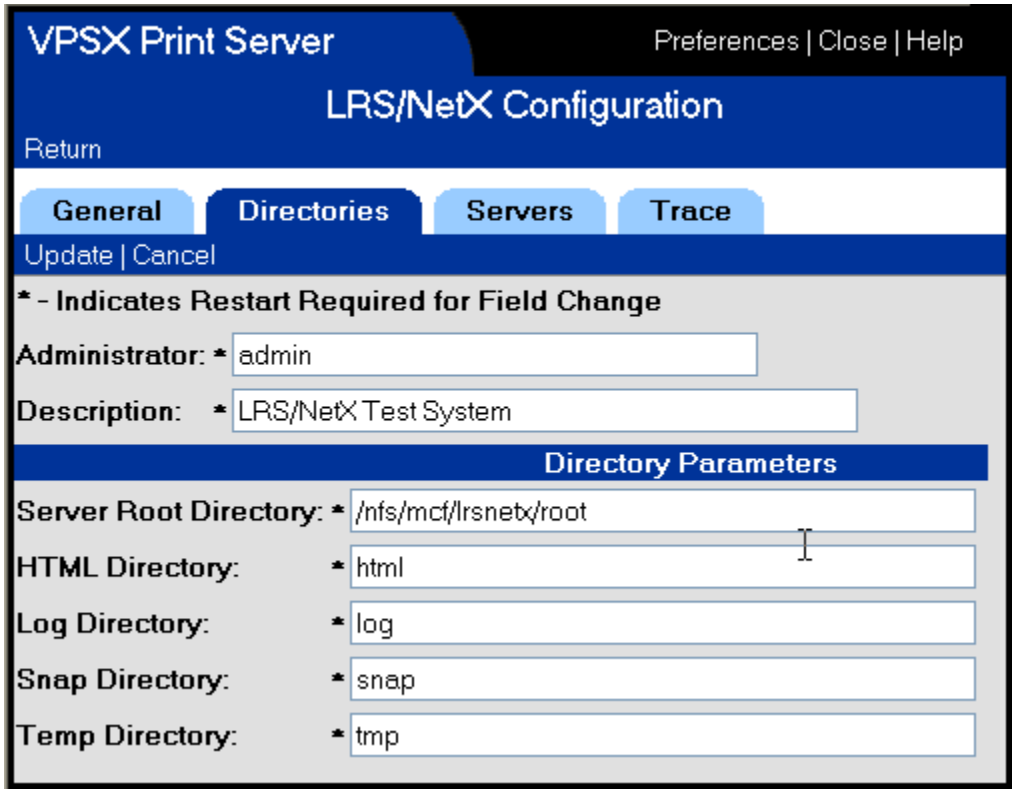
Web page field: LOG size
System keyword: LOGSIZE

This keyword specifies the maximum size of a single log file. When the log size limit is reached, LRS/NetX will close the current log file and start logging to a new file.

Valid Values: 1 - 999 MB

Default: 4 MB

Runtime Directories



Web page field: **Server Root Directory**
System keyword: **SERVROOT**

This keyword specifies the root working directory for this instance of LRS/NetX. This keyword must specify a fully qualified directory name and will be used as the root for all subsequent directory definitions unless a fully qualified directory name is specified.

Valid Values: 1-99 character directory name.

Default: /lrs/netx

Web page field: HTML directory
System keyword: HTMLDIR

This keyword specifies the directory that contains the HTML page templates required for the Web applications. This keyword will normally specify the installation directory containing the HTML pages templates, unless the templates have been copied to a separate location to be customized. Unless a fully qualified directory name is specified, this directory will be created below the server root directory defined via the **SERVROOT** keyword.

Valid Values: 1-99 character directory name.

Default: /opt/lrs/netx/html

Web page field: Log directory
System keyword: LOGDIR

This keyword specifies the directory that will be used as the output location for log files generated by this instance of LRS/NetX. Unless a fully qualified directory name is specified, this directory will be created below the server root directory defined via the SERVROOT keyword.

Valid Values: 1-99 character directory name.

Default: log

Web page field: TCP/IP port
System Keyword: TCPPORT

This keyword specifies the local TCP/IP port that LRS/NetX will open for inbound LRS/Web Connect requests. This port number should be specified in the LRS/Web Connect connection profile when defining this server.

Valid Values: 1 - 65536

Default: 5700

Web page field: SNAP directory
System keyword: SNAPDIR

This keyword specifies the directory that will be used as the output location for diagnostic SNAP files generated by this instance of LRS/NetX. Unless a fully qualified directory name is specified, this directory will be created below the server root directory defined via the SERVROOT keyword.

Valid Values: 1-99 character directory name.

Default: snap

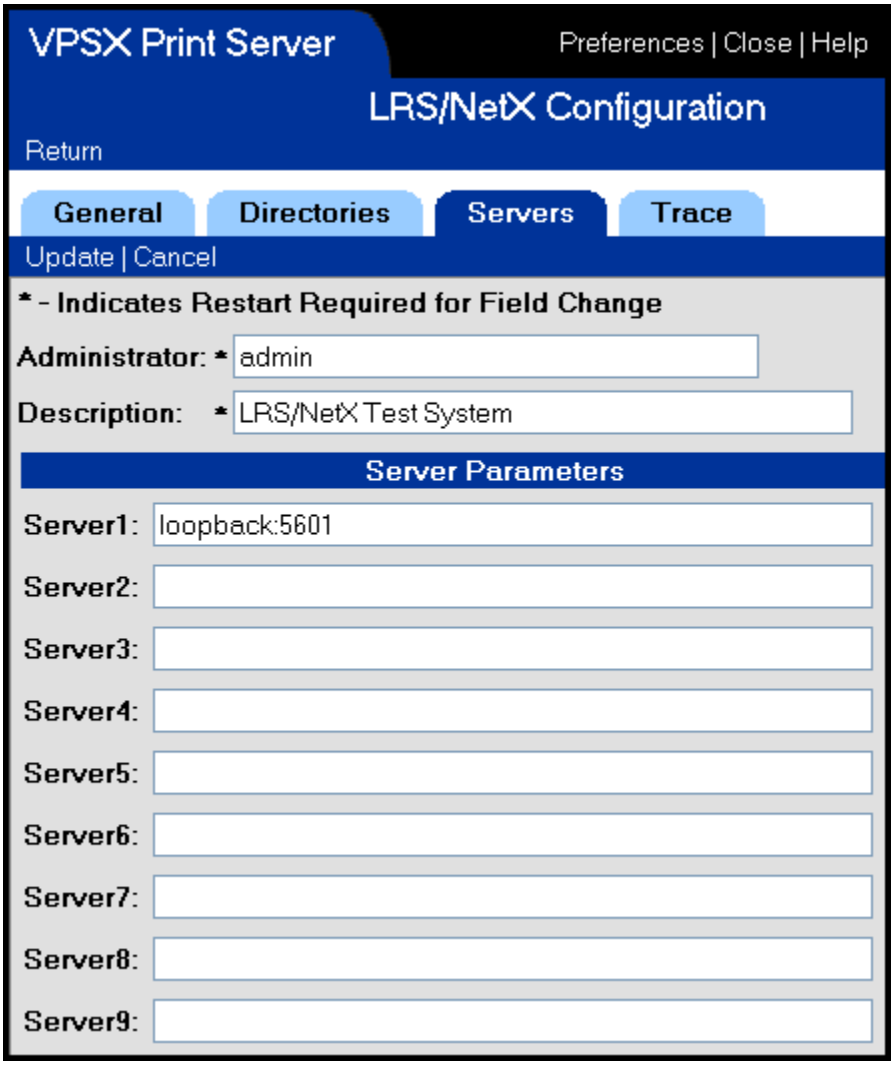
Web page field: Temp directory
System keyword: TEMPDIR

This keyword specifies the directory that will be used as the output location for temporary files generated by this instance of LRS/NetX. Unless a fully qualified directory name is specified, this directory will be created below the server root directory defined via the SERVROOT keyword.

Valid Values: 1-99 character directory name.

Default: temp

Server Parameters



Web page field: Server1-9
System keyword: SERVER1-9

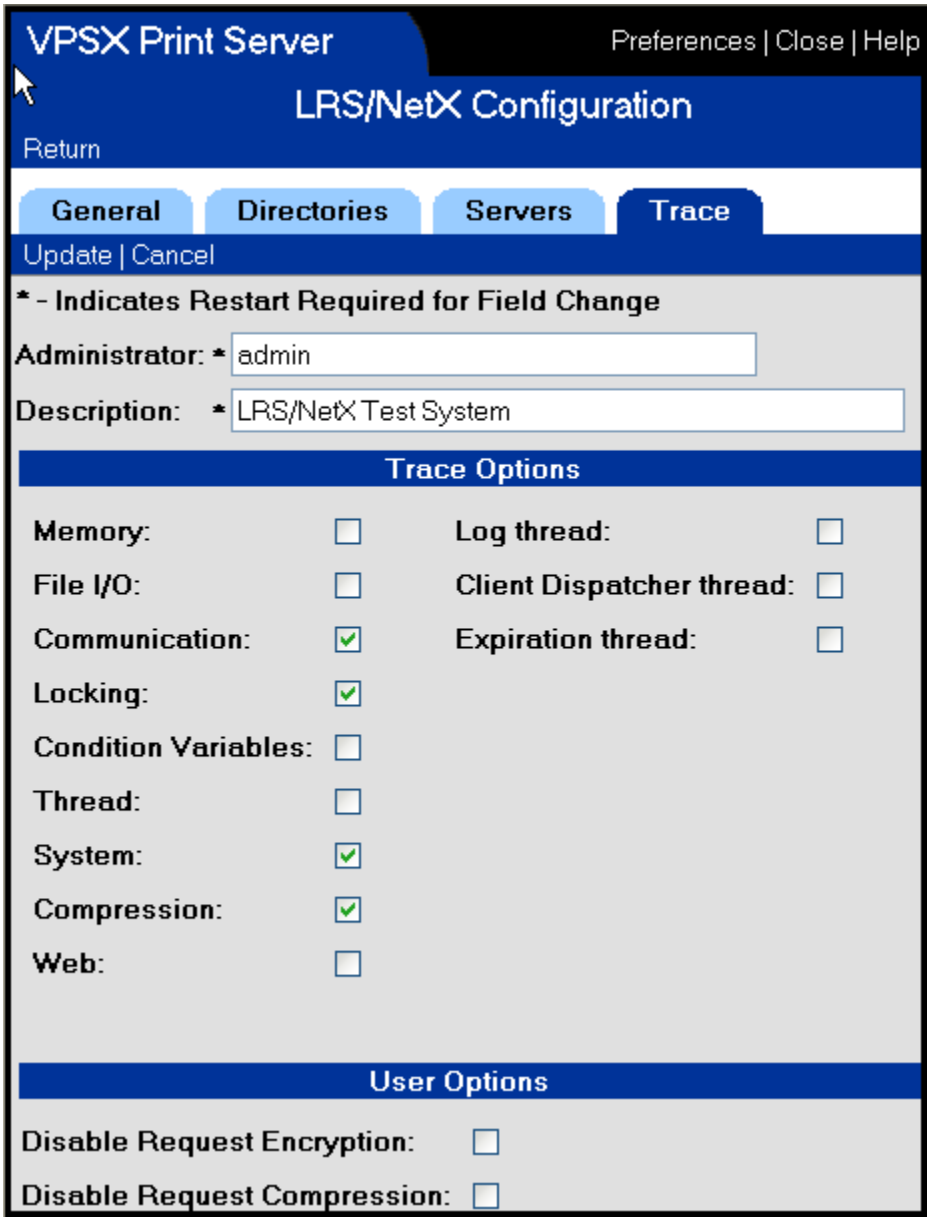
The server keywords identify up to nine LRS/ServerX processes that LRS/NetX will make available to Web applications and inbound client SOAP API requests. Each server definition identifies the symbolic host name or IP address where the LRS/ServerX process is running and, optionally, the TCP/IP port number that the LRS/ServerX process has opened for inbound API requests (default: 5601).

LRS/NetX will establish communication with each LRS/ServerX process and retrieve the server identifier and server description. Once communication has been established Web applications can use the LRS/ServerX system identifier to communicate with each defined LRS/ServerX process.

Valid Values: An LRS/ServerX instance is identified by the TCP/IP hostname or ip-address where the process is running and optionally the remote port number that is being used by the LRS/ServerX process to accept inbound API connections. (Format: hostname:port.)

Default: SERVER1 will default to 127.0.0.1(local host) and the default LRS/ServerX API port (5601).

Diagnostic Parameters



Web page field: Trace options
System keyword: TRACE

This keyword specifies the tracing flags that control the level of trace information that is generated by LRS/NetX. The trace options are specified as 1-8 hex bytes and each bit relates to a specific trace flag or tracing mask. The tracing flags control the level of tracing required and the system mask bits limit the tracing options to specific system threads.

Tracing flags:

00000001 - Memory.

00000002 - File I/O.

00000004 - Communication.

00000008 - Lock and Mutex processing.

00000010 - Condition variables.

00000020 - POSIX thread functions.

00000040 - System level trace events.

00000080 - Compression.

00000100 - Web Services API.

00000200 - Database functions.

System Thread Masks:

00010000 - System log thread.

00020000 - Client threads.

00040000 - Expiration thread.

Valid Values: 00000000 - FFFFFFFF

Default: 00000000

Web page field: User option flags
System keyword: USEROPTS

The USEROPTS keyword specifies option flags to control specific LRS/NetX processing options.

User option flags:

0x00000001 - Disable request encryption. This option flag disables encryption of requests passed between LRS/NetX and the LRS/ServerX processes.

0x00000002 - Disable request compression. This option flag disables compression of requests passed between LRS/NetX and the LRS/ServerX processes.

Section 6
Messages and Codes

VPSX Message General Information

The VPSX process will generate messages for all major events during execution. The messages will be written to the VPSX log files and can optionally be issued to the UNIX SYSLOG daemon. VPSX message logging is enabled/disabled via the LOG keyword in the VPSX system initialization file (VPSSTART) and, when enabled, the log files will be created in the directory specified via the LOGDIR keyword (default: serverroot/log). Logging to the UNIX SYSLOG is controlled via the SYSLOG keyword in the system initialization file.

VPSX actively manages all log files and will automatically remove files after an installation defined expiration period (LOGEXPR keyword). A new log file will be started each time the VPSX process is started or when the log file size reaches an installation defined maximum (LOGSIZE keyword).

Log file names are constructed using the date and time the log files were started and have a file extension of '**.log**'.

VPS Message Format

All VPSX messages are prefixed with a 9 character message identifier that has the following format:

VPSXnnnnt

Where: **nnnn** - Unique message number.
t - Message type (see below).

Message Types:

D - Debug message (LRS internal use only).
I - Informational message.
W - Warning message.
E - Error message.
A - Critical alert message.

The message identifier is followed by the name of the internal thread issuing the message. System threads will have a name beginning and ending with a dollar symbol; printer threads use the printer name.

Example:

VPSX0004I <$MAIN$> CHECKPOINT DATABASE OPENED SUCCESSFULLY

VPSX Messages

VPSX0002I library_version

library_version: Shared library version information.

Message meaning: This message will be issued several times during startup to display the version, release, and fix levels of all LRS shared libraries used by the VPSX process.
System Action: None.
Required action: None.

VPSX0003I VPSX STARTED AS DAEMON PROCESS

Message Meaning: VPSX has been started with the **-d** flag and disassociated itself from the starting process to execute as a daemon.
System Action: None.
Required Action: None.

VPSX0004I CHECKPOINT DATABASE OPENED SUCCESSFULLY

Message Meaning: VPSX has opened the checkpoint database that contains environment information stored from the previous execution.
System Action: None.
Required Action: None.

VPSX0005I INITIALIZING CHECKPOINT DATABASE

Message Meaning: VPSX has not found a checkpoint database so it is initializing a new set of database files.
System Action: None.
Required Action: None.

VPSX0006I nnn SAP R/3 JOB EVENTS RESTORED FROM CHECKPOINT DATABASE

nnn: Number of job events restored.

Message Meaning: VPSX has restored the indicated number of undeliverable job notification events from the previous execution. Notification requests for completion events (i.e, job printed, purged, etc.) are saved in the checkpoint database to ensure delivery even after a failure or restart.
System Action: None.
Required Action: None.

VPSX0007I SAP R/3 CONFIGURATION RESTORED FROM CHECKPOINT DATABASE

Message Meaning: VPSX has restored the SAP R/3 callback server configuration from the checkpoint database.
System Action: None.
Required Action: None.

VPSX0010I name THREAD ATTACHED

name: Name of the thread.

Message Meaning: A new thread has been created with the indicated name.
System Action: None.
Required Action: None.

VPSX0011I name THREAD DETACHED

name: Name of the thread.

Message Meaning: The indicated thread has been removed from the system.
System Action: None.
Required Action: None.

VPSX0012I name THREAD TERMINATED

name: Name of the thread.

Message Meaning: The indicated thread has terminated.
System Action: None.
Required Action: None.

VPSX0099I LIMITS(OPEN-FILES(file-limit,file-max) MEMORY(memory-limit,memory-max) ADDR-SPACE(addr-limit,addr-max))

file-limit: Indicates the limit imposed by the operating system on the number of files that can be opened concurrently.
file-max: Indicates the operating system maximum possible files limit.
memory-limit: Indicates the limit imposed by the operating system on the amount of storage that can be acquired by the process.
memory-max: Indicates the operating system maximum memory limit.
addr-limit: Indicates the limit on the accessible address space.
addr-max: Indicates the architectural maximum address space.

Message Meaning: Operating system resource limits.
System Action: None.
Required Action: None.

VPSX0100I VPSX INITIALIZATION SUCCESSFUL VERSION=VverRrel.fix

ver: Software version of VPSX.
rel: Software release.
fix: Fix level.

Message Meaning: VPSX has successfully initialized using the indicated software level.
System Action: None.
Required Action: None.

VPSX0101I prtname ACTIVATED SUCCESSFULLY

prtname: Printer name.

Message Meaning: VPSX has successfully activate the indicated printer definition.
System Action: None.
Required Action: None.

VPSX0102I prtname ACTIVATION FAILED - error

prtname: Printer name.
error: Error description.

Message Meaning: VPSX has failed to activate the indicated printer definition due to the error.
System Action: The printer definition has failed and has been removed from the system.
Required Action: Check the reason for the failure, including previous error messages that might provide more detail of the error encountered, and correct the error if possible. If unable to determine the cause of the error condition contact LRS technical support staff. Once the error has been corrected, the printer can be added to the system using the ACTIVATE command.

VPSX0103I SPOOL QUEUE name INCOMPLETE FILE filename REMOVED

name: Spool queue name/printer name.
filename: File name of incomplete spool file.

Message Meaning: During activation of a printer the system has encounter an incomplete spool file in the indicated spool directory. Incomplete spool files can occur if the system is terminated while a spool file is being created.
System Action: The incomplete spool file will be removed and spool initialization will continue.
Required Action: None.

VPSX0104I prtname INACTIVATED SUCCESSFULLY

prtname: Printer name.

Message Meaning: The indicated printer has been inactivated and is no longer available for use.
System Action: The printer definition has been removed from the active system although the configuration file still exists and can be re-added to the system using the activate command. The printer definition will also be activated if VPSX is restarted.
Required Action: None.

VPSX0200I prtname SPOOLID spoolid ALLOCATED SUCCESSFULLY CLASS(class) PRTY(prty) FORM(form)

prtname:	Printer name.
spoolid:	Spool file number.
class:	Spool file class.
prty:	Spool file priority.
form:	Spool file form name.

Message Meaning: A new spool file has been opened for the indicated printer with the specified attributes.
System Action: None.
Required Action: None.

VPSX0201I prtname SPOOLID spoolid UNALLOCATED SUCCESSFULLY PAGES(pages) SIZE(size)

prtname:	Printer name.
spoolid:	Spool file number.
pages:	Number of pages in document.
size:	Document size.

Message Meaning: The indicated spool file has been successfully created.
System Action: None.
Required Action: None.

VPSX0202I prtname SPOOLID spoolid UNALLOCATED AND PURGED

prtname:	Printer name.
spoolid:	Spool file number.

Message Meaning: The indicated spool file has been closed and removed from the system due to an error during creation.
System Action: None.
Required Action: Check previous error messages for the cause of the failure. If you are unable to determine the cause of the failure please contact LRS technical support.

VPSX0203I prtname SPOOLID spoolid PURGED - FILENAME(file) JOB(job) USER(user@host) PAGES(pages)

prtname:	Printer name.
spoolid:	Spool file number.
file:	File name.
job:	Job name.
user:	Owning userid.
host:	Originating host.
pages:	Page count.

Message Meaning: The indicated spool file has been removed from the system.
System Action: None.
Required Action: None.

VPSX0204I prtname SPOOLID spoolid SELECTED - FILENAME(file) JOB(job) USER(user@host) PAGES(pages)

prtname:	Printer name.
spoolid:	Spool file number.
file:	File name.
job:	Job name.
user:	Owning userid.
host:	Originating host.
pages:	Page count.

Message Meaning: The spool file has been selected for processing by the indicated printer.
System Action: None.
Required Action: None.

VPSX0205I prtname SPOOLID spoolid DESELECTED (status) error

prtname:	Printer name.
spoolid:	Spool file number.
status:	Spool file status.
error:	Error description if status indicates an error.

Message Meaning: The indicated spool file has been deselected by the printer thread after successful or unsuccessful printing of the file. The spool file status will be set to the indicated value based on the success or failure of the print request. If an error has occurred, the message will contain a textual description of the error.
System Action: The spool file status will be set to the indicated value. If an error condition is indicated, the printer status will be set to error drained (EDRAINED) and the request will be retried after the retry interval (if the condition is a recoverable error). If the condition is an unrecoverable error then printing will only be attempted again if a START command is issued for the printer.
Required Action: If a printer problem is reported, attempt to correct the error condition and allow VPSX to retry the request. If the problem is an unrecoverable error, the printer will stay in an error drained status until manually requested to retry by a printer START command.

VPSX0208I prtname SPOOLID spoolid EXPIRED - FILENAME(file) JOB(job) USER(user@host) PAGES(pages)

prtname:	Printer name.
spoolid:	Spool file number.
file:	File name.
job:	Job name.
user:	Owning userid.
host:	Originating host.
pages:	Page count.

Message Meaning: The indicated spool file's retention period has expired and the file has been removed from the retained queue.
System Action: None.
Required Action: None.

VPSX0209I prtname SPOOLID spoolid QTIME EXPIRED - DELETED

prtname: Printer name.
spoolid: Spool file number.

Message Meaning: The printer definition contains a QTIME value that limits the time any file should remain in the queue without printing. The indicated spool file has been deleted as this queue time period has expired.
System Action: None.
Required Action: None.

VPSX0210I <thread> DIAGNOSTIC SNAP DUMP WRITTEN TO FILE(%s)

thread: Thread generating SNAP dump.

Message Meaning: A severe error has occurred and VPSX has taken a diagnostic SNAP dump to enable problem determination. The dump file will be written to the directory identified via the SNAPDIR system initialization option.
System Action: Execution will continue.
Required Action: Report the problem to LRS technical support staff.

VPSX0211I prtname SPOOLID spoolid MOVED TO PRINT QUEUE new_prtname

prtname: Printer name.
spoolid: Spool file number.
new_prtname: Destination printer queue.

Message Meaning: The indicated spool file has been moved to the specified printer destination.
System Action: None.
Required Action: None.

VPSX0213I prtname FILTERnn PROCESSING STARTED

prtname: Printer name.
nn: Filter number.

Message Meaning: The indicated printer thread has started execution of a filter process for the currently active file.
System Action: None.
Required Action: None.

VPSX0214I prtname FILTERnn PROCESSING COMPLETE

prtname: Printer name.
nn: Filter number.

Message Meaning: The indicated printer filter process has completed processing successfully.
System Action: The output from the filter process will be delivered to the printer destination.
Required Action: None.

VPSX0215I prtname SPOOLID spoolid action BY USER userid

prtname: Printer name.
spoolid: Spool file number.
action: User action (DELETED, HELD, RELEASED).
userid: User ID requesting indicated action.

Message Meaning: The indicated spool file action has been requested by the indicated user.
System Action: The spool file status is changed.
Required Action: None.

VPSX0216I prtname SPOOLID spoolid ROUTED TO PRINTER new_prtname BY USER userid

prtname: Printer name.
spoolid: Spool file number.
new_prtname: Destination printer queue.
userid: Requesting user ID.

Message Meaning: The indicated spool file has been rerouted to the specified printer destination.
System Action: None.
Required Action: None.

VPSX0217I prtname ADDED BY USER userid

prtname: Printer name.
userid: Requesting user ID.

Message Meaning: The specified printer has been added to the system by the indicated user.
System Action: None.
Required Action: None.

VPSX0218I prtname DELETED BY USER userid

prtname: Printer name.
userid: Requesting user ID.

Message Meaning: The specified printer has been deleted from the system by the indicated user.
System Action: None.
Required Action: None.

VPSX0219I prtname CONFIGURATION UPDATED BY USER userid

prtname: Printer name.
userid: Requesting user ID.

Message Meaning: The specified printer configuration has been changed by the indicated user.
System Action: None.
Required Action: None.

VPSX0220I TERMINATION REQUESTED BY USER userid

userid: Requesting user ID.

Message Meaning: The indicated user has requested VPSX to terminate.
System Action: VPSX will terminate.
Required Action: None.

VPSX0221I CLOSELOG COMMAND ISSUED USER userid

userid: Requesting user ID.

Message Meaning: The indicated user has issued a closelog request to close the current log file and start a new log file.
System Action: The current log file will be switched.
Required Action: None.

VPSX0222I SNAP COMMAND COMMAND ISSUED USER userid

userid: Requesting user ID.

Message Meaning: The indicated user has requested a diagnostic SNAP dump.
System Action: A SNAP dump will be generated in the directory identified in the SNAPDIR system initialization keyword.
Required Action: None.

VPSX0223I SYSTEM CONFIGURATION UPDATED BY USER userid

userid: Requesting user ID.

Message Meaning: The indicated user has updated the system configuration options.
System Action: None.
Required Action: None.

VPSX0224I prtname command COMMAND ISSUED BY USER userid

prtname: Printer name.
command: Printer command name.
userid: Requesting user ID.

Message Meaning: The indicated user has issued the specified printer command.
System Action: None.
Required Action: None.

VPSX0225I prtname INACTIVATION SUCCESSFUL

prtname: Printer name.

Message Meaning: The indicated printer definition has been inactivated.
System Action: None.
Required Action: None.

VPSX0226I prtname INACTIVATION FAILED - error

prtname: Printer name.
error: Error description.

Message Meaning: Inactivation of the indicated printer failed.
System Action: None.
Required Action: None.

VPSX0227I TERMINATION REQUESTED BY SIGTERM SIGNAL

Message Meaning: VPSX has received a SIGTERM signal and is shutting down.
System Action: VPSX will terminate.
Required Action: None.

VPSX0228I CLOSEACCT COMMAND ISSUED USER userid

userid: User issuing command.

Message Meaning: The indicated user has requested VPSX to close the active accounting file.
System Action: The current accounting file will be closed and renamed and a new file started.
Required Action: None.

VPSX1000I LOG FILE filename HAS EXPIRED

filename: Log file name.

Message Meaning: The indicated log file has expired and has been deleted from the log directory.
System Action: None.
Required Action: None.

VPSX1001I SNAP FILE filename HAS EXPIRED

filename: SNAP file name.

Message Meaning: The indicated diagnostic SNAP file has expired and has been deleted from the SNAP directory.
System Action: None.
Required Action: None.

VPSX1002I server CONNECTION ESTABLISHED (desc)

server: Server keyword name.
desc: Server description.

Message Meaning: VPSX has established a monitor connection to the indicated ServerX process.
System Action: None.
Required Action: None.

VPSX1003I server CONNECTION TERMINATED (desc)

server: Server keyword name.
desc: Server description.

Message Meaning: VPSX has terminated a monitor connection with the indicated ServerX process.
System Action: None.
Required Action: None.

VPSX1004I ACCOUNTING FILE filename HAS EXPIRED

filename: Accounting file name.

Message Meaning: The indicated accounting file has expired and has been deleted from the accounting directory.
System Action: None.
Required Action: None.

VPSX1005I SAP R/3 CALLBACK THREAD STACK SIZE INCREASED TO nnK

Message Meaning: The stack size used by the SAP R/3 callback threads has been increased to the size required by the SAP RFCAPI library.
System Action: None.
Required Action: None.

VPSX1007I nnn CALLBACK EVENTS REQUEUED TO ALTERNATE SERVER(sysid_server_sysno)

nnn: Number of SAP callback events.
sysid: Callback server system identifier.
server: Callback server name.
sysno: Callback server system number.

Message Meaning: The indicated number of callback events have been rerouted to an alternate SAP R/3 callback server due to an error delivering the events to the primary callback target.
System Action: Callback events will continue to be routed to an alternate server until communication can be re-established with the primary callback target.
Required Action: None.

VPSX1008I sysid_server_sysno CONNECTION ESTABLISHED

sysid: Callback server system identifier.
server: Callback server name.
sysno: Callback server system number.

Message Meaning: A callback connection has been successfully established to the indicated SAP R/3 server.
System Action: None.
Required Action: None.

VPSX1009I sysid_server_sysno CONNECTION TERMINATED

sysid: Callback server system identifier.
server: Callback server name.
sysno: Callback server system number.

Message Meaning: The callback connection has been terminated to the indicated SAP R/3 server.
System Action: None.
Required Action: None.

VPSX1010I sysid_server_sysno SAP R/3 CALLBACK SERVER REMOVED

sysid: Callback server system identifier.
server: Callback server name.
sysno: Callback server system number.

Message Meaning: The indicated callback target has been removed as it is no longer defined as a valid target in any SAP R/3 logical OMS (LOMS) definition.
System Action: None.
Required Action: None.

VPSX1011I RETRIEVING SAP R/3 GROUP CONFIGURATION SYSTEM(sysid) ROMS(roms)

sysid: SAP R/3 system identifier.
roms: Real OMS definition name.

Message Meaning: VPSX is retrieving the current group configuration from the indicated SAP R/3 system.
System Action: None.
Required Action: None.

VPSX1012I RETRIEVING SAP R/3 DEVICE CONFIGURATION SYSTEM(sysid) ROMS(roms)

sysid: SAP R/3 system identifier.
roms: Real OMS definition name.

Message Meaning: VPSX is retrieving the current device configuration from the indicated SAP R/3 system.
System Action: None.
Required Action: None.

VPSX1013I UPDATING SAP R/3 CONFIGURATION - SYSTEM(sysid)

sysid: SAP R/3 system identifier.

Message Meaning: VPSX is updating the SAP R/3 configuration information.
System Action: None.
Required Action: None.

VPSX1014I keyname KEY - CUSTID(custid) COPY(count) STATUS(status)

keyname: Product key name.
custid: LRS customer identifier.
count: Licence copy count.
status: Product key status.

Message Meaning: This message displays details of the LRS product keys and their current status.
System Action: None.
Required Action: None.

VPSX1015W keyname PRODUCT WILL EXPIRE IN nn DAYS ON date

keyname: Product key name.
nn: Number of days until expiration.
date: Date of expiration.

Message Meaning: The indicated product key will expire on the specified date.
System Action: None.
Required Action: Contact LRS Marketing Representative to acquire a new product key.

VPSX1016I MAIL NOTIFICATION ENABLED; MAILHOST(mailhost)

mailhost: Target SMTP mail server.

Message Meaning: The VPSX email notification facility has been enabled using the indicated SMTP mail server.
System Action: None.
Required Action: None.

VPSX1017W MAIL NOTIFICATION DISABLED

Message Meaning: The VPSX email notification facility has been disabled by the system administrator.
System Action: None.
Required Action: None.

VPSX1018I ACCOUNTING FILE SWITCHED - filename IS READY FOR PROCESSING

filename: File name of accounting file.

Message Meaning: The active accounting file has been closed and renamed and is ready for processing.
System Action: None.
Required Action: None.

VPSX1019I XCMD PROCESSING ENABLED; XCMDPATH (xcmdpath)

xcmdpath: Location of external command executable.

Message Meaning: The VPSX external command event notification feature has been enabled for the indicated external command executable.
System Action: The external command will be started as a co-process.
Required Action: None.

VPSX1020W XCMD PROCESSING DISABLED (reason)

reason: Reason why the external command processing has been disabled.

Message Meaning: The VPSX has disabled the external command event notification feature due to configuration option or processing error.
System Action: External command processing is disabled.
Required Action: Use the error description and previous messages to identify the cause of the error. If you are unable to identify the cause of the problem contact LRS technical support.

VPSX1021I XCMD PROCESS(pid) TERMINATED WITH RETURN CODE (rc)

pid: Process ID of external command co-process.
rc: Exit code returned by external command.

Message Meaning: The VPSX external command co-process has terminated with the indicated return code.
System Action: If the process terminated unexpectedly, VPSX will retry the external command after a retry delay.
Required Action: If the process terminated unexpectedly, check the log for messages generated by the co-process that may indicate the reason for the termination. If you are unable to identify the cause of the problem contact LRS technical support.

VPSX1022W XCMD PROCESS STDERR: message

message: Message written to STDERR by external command co-process.

Message Meaning: VPSX will log all messages written to STDERR by the external command co-process.
System Action: None.
Required Action: None.

VPSX1023I XCMD PROCESS STDOUT: message

message: Message written to STDOUT by external command co-process.

Message Meaning: VPSX will log all messages written to STDOUT by the external command co-process.
System Action: None.
Required Action: None.

VPSX1024I XCMD PROCESS(pid) IS BEING TERMINATED

pid: Process ID of external command co-process.

Message Meaning: VPSX is terminating the external command co-process. This is done by closing the co-process STDIN which should cause the process to terminate normally.
System Action: None.
Required Action: None.

VPSX1025I XCMD PROCESS(pid) STARTED

pid Process ID of external command co-process.

Message Meaning: VPSX has started the external command co-process.
System Action: None.
Required Action: None.

VPSX1026I sysid_server_sysno CONNECTING - USERID=sapuser CLIENT=sapclnt

sysid: Callback server system identifier.
server: Callback server name.
sysno: Callback server system number.
sapuser: SAP Userid being use for callback connection.
sapclnt: SAP client number being use for callback connection.

Message Meaning: A callback connection is being attempted using the indicated login credentials. The login credentials being used are defined in the vpsstart system configuration file (SAPUSER, SAPPSWD and SAPCLNT keywords). If different login credentials are required for individual SAP systems, a saplogin file can be created in the same directory as the vpsstart system configuration file. If an entry is found in the saplogin file for the indicated SAP system, these login credentials will override the VPSX system defaults.
System Action: None.
Required Action: None.

VPSX2000I prtname status DISPLAY=display STATUS=status

prtname: Printer name.
status: Device status Online/Offline.
display: Printer console display text.
status: PJL description of printer status.

Message Meaning: This message displays the current status of the printer as reported by the PJL subsystem in the device.
System Action: None.
Required Action: If the printer status is OFFLINE then operator intervention is required at the device to clear the error condition.

VPSX2001I prtname PAGE nnn PRINTED

prtname: Printer name.
nnn: Page number.

Message Meaning: This message indicates that the device has confirmed that the indicated page has printed and is in the output hopper of the device. This message is optional and can be enabled via the PJLOPTS printer keyword.
System Action: None.
Required Action: None.

VPSX2002I prtname JOB NAME="jobname" STARTED

prtname: Printer name.
jobname: PJL jobname.

Message Meaning: This message indicates that the printer has confirmed that it has started processing the indicated job. A unique jobname will be constructed from the spoolid number and current time. Start and end separators will have a jobname that begins with SSEP or ESEP and the time.
System Action: None.
Required Action: None.

VPSX2003I prtname JOB NAME="jobname" ENDED - PAGES(pages) RESULT(result)

prtname: Printer name.
jobname: PJL jobname.
pages: Total number of impressions physically printed (duplex = 2 impressions per page).
result: PJL result code for job.

Message Meaning: This message indicates that the printer has completed processing of the job and the indicated number of pages are available in the output hopper. The result code will indicate if the job was processed successfully or cancelled by the printer operator.
System Action: None.
Required Action: None.

VPSX2004W prtname PJL USTATUS ustatus NOT SUPPORTED - IGNORED

prtname: Printer name.
ustatus: Received unsolicited status type.

Message Meaning: VPSX received the indicated unsolicited PJL status from the device. This USTATUS type is not supported and has been ignored.
System Action: Printing continues.
Required Action: None.

VPSX2005W prtname JOB NAME="jobname" CANCELLED - RESULT(result)

prtname: Printer name.
jobname: PJL jobname.
result: PJL result code for job.

Message Meaning: VPSX has received notification from the device that the indicated print job has been cancelled by the printer operator.
System Action: None.
Required Action: None.

VPSX2006I prtname JOB NAME="jobname" RESTARTING FROM PAGE page

prtname: Printer name.
jobname: PJL jobname.
page: Restart page number.

Message Meaning: VPSX has restarted printing of a failed print request at the indicated page.
System Action: None.
Required Action: None.

VPSX2007I prtname DRAINED

prtname: Printer name.

Message Meaning: The printer status has changed to DRAINED due to an operator STOP command.
System Action: No further output will be selected for this printer until a START command is issued.
Required Action: None.

VPSX2008E prtname EDRAINED - error

prtname: Printer name.
error: Error description.

Message Meaning: The printer status has changed to error drained after an error condition occurred processing a print request. The error description will indicate the cause of the error.
System Action: All printer error conditions are internally categorized as retriable or non-retriable errors. If a retriable error condition occurs, the printer will be automatically restarted after the retry period (defined via the RETRY printer configuration option).
Required Action: To restart processing immediately, issue a START command for the printer.

VPSX2009I prtname > msgtext

prtname: Printer name.
msgtext: Message text from filter process.

Message Meaning: This message is used to display any messages output by a filter process. VPSX will monitor both STDOUT and STDERR and display the messages in the log for diagnostic purposes.
System Action: None.
Required Action: None.

VPSX2010I prtname ONLINE

prtname: Printer name.

Message Meaning: The SNMP thread has detected that the indicated printer status has changed from offline to online.
System Action: None.
Required Action: None.

VPSX2011I prtname SPOOLID spoolid TRANSFERRED SUCCESSFULLY TRACKING ID(trackno)

prtname: Printer name.
spoolid: Spool identifier.
trackno: Output tracking number returned by remote server.

Message Meaning: VPSX has transferred a file to another printer server using the LRSQUEUE protocol and has received the indicated tracking number for the request. The tracking number uniquely identifies the file in the remote print server and can be used to query or cancel the print request.
System Action: None.
Required Action: None.

VPSX2012I prtname SNMP SUPPORT DISABLED - DEVICE DOES NOT SUPPORT REQUIRED MIB FIELD

prtname: Printer name.

Message Meaning: VPSX has disabled SNMP support for the indicated device because it does not support one of the required Printer MIB fields. The printer MIB (RFC1759) defines a standard set of SNMP Management Information that should be maintained in network printers. The SNMP support and MIB are implemented in the printer network interface card or external network box and most manufacturers have implemented support for the common printer MIB.
System Action: SNMP support for the device is disabled.
Required Action: Check with the manufacturer of the network card to verify the level supported for the printer MIB or try an alternate network card.

VPSX2013I prtname SELECTION CRITERIA UPDATED BY USER userid CLASS(class) FORM(form)

prtname: Printer name.
userid: Requesting user ID.
class: Selection class or classes.
form: Selection form name.

Message Meaning: The indicated user has modified the selection criteria for the printer to the specified class and form values.
System Action: Output will only be selected for the device that matches the class and/or form selection value.
Required Action: None.

VPSX2015I prtname SPOOLID spoolid SMTP SERVER mailhost - message

prtname: Printer name.
spoolid: Spool file number.
mailhost: SMTP mail server
message: Email acceptance message.

Message Meaning: The indicated spool file has been successfully delivered to the SMTP mail server. The acceptance message returned by the mail server is displayed and contains the unique message identifier that can be used to track the email.
System Action: None
Required Action: None

VPSX2016E prtname POSTSCRIPT ERROR> errmsg

prtname: Printer name.
errmsg: Postscript interpreter error message.

Message Meaning: VPSX has received the indicated postscript interpreter error message from the printer.
System Action: Printing continues but the document may be incomplete.
Required Action: Use the error message to determine the postscript statements that have caused the error.

VPSX2017E prtname IPP TERMINATION FAILED - error

prtname: Printer name.
error: Error description.

Message Meaning: VPSX encountered an error terminating the IPP instance for the indicated printer.
System Action: Processing will continue.
Required Action: Contact LRS technical support.

VPSX2018E prtname MAIL TERMINATION FAILED - error

prtname: Printer name.
error: Error description.

Message Meaning: VPSX encountered an error terminating the MAIL instance for the indicated printer.
System Action: Processing will continue.
Required Action: Contact LRS technical support.

VPSX2019I prtname SPOOLID spoolid DELIVERED JOBID=jobid STATE=state REASONS=reason QUEUED-JOBS=queued

prtname: Printer name.
spoolid: Spool identifier.
jobid: Job identifier assigned to print request by remote IPP printer or server.
state: Job state of document in remote IPP printer or serve.
reason: Reason for indicated job state.
queued: Number of jobs currently queued for processing on remote device or server.

Message Meaning: VPSX has transferred a file to a remote printer or server using the IPP protocol. The print request has been assigned the indicated job ID which can be used to track the status of the remote job using the remote IPP queue displays in the VPSX WEB interface.
System Action: None.
Required Action: None.

VPSX2020E prtname STOPPED REASON=reason JOBS-QUEUED=queued

prtname: Printer name.
reason: Reason for printer suspending processing.
queued: Number of jobs currently queued for processing on remote device or server.

Message Meaning: The remote IPP printer or server has indicated that the required device is currently stopped for the indicated reason. VPSX will continue to monitor the status of the device and will deliver any queued documents once the error condition has cleared. At this point no data for the currently selected document has been sent to the device. If you wish to reroute the document to an alternate printer you can stop the printer and then reroute the document to an alternate print queue.
System Action: None.
Required Action: None.

VPSX2021I prtname SPOOLID spoolid MAILED TO: recipients

prtname: Printer name.
spoolid: Spool file number.
recipients: Primary email recipients.

Message Meaning: This message displays the primary email recipients for a spool file delivered to a mail server by a VPSX email printer definition. This message only displays the primary (TO:) recipients. If you wish to record details of all recipients for a mailed spool file, this information can be recorded in the VPSX system accounting file or can be passed to an external command notification routine.
System Action: None.
Required Action: None.

VPSX2022I FILTER REQUESTED ERROR ACTION=erractn

erractn: Requested error action.

Message Meaning: The filter process has requested the indicated error action using filter feedback commands.
System Action: The error action requested by the filter will override the value defined via the ERRACTN configuration keyword for the current file.
Required Action: None.

VPSX2023I FILTER REQUESTED RETRY IN sec SECOND

sec: Request retry period in seconds.

Message Meaning: The filter process has failed and has requested that VPSX retry the request after the indicated interval.
System Action: The retry period requested by the filter will override the value defined via the RETRY configuration keyword for the current file.
Required Action: None.

VPSX3000I prtname SPOOLID spoolid LPR OWNER(owner) HOST(hostname) JOB(jobname)

prtname: Printer name.
spoolid: Spool identifier.
owner: Owner/user ID of the print submitter.
hostname: Hostname of the submitting host.
jobname: Jobname associated with print request.

Message Meaning: This messages displays details of a print request received from an LPR client.
System Action: None.
Required Action: None.

VPSX3001I prtname SPOOLID spoolid LPR FILE(filename) TITLE(title) CLASS(classification) BYTES(count)

prtname: Printer name.
spoolid: Spool identifier.
filename: Originating file name.
title: User specified title for banner page.
classification: User specified classification for banner page.
count: Total number of bytes in print file.

Message Meaning: This messages displays details of a print request received from an LPR client.
System Action: None.
Required Action: None.

VPSX3002I prtname SPOOLID spoolid SAP USERID(userid) SERVER(server) SPOOLID(sap_spoolid)

prtname:	Printer name.
spoolid:	Spool identifier.
userid:	Originating SAP user ID.
server:	Originating SAP server.
sap_spoolid:	Internal SAP spool file identifier.

Message Meaning: This message displays details of a print request received from a SAP R/3 client.
System Action: None.
Required Action: None.

VPSX3003I prtname SPOOLID spoolid SAP PRTR(sap_prtr) TITLE(title) FORMAT(format)

prtname:	Printer name.
spoolid:	Spool identifier.
sap_prtr:	SAP R/3 internal printer name.
title:	User specified title for banner page.
format:	SAP R/3 print format name.

Message Meaning: This message displays details of a print request received from a SAP R/3 client.
System Action: None.
Required Action: None.

VPSX3004I prtname SPOOLID spoolid SAP RECIPIENT(recip, dept)

prtname:	Printer name.
spoolid:	Spool identifier.
recip:	Print recipient.
dept:	Print recipient's department.

Message Meaning: This message displays details of a print request received from a SAP R/3 client.
System Action: None.
Required Action: None.

VPSX3005I prtname SPOOLID spoolid LRSQ USERID(userid) HOST(hostname)

prtname:	Printer name.
spoolid:	Spool identifier.
userid:	Originating user ID.
hostname:	Originating hostname.

Message Meaning: This message displays details of a print request received from an LRS/Queue client.
System Action: None.
Required Action: None.

VPSX3006I prtname SPOOLID spoolid LRSQ FILE(filename) O/S(opsys)

prtname: Printer name.
spoolid: Spool identifier.
filename: Originating file name.
opsys: Originating operating system.

Message Meaning: This message displays details of a print request received from an LRS/Queue client.
System Action: None.
Required Action: None.

VPSX3007I prtname SPOOLID spooled IPP OWNER(owner) HOST(hostname) BYTES(count)

prtname: Printer name.
spoolid: Spool identifier.
owner: Owner/user ID of the print submitter.
hostname: Host name of the submitting host.
count: Total number of bytes in print file.

Message Meaning: This message displays details of a print request received from an IPP client.
System Action: None.
Required Action: None.

VPSX3008I prtname SPOOLID spooled IPP JOBNAME(jobname)

prtname: Printer name.
spoolid: Spool identifier.
jobname: Jobname associated with print request.

Message Meaning: This message displays details of a print request received from an IPP client.
System Action: None.
Required Action: None.

VPSX3009I prtname SPOOLID spoolid USER userid BROWSING FILE(filename) OWNER(owner)

prtname: Printer name.
spoolid: Spool file number.
userid: User ID initiating the spool file browse request.
filename: Spool file originating file name.
owner: Spool file owner.

Message Meaning: This message displays details of spool file browse requests by WEB and SOAP clients.
System Action: None.
Required Action: None.

VPSX4000I prtname SMTP COMMAND(command)

prtname: Printer name.
command: SMTP command sent by VPSX.

Message Meaning: This message displays the SMTP commands send by VPSX to the mail server. This is a debug message that is enabled via the MAILOPTS printer keyword.
System Action: None.
Required Action: None.

VPSX4001I prtname SMTP REPLY(reply)

prtname: Printer name.
reply: SMTP reply received from mail server.

Message Meaning: This message displays the SMTP responses received from the mail server. This is a debug message that is enabled via the MAILOPTS printer keyword.
System Action: None.
Required Action: None.

VPSX8000E INSUFFICIENT STORAGE FOR TCE CONTROL BLOCK(thread)

thread: Thread name.

Message Meaning: A storage shortage was encountered while VPSX was attempting to acquire a new Thread Control Element.
System Action: The thread creation request will fail.
Required Action: Check the storage statistics for the VPSX server and review any soft limits that may have been imposed on VPSX by the operating system. The ULIMIT command can be used to query and set the storage limits and the current values are display in the VPSX0099I message during startup.

VPSX8001E ERROR INITIALIZING TCE MUTEX CONTROLS (thread)

thread: Thread name.

Message Meaning: VPSX encountered an error initializing the mutex controls for the indicated system thread.
System Action: Thread creation will fail.
Required Action: Check previous messages for the failing error code and contact LRS technical support staff if unable to determine the cause of the failure.

VPSX8002E THREAD_REMOVE() FUNCTION FAILED TCE(thread) NOT FOUND

thread: Thread name.

Message Meaning: VPSX attempted to remove a Thread Control Element for a non-existent thread.
System Action: None.
Required Action: Contact LRS technical support staff.

VPSX8003E PTHREAD_CREATE() FUNCTION FAILED TCE(tce_addr) TASK(thread) RC(rc)

tce_addr: Address of Thread Control Element.
thread: Thread name.
rc: Function return code.

Message Meaning: The pthread_create() function reported an error creating a new thread.
System Action: Thread creation will fail.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8004E PTHREAD_JOIN() FUNCTION FAILED TCE(tce_addr) TASK(thread) RC(rc)

tce_addr: Address of Thread Control Element.
thread: Thread name.
rc: Function return code.

Message Meaning: The pthread_join() function reported an error detaching a terminated thread.
System Action: Execution will continue but the system resources associated with the thread will not be released.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8005E PTHREAD_SETSPECIFIC() FUNCTION FAILED TCE(tce_addr) TASK(thread) RC(rc)

tce_addr: Address of Thread Control Element.
thread: Thread name.
rc: Function return code.

Message Meaning: The pthread_setspecific() function reported an error assigning a thread specific key for the indicated thread.
System Action: The system thread reporting the error will fail.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8006E PTHREAD_CANCEL() FUNCTION FAILED TCE(tce_addr) TASK(thread) RC(rc)

tce_addr: Address of Thread Control Element.
thread: Thread name.
rc: Function return code.

Message Meaning: The pthread_cancel() function reported an error cancelling the indicated thread.
System Action: Execution will continue.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8007E PTHREAD_MUTEX_INIT() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_mutex_init() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8008E PTHREAD_MUTEX_LOCK() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_mutex_lock() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8009E PTHREAD_MUTEX_UNLOCK() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_mutex_unlock() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8010E PTHREAD_MUTEX_TRYLOCK() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_mutex_trylock() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8011E PTHREAD_MUTEX_DESTROY() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_mutex_destroy() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8012E PTHREAD_COND_INIT() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_cond_init() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8013E PTHREAD_COND_WAIT() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_cond_wait() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8014E PTHREAD_COND_TIMEDWAIT() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_cond_timedwait() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8015E PTHREAD_COND_SIGNAL() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_cond_signal() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8016E PTHREAD_COND_BROADCAST() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_cond_broadcast() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8017E PTHREAD_COND_DESTROY() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_cond_destroy() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8018E MALLOC() FUNCTION FAILED SOURCE(src) LINE(line) SIZE(size)

src: Source file name of calling function.
line: Line number in calling source file.
size: Requested storage size.

Message Meaning: The malloc() function failed due to insufficient storage.
System Action: None.
Required Action: Check the storage statistics for the VPSX server and review any soft limits that may have been imposed on VPSX by the operating system. The ULIMIT command can be used to query and set the storage limits and the current values are display in the VPSX0099I message during startup.

VPSX8019E FREE() FUNCTION FAILED STORAGE ACCOUNTING AREA IS CORRUPT - SOURCE(src) LINE(line) ADDR(addr)

src: Source file name of calling function.
line: Line number in calling source file.
addr: Address of storage being freed.

Message Meaning: The free() function detected an invalid storage pointer or the storage header for the area addressed by the pointer is corrupt.
System Action: Execution will continue although the storage area will not be released.
Required Action: Contact LRS technical support staff.

VPSX8020E FILE OPEN FAILED NAME(filename) ERROR(error)

filename: Name of target file.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8021E FILE CLOSE FAILED ERRNO(errno) ERROR(error)

errno: System error number.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8022E FILE SEEK FAILED ERRNO(errno) ERROR(error)

errno: System error number.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8023E FILE PRINTF FAILED ERRNO(errno) ERROR(error)

errno: System error number.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8024E FILE READ FAILED ERRNO(errno) ERROR(error)

errno: System error number.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8025E FILE WRITE FAILED ERRNO(errno) ERROR(error)

errno: System error number.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8026E FILE DELETE FAILED NAME(filename) ERROR(error)

filename: Name of target file.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8027E ERROR CREATING DIRECTORY(dir) ERROR(error)

dir: Directory name.
error: Error description.

Message Meaning: A directory operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8028E ERROR OPENING DIRECTORY(dir) ERROR(error)

dir: Directory name.
error: Error description.

Message Meaning: A directory operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8029E ERROR CLOSING DIRECTORY ERRNO(errno) ERROR(error)

errno: System error number.
error: Error description.

Message Meaning: A directory operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8030E ERROR READING DIRECTORY ERRNO(errno) ERROR(error)

errno: System error number.
error: Error description.

Message Meaning: A directory operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8031E ERROR INITIALIZING KEYWORD CONTROL STRUCTURE

Message Meaning: VPSX encountered an error initializing a system keyword control structure.
System Action: If the failure occurred processing a printer definition, activation will fail but VPSX will continue to execute. If the VPSX system keywords are being processed, execution will terminate.
Required Action: Check previous messages for the cause of the failure. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8032E ERROR OPENING LOG FILE

Message Meaning: VPSX encountered an error opening a system log file
System Action: Execution will continue with logging disabled.
Required Action: Check previous messages for the cause of the failure. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8033E LOG EXPIRATION PROCESSING FAILED

Message Meaning: VPSX encountered an error while processing expired system log files
System Action: Execution will continue.
Required Action: Check previous messages for the cause of the failure. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8034E FILE FLUSH REQUEST FAILED ERRNO(errno) ERROR(error)

errno: System error number.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8035E FILE RENAME FAILED OLD(old) NEW(new) ERROR(error)

old: Old file name.
new: New file name.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8036E REALLOC() FUNCTION FAILED SOURCE(src) LINE(line) SIZE(size)

src: Source file name of calling function.
line: Line number in calling source file.
size: Requested storage size.

Message Meaning: The realloc() function failed due to insufficient storage.
System Action: None.
Required Action: Check the storage statistics for the VPSX server and review any soft limits that may have been imposed on VPSX by the operating system. The ULIMIT command can be used to query and set the storage limits and the current values are displayed in the VPSX0099I message during startup.

VPSX8037E ERROR ALLOCATING KEYWORD VALUE STRUCTURE

Message Meaning: VPSX encountered an error allocating a keyword value structure.
System Action: Check following messages for the impact of this request failure.
Required Action: Check previous messages for the cause of the failure. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8038E GET FAILED FOR KEYWORD(name) INVALID KEYWORD NAME

name: Keyword name.

Message Meaning: A VPSX component issued a GET request for an undefined system keyword.
System Action: None.
Required Action: Contact LRS technical support staff.

VPSX8039E ERROR PROCESSING KEYWORD(name) LINE(line) NO VALUE SPECIFIED

name: System or printer keyword name.
line: Line number in configuration file.

Message Meaning: No value was specified for the indicated keyword. All keywords must be followed by an equal (=) symbol and a value.
System Action: None.
Required Action: Correct keyword definition.

VPSX8040E ERROR PROCESSING KEYWORD(name) LINE(line) EQUALS SYMBOL MISSING

name: System or printer keyword name.
line: Line number in configuration file.

Message Meaning: An equal (=) symbol is required after all keywords followed by the keyword value.
System Action: None.
Required Action: Correct keyword definition.

VPSX8041E ERROR PROCESSING KEYWORD(name) LINE(line) error

name: System or printer keyword name.
line: Line number in configuration file.
error: Error description.

Message Meaning: An error occurred validating the indicated keyword value.
System Action: None.
Required Action: Correct keyword value.

VPSX8042E PTHREAD_RWLOCK_INIT() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: A read/write lock operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8043E PTHREAD_RWLOCK_RDLOCK() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: A read/write lock operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8044E PTHREAD_RWLOCK_WRLOCK() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: A read/write lock operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8045E PTHREAD_RWLOCK_UNLOCK() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: A read/write lock operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8046E PTHREAD_RWLOCK_DESTROY() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: A read/write lock operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8047E PTHREAD_RWLOCK_TRYRDLOCK() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: A read/write lock operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8048E PTHREAD_RWLOCK_TRYWRLOCK() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src:	Source file name of calling function.
line:	Line number in calling source file.
rc:	Function return code.

Message Meaning: A read/write lock operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8049E PRINTER ACTIVATION FAILED

Message Meaning: VPSX encountered an error activating the printer definitions during startup.
System Action: Execution will continue.
Required Action: Check previous messages for the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8050E OPEN REQUEST FAILED NAME(filename) ERROR(errno, error)

filename:	Name of target file.
errno:	System error number.
error:	Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8051E CLOSE REQUEST FAILED FD(fd) ERROR(errno, error)

fd:	File descriptor.
errno:	System error number.
error:	Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8052E READ REQUEST FAILED FD(fd) LENGTH(len) ERROR(errno, error)

fd: File descriptor.
len: Length for I/O request.
errno: System error number.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8053E WRITE REQUEST FAILED FD(fd) LENGTH(len) ERROR(errno, error)

fd: File descriptor.
len: Length for I/O request.
errno: System error number.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8054E LSEEK POSITIONING REQUEST FAILED FD(fd) ERROR(errno, error)

fd: File descriptor.
errno: System error number.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8055E SPOOL INITIALIZATION FAILED

Message Meaning: An error occurred initializing the VPSX spool.
System Action: Processing will terminate.
Required Action: Check previous messages for the cause of the failure. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8056E ERROR OPENING SPOOL INDEX FILE

Message Meaning: An error occurred opening the spool index file. The spool index file can be found in the spool directory identified by the SPOOLDIR system keyword and it is named spool.idx.
System Action: Processing will terminate.
Required Action: Check previous messages for the cause of the failure. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8057E SPOOL INDEX FILE IS CORRUPT

Message Meaning: The spool index file contains invalid data or has been modified by another user. The spool index file can be found in the spool directory identified by the SPOOLDIR system keyword and is called spool.idx.
System Action: Processing will terminate.
Required Action: Attempt to determine what has happened to the spool index file. This file is critical to the operation of the spool and if the problem can not be corrected it will be necessary to delete this file and the entire contents of the spool directory. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8058E PWRITE REQUEST FAILED FD(fd) LENGTH(len) OFFSET(offset) ERROR(errno,error)

fd: File descriptor.
len: Length of data.
offset: File offset.
errno: System error number.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8059E PREAD REQUEST FAILED FD(fd) LENGTH(len) OFFSET(offset) ERROR(errno,error)

fd: File descriptor.
len: Length of data.
offset: File offset.
errno: System error number.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8060E ERROR WRITING TO SPOOL INDEX FILE

Message Meaning: An error occurred writing to the spool index file. The spool index file can be found in the spool directory identified by the SPOOLDIR system keyword and it is named spool.idx.
System Action: Processing will terminate or new spool file creation will fail.
Required Action: Check previous messages for the cause of the failure. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8061E ERROR READING TO SPOOL INDEX FILE

Message Meaning: An error occurred reading the spool index file. The spool index file can be found in the spool directory identified by the SPOOLDIR system keyword and it is named spool.idx.
System Action: Processing will terminate or new spool file creation will fail.
Required Action: Check previous messages for the cause of the failure. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8062E SPOOL INDEX VERSION %d IS NOT SUPPORTED

Message Meaning: VPSX has been started with a spool index file that is incompatible with the level of VPSX.
System Action: Processing will terminate.
Required Action: If unable to determine the cause of the error contact LRS technical support staff.

VPSX8063E SPOOL QUEUE DIRECTORY dir IS INACCESSABLE ERROR(errno, error)

dir: Spool queue directory name.
errno: System error number.
error: Error description.

Message Meaning: VPSX was attempting to activate a printer definition but the required spool queue directory is inaccessible.
System Action: Printer activation will fail.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8064E ERROR CREATING SPOOL QUEUE DIRECTORY error

error: Error description.

Message Meaning: VPSX was attempting to activate a printer definition but is unable to create the spool queue directory.
System Action: Printer activation will fail.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8065E ERROR OPENING SPOOL QUEUE DIRECTORY error

error: Error description.

Message Meaning: VPSX was attempting to activate a printer definition but is unable to open the spool queue directory.
System Action: Printer activation will fail.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8066E ERROR REBUILDING SPOOL QUEUE error

error: Error description.

Message Meaning: VPSX encountered an error while rebuilding the spool queue information.
System Action: Printer activation will continue but some spool files will be missing from the queue display.
Required Action: Use the error description to identify the cause of the error. If a spool index file has become corrupt, it is possible to manually delete the .inf and .dat files associated with the spool request and then reactivate the printer to rebuild the queue without the damaged file. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8067E ERROR READING SPOOL QUEUE DIRECTORY dir

dir: Spool queue directory name.

Message Meaning: VPSX was attempting to activate a printer definition but received an error reading the spool queue directory.
System Action: Printer activation will fail.
Required Action: Check previous messages to attempt to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8068E INVALID FILE ENCOUNTERED IN SPOOL QUEUE(queue) NAME(filename) - IGNORED

queue: Spool queue name.
filename: Invalid file name.

Message Meaning: VPSX was rebuilding a printer queue and has found an invalid file in the spool directory.
System Action: Printer activation will continue.
Required Action: Remove the invalid file.

VPSX8069E CORRUPT INFO FILE ENCOUNTERED IN SPOOL QUEUE(queue) NAME(filename)

queue: Spool queue name.
filename: Invalid file name.

Message Meaning: VPSX was rebuilding a printer queue and has found a corrupt spool information file in the spool queue directory.
System Action: Printer activation will continue but some spool files will be missing from the queue display.
Required Action: Attempt to determine what has happened to the indicated spool information file. If the file has been inadvertently changed by another user, it is possible to delete this file and reactivate the printer to rebuild the queue. If unable to determine the cause of the corruption contact LRS technical support staff.

VPSX8070E ERROR READING SPOOL INFORMATION FILE filename

filename: Information file name.

Message Meaning: VPSX was rebuilding a printer queue and encountered an error reading a spool information file.
System Action: Printer activation will continue but some spool files will be missing from the queue display.
Required Action: Check previous messages to attempt to determine the cause of the error. If unable to determine the problem contact LRS technical support staff.

VPSX8071E prtname SPOOLID spoolid ERROR SAVING SPOOL INFORMATION FILE

prtname: Printer name.
spoolid: Spool file identifier.

Message Meaning: VPSX encountered an error saving the spool file information for the indicated request to the spool information file in the spool queue directory.
System Action: Check following messages for the impact of this request failure.
Required Action: Check previous messages for the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8072E prtname SPOOLID spoolid ERROR ADDING SPOOL OBJECT TO QUEUE

prtname: Printer name.
spoolid: Spool file identifier.

Message Meaning: VPSX encountered an error adding a spool file object to the in-storage spool queue structure.
System Action: Check following messages for the impact of this request failure.
Required Action: Check previous messages for the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8073E prtname SPOOL FILE ALLOCATION FAILED - error

prtname: Printer name.
error: Error description.

Message Meaning: VPSX encountered an error creating a new spool file for the indicated printer.
System Action: None.
Required Action: Use the error description to determine the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VPSX8074E prtname SPOOL spoolid UNALLOCATION FAILED - error

prtname: Printer name.
spoolid: Spool file identifier.
error: Error description.

Message Meaning: VPSX encountered an error finalizing and closing a new spool file for the indicated printer.
System Action: None.
Required Action: Use the error description to determine the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VPSX8075E prtname SPOOL spoolid DELETE FAILED - error

prtname: Printer name.
spoolid: Spool file identifier.
error: Error description.

Message Meaning: VPSX encountered an error deleting the indicated spool file.
System Action: None.
Required Action: Use the error description to determine the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VPSX8076E prtname SPOOL spoolid ATTRIBUTE MODIFICATION FAILED - error

prtname: Printer name.
spoolid: Spool file identifier.
error: Error description.

Message Meaning: VPSX encountered an error modifying the attributes of the indicated spool file.
System Action: None.
Required Action: Use the error description to determine the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VPSX8077E prtname SPOOL spoolid ERROR CLOSING SPOOL FILE

prtname: Printer name.
spoolid: Spool file identifier.

Message Meaning: VPSX encountered an error closing the indicated spool file.
System Action: None.
Required Action: Check previous messages for the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VPSX8078E prtname ERROR CREATING THREAD PRINTER EDRAINED

prtname: Printer name.

Message Meaning: The VPSX printer dispatcher encountered an error attempting to create a new printer thread.
System Action: Printer status set to EDRAINED.
Required Action: Check previous messages for the cause of the error. The printer can be restarted using the START command. If unable to identify the cause of the error contact LRS technical support staff.

VPSX8079E prtname ERROR SELECTING SPOOL FILE - error

prtname: Printer name.
error: Error description.

Message Meaning: VPSX encountered an error selecting the next available spool file for printing.
System Action: Printer status set to EDRAINED.
Required Action: Use the error description to attempt to determine the cause of the error. The printer can be restarted using the START command. If unable to identify the cause of the problem contact LRS technical support staff.

VPSX8080E SPOOL EXPIRATION PROCESSING FAILED FOR QUEUE(queue) - error

queue: Printer queue name.
error: Error description.

Message Meaning: The expiration thread encountered an error trying to remove expired spool files from the specified queue.
System Action: None.
Required Action: Use the error description to determine the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VPSX8081E SPOOL EXPIRATION TASK TERMINATING DUE TO UNRECOVERABLE ERROR

Message Meaning: The file expiration thread has terminated due to an unrecoverable error.
System Action: File expiration will be disabled.
Required Action: Check previous messages for the cause of the error. If unable to identify the cause of the error contact LRS technical support staff.

VPSX8082E INSUFFICIENT STORAGE FOR SEND AND RECEIVED BUFFERS

Message Meaning: Insufficient storage was available for send and receive buffers for the indicated thread.
System Action: Thread will terminate.
Required Action: Check the storage statistics for the VPSX server and review any soft limits that may have been imposed on VPSX by the operating system. The ULIMIT command can be used to query and set the storage limits and the current values are display in the VPSX0099I message during startup.

VPSX8083E ERROR INITIALIZING SERVER PORT FOR API INTERFACE - FUNCTION DISABLED

Message Meaning: VPSX was unable to initialize the TCP/IP port for inbound API requests.
System Action: All API functions will be disabled until VPSX is restarted.
Required Action: Check previous messages for the cause of the error. If unable to determine the cause of the problem contact LRS technical support staff.

VPSX8084E ERROR INITIALIZING SERVER PORT FOR LPD INTERFACE - FUNCTION DISABLED

Message Meaning: VPSX was unable to initialize the TCP/IP port for inbound LPD requests.
System Action: All LPD functions will be disabled until VPSX is restarted.
Required Action: Check previous messages for the cause of the error. If unable to determine the cause of the problem contact LRS technical support staff.

VPSX8085E ERROR INITIALIZING SERVER PORT FOR IPP INTERFACE - FUNCTION DISABLED

Message Meaning: VPSX was unable to initialize the TCP/IP port for inbound IPP requests.
System Action: All IPP functions will be disabled until VPSX is restarted.
Required Action: Check previous messages for the cause of the error. If unable to determine the cause of the problem contact LRS technical support staff.

VPSX8086E TCP/IP CLIENT INTERFACES DISABLED DUE TO UNRECOVERABLE ERROR

Message Meaning: The VPSX client request dispatcher encountered an unrecoverable error condition and all external TCP/IP interfaces have been disabled.
System Action: All TCP/IP client interfaces will be disabled until VPSX is restarted.
Required Action: Check previous messages for the cause of the error. If unable to determine the cause of the problem contact LRS technical support staff.

VPSX8087E UNRECOVERABLE ERROR ACCEPTING API CONNECTION - PORT DISABLED

Message Meaning: The VPSX client request dispatcher encountered an unrecoverable error accepting API requests and the API port has been disabled.
System Action: All API functions will be disabled until VPSX is restarted.
Required Action: Check previous messages for the cause of the error. If unable to determine the cause of the problem contact LRS technical support staff.

VPSX8088E UNRECOVERABLE ERROR ACCEPTING LPD CONNECTION - PORT DISABLED

Message Meaning: The VPSX client request dispatcher encountered an unrecoverable error accepting LPD requests and the LPD port has been disabled.
System Action: All LPD functions will be disabled until VPSX is restarted.
Required Action: Check previous messages for the cause of the error. If unable to determine the cause of the problem contact LRS technical support staff.

VPSX8089E UNRECOVERABLE ERROR ACCEPTING IPP CONNECTION - PORT DISABLED

Message Meaning: The VPSX client request dispatcher encountered an unrecoverable error accepting IPP requests and the IPP port has been disabled.
System Action: All IPP functions will be disabled until VPSX is restarted.
Required Action: Check previous messages for the cause of the error. If unable to determine the cause of the problem contact LRS technical support staff.

VPSX8090E CONNECTION REQUEST REJECTED FROM HOST ipaddr reason

ipaddr: Client IP-address.
reason: Reason for rejection.

Message Meaning: VPSX rejected an inbound connection request for the indicated reason.
System Action: None.
Required Action: If the problem continues contact LRS technical support staff.

VPSX8091E LPD REQUEST REJECTED HOST(ipaddr) ERROR(error)

ipaddr: Client IP-address.
error: Error description.

Message Meaning: VPSX rejected an inbound LPD request because of the indicated error.
System Action: None.
Required Action: If unable to correct the error condition or need help identifying the error with the remote LPR client, contact LRS technical support staff.

VPSX8092E ERROR ENABLING RECOVERY HANDLER ERROR(error)

error: Error description.

Message Meaning: VPSX was unable to establish a recovery environment because of the indicated error.

System Action: VPSX recovery termination processing will be disabled and fatal program signals will cause the VPSX process to terminate.

Fatal Program Signals

SIGSEGV	Segmentation Violation
SIGFPE	Floating Point Exception
SIGILL	Illegal Instruction
SIGBUS	Bus Error
SIGPIPE	Write to Closed Socket or PIPE

Required Action: Use the error description to determine the cause of the error. If unable to identify the cause of the error contact LRS technical support staff.

VPSX8093E ERROR OPENING SNAP FILE(filename) error

filename: SNAP file name.
error: Error description.

Message Meaning: VPSX encountered an error attempting to open a new SNAP file in the SNAP directory (SNAPDIR system keyword).

System Action: None.

Required Action: Use the error description to determine the cause of the error. If unable to identify the cause of the error contact LRS technical support staff.

VPSX8094E SNAP EXPIRATION PROCESSING FAILED

Message Meaning: The expiration thread encountered an error trying to remove expired SNAP files from the SNAP directory.

System Action: None.

Required Action: Use the error description to determine the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VPSX8095E ERROR WRITING SNAP DUMP(filename) ERROR(error)

filename: SNAP file name.
error: Error description.

Message Meaning: VPSX encountered an error attempting to write a new SNAP file in the SNAP directory (SNAPDIR system keyword).

System Action: None.

Required Action: Use the error description to determine the cause of the error. If unable to identify the cause of the error contact LRS technical support staff.

VPSX8096W UNABLE TO USE STANDARD LPR PORTS(721-731) - REQUIRES ROOT AUTHORITY

Message Meaning: VPSX is unable to use the standard LPR client ports because access to this port range requires root authority.
System Action: VPSX will allow TCP/IP to assign a local port for the connection.
Required Action: None.

VPSX8097E TCP/IP ACCEPT REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8098E TCP/IP BIND REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8099E TCP/IP CLOSE REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8100E TCP/IP CONNECT REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8101E TCP/IP HOST NAME RESOLUTION FAILED, HOST(hostname) ERROR(error)

hostname: Symbolic host name.
error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8102E TCP/IP ERROR RETRIEVING LOCAL HOST NAME, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8103E TCP/IP LISTEN REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8104E TCP/IP RECEIVE REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8105E TCP/IP SELECT REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8106E TCP/IP SEND REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8107E TCP/IP SET SCOKET OPTIONS REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8108E TCP/IP SHUTDOWN REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8109E TCP/IP UNABLE TO CREATE SOCKET, ERROR(error)

error: Error description.

Message Meaning: The TCP/IP socket function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8110W prtname SEPARATOR FILE(filename) NOT FOUND

prtname: Printer name.
filename: Separator file name.

Message Meaning: VPSX was unable to locate the specified separator file in the separator directory. The separator file name is qualified with the device type defined for the printer (DEVTYPE printer keyword).
System Action: The default separator file for the device type will be used (i.e. default.xxx).
Required Action: Check that the correct separator file name and printer device type have been specified.

VPSX8111E prtname ERROR PROCESSING SEPARATOR FILE(filename)

prtname: Printer name.
filename: Separator file name.

Message Meaning: VPSX encounter an error processing the indicated separator file.
System Action: A separator page will not be generated.
Required Action: Check previous messages for the cause of the error. If unable to identify the reason for the failure contact LRS technical support staff.

VPSX8112E prtname PRINTER COMMAND FILE(filename) NOT FOUND

prtname: Printer name.
filename: Print command file name.

Message Meaning: VPSX was unable to locate the specified printer command file in the PCMD directory. The command file name is qualified with the device type defined for the printer (DEVTYPE printer keyword).
System Action: No printer commands will be sent before the file.
Required Action: Check that the correct printer command file name and printer device type have been specified.

VPSX8113E prtname ERROR READING PRINTER COMMAND FILE(filename)

prtname: Printer name.
filename: Print command file name.

Message Meaning: VPSX encounter an error processing the indicated printer command file.
System Action: No printer commands will be sent before the file.
Required Action: Check previous messages for the cause of the error. If unable to identify the reason for the failure contact LRS technical support staff.

VPSX8114E prtname SPOOL spoolid FLUSH REQUEST FAILED - error

prtname: Printer name.
spoolid: Spool file identifier.
error: Error description.

Message Meaning: VPSX encountered an error flushing the indicated spool data to disk.
System Action: Spool file creation will fail and the spool data will be removed.
Required Action: Use the error description to identify the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VPSX8115E ERROR INITIALIZING SERVER PORT FOR LRSQ INTERFACE - FUNCTION DISABLED

Message Meaning: VPSX was unable to initialize the TCP/IP port for inbound LRS/Queue requests.
System Action: All LRS/Queue functions will be disabled until VPSX is restarted.
Required Action: Check previous messages for the cause of the error. If unable to determine the cause of the problem contact LRS technical support staff.

VPSX8116E UNRECOVERABLE ERROR ACCEPTING LRSQ CONNECTION - PORT DISABLED

Message Meaning: The VPSX client request dispatcher encountered an unrecoverable error accepting LRS/Queue requests and the LRS/Queue port has been disabled.
System Action: All LRS/Queue functions will be disabled until VPSX is restarted.
Required Action: Check previous messages for the cause of the error. If unable to determine the cause of the problem contact LRS technical support staff.

VPSX8117E ERROR CREATING TEMPORARY FILE

Message Meaning: VPSX was unable to create a temporary file.
System Action: Check following messages for the impact of this failure.
Required Action: Check previous messages for the cause of the failure. If unable to identify the cause of the error contact LRS technical support staff.

VPSX8118E FILE(filename) CLOSED AT THREAD TERMINATION

Message Meaning: VPSX has detected that a thread has terminated without closing a file that it previously opened.
System Action: The file has been automatically closed.
Required Action: Contact LRS technical support staff.

VPSX8119E SOCKET(sd) CLOSED AT THREAD TERMINATION

sd: Socket descriptor.

Message Meaning: VPSX has detected that a thread has terminated without closing a TCP/IP socket that it previously opened.
System Action: The socket has been automatically closed.
Required Action: Contact LRS technical support staff.

VPSX8120E LRSQ REQUEST REJECTED HOST(ipaddr) ERROR(error)

ipaddr: Client IP-address.
error: Error description.

Message Meaning: VPSX rejected an inbound LRS/Queue request because of the indicated error.
System Action: None.
Required Action: If unable to correct the error condition contact LRS technical support staff.

VPSX8123E prtname SPOOL spoolid MOVE REQUEST FAILED - error

prtname: Printer name.
spoolid: Spool file identifier.
error: Error description.

Message Meaning: VPSX encountered an error moving the indicated spool file to another queue.
System Action: None.
Required Action: Use the error description to identify the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VPSX8125E ERROR WRITING PARAMETER FILE(filename) ERROR(error)

filename: Parameter file name.
error: Error description.

Message Meaning: VPSX encountered an error writing system keywords to the indicated parameter file.
System Action: Keyword changes will be lost on restart.
Required Action: Use the error description to identify the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VPSX8126E ERROR RETRIEVING RESOURCE LIMITS FOR resource - error

resource: System resource type.
error: Error description.

Message Meaning: VPSX encountered an error attempting to retrieve the indicated resource limit information.
System Action: None.
Required Action: None.

VPSX8127E prtname ERROR FORKING FILTER PROCESS - error

prtname: Printer name.
error: Error description.

Message Meaning: VPSX encountered an error forking a process to execute a requested filter.
System Action: Action taken will depend on the value of the ERRACTN keyword.
Required Action: Use the error description to identify the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VPSX8128E prtname ERROR CREATING PIPE - error

prtname: Printer name.
error: Error description.

Message Meaning: VPSX encountered an error creating a pipe to execute a requested filter.
System Action: Action taken will depend on the value of the ERRACTN keyword.
Required Action: Use the error description to identify the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VPSX8129E prtname WAITPID REQUEST FAILED - error

prtname: Printer name.
error: Error description.

Message Meaning: VPSX encountered an error waiting for the filter process to terminate.
System Action: Action taken will depend on the value of the ERRACTN keyword.
Required Action: Use the error description to identify the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VPSX8130E prtname FILTERnn PROCESS HAS NOT TERMINATED - KILLING PROCESS

prtname: Printer name.
nn: Filter number.

Message Meaning: The indicated filter process did not complete within two minutes so the process has been terminated.
System Action: Action taken will depend on the value of the ERRACTN keyword.
Required Action: Check that the filter process is working correctly.

VPSX8131E prtname FILTERnn TERMINATED WITH SIGNAL(signo - signame)

prtname: Printer name.
nn: Filter number.
signo: Signal number.
siname: Signal name.

Message Meaning: The indicated filter process terminated because of the indicated signal.
System Action: Action taken will depend on the value of the ERRACTN keyword.
Required Action: Report the problem to the supplier of the filter process.

VPSX8132E prtname FILTERnn TERMINATED WITH RETURN CODE(rc)

prtname: Printer name.
nn: Filter number.
rc: Return code.

Message Meaning: The indicated filter process terminated unsuccessfully with the indicated return code.
System Action: Action taken will depend on the value of the ERRACTN keyword.
Required Action: Report the problem to the supplier of the filter process.

VPSX8133E prtname FILTERnn DID NOT CREATE AN OUTPUT FILE

prtname: Printer name.
nn: Filter number.

Message Meaning: The indicated filter process terminated but has not created an output file.
System Action: Action taken will depend on the value of the ERRACTN keyword.
Required Action: Report the problem to the supplier of the filter process.

VPSX8134E prtname ERROR ACCESSING FILTERnn OUTPUT FILE

prtname: Printer name.
nn: Filter number.

Message Meaning: VPSX encountered an error opening the output file from the filter process.
System Action: Action taken will depend on the value of the ERRACTN keyword.
Required Action: Check previous messages for a description of the open error.

VPSX8135E prtname FILTERnn ARGUMENTS CONTAIN INVALID VARIABLE NAME(varname)

prtname: Printer name.
nn: Filter number.
varname: Variable name.

Message Meaning: VPSX encountered an invalid variable name in the filter argument definitions.
System Action: Action taken will depend on the value of the ERRACTN keyword.
Required Action: Correct the filter argument definition.

VPSX8136E prtname FILTERnn COMMAND DEFINITION MISSING

prtname: Printer name.
nn: Filter number.

Message Meaning: VPSX could not execute the indicated filter because no filter command definition was specified.
System Action: Action taken will depend on the value of the ERRACTN keyword.
Required Action: Correct the filter command definition.

VPSX8137E prtname FILTERnn ARGUMENTS NOT SPECIFIED

prtname: Printer name.
nn: Filter number.

Message Meaning: VPSX could not execute the indicated filter because no filter argument string was specified.
System Action: Action taken will depend on the value of the ERRACTN keyword.
Required Action: Correct the filter argument definition.

VPSX8138E LRSQ REQUEST FAILED (error) HOST(host)

error: Error description.
host: Host name of requesting client.

Message Meaning: An inbound LRS/Queue request failed with the indicated error.
System Action: None.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8140E LRSQ CANCEL REQUEST FAILED (error)

error: Error description.

Message Meaning: An LRS/Queue cancel request failed with the indicated error.
System Action: None.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8141E LRSQ QUERY REQUEST FAILED (error)

error: Error description.

Message Meaning: An LRS/Queue query request failed with the indicated error.
System Action: None.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8142E ERROR RECEIVING API REQUEST DATA HOST(hostname) ERROR(error)

hostname: Remote host name.
error: Error description.

Message Meaning: VPSX encountered an error receiving an API request from the indicated host.
System Action: None.
Required Action: Use the error description and previous messages to attempt to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8143E ERROR PROCESSING API REQUEST DATA - error HOST(hostname)

hostname: Remote host name.
error: Error description.

Message Meaning: VPSX encountered an error processing an API request from the indicated host.
System Action: None.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8144E ERROR REPORTED BY api_src ON LINE api_line CALLED BY src ON LINE line

api_src:	Web services API source file reporting error.
api_line:	Web services API line number.
src:	Calling routine source file.
line:	Calling routine line number.

Message Meaning: The LRS Web services API reported an exception when processing an inbound SOAP XML request.
System Action: None.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8145E ERROR DETAIL: error

error:	Error description.

Message Meaning: The LRS Web services API reported an exception when processing an inbound SOAP XML request.
System Action: None.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8146E ERROR SENDING API RESPONSE TO HOST(hostname) ERROR(error)

hostname:	Remote host name.
error:	Error description.

Message Meaning: VPSX encountered an error sending an API response to the indicated host.
System Action: None.
Required Action: Use the error description and previous messages to attempt to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8148E server CONNECTION REQUEST FAILED HOST(hostname) PORT(port)

server:	ServerX system definition.
hostname:	ServerX hostname or IP address.
port:	Remote ServerX monitor port number.

Message Meaning: A request to connect to the specified ServerX process failed.
System Action: VPSX will retry the connection request every minute until a connection is established.
Required Action: Check previous messages for additional information about the error. Check that the server definition in the VPSX system initialization file contains the correct hostname and that the port number specified matches the value defined in the remote ServerX via the TCPPORTV keyword. If unable to identify the cause of the error contact VPSX Technical support.

VPSX8149E ERROR CALLING SERVERX SOAP FUNCTION function - error

function: Remote SOAP function name.
error: Error description.

Message Meaning: The Web services API reported an exception attempting to execute the specified SOAP function in the remote ServerX.
System Action: VPSX will terminate the connection to the ServerX process and retry after one minute to re-establish the connection.
Required Action: Check the ServerX log for error messages that might help determine the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VPSX8150E ERROR REPORTED BY api_src ON LINE api_line CALLED BY src ON LINE line

api_src: Web services API source file reporting error.
api_line: Web services API line number.
src: Calling routine source file.
line: Calling routine line number.

Message Meaning: The LRS Web services API reported an exception when processing an outbound ServerX SOAP XML request.
System Action: None.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8151E ERROR DETAIL: error

error: Error description.

Message Meaning: The LRS Web services API reported an exception when processing an outbound ServerX SOAP XML request.
System Action: None.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8152E SERVERX SOAP FUNCTION(function) RETURNED FAULT(fault)

function: Remote SOAP function name.
fault: Remote function fault string.

Message Meaning: The indicated ServerX process returned a fault when processing a VPSX monitor connection request.
System Action: VPSX will terminate the connection to the ServerX process and retry after one minute to re-establish the connection.
Required Action: Check the ServerX log for error messages that might help determine the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VPSX8153E SERVERX NOTIFICATION REQUEST FAILED FOR PRINTER prtname

prtname: Printer name.

Message Meaning: VPSX encountered an error sending a printer status notification to the indicated server.
System Action: VPSX will terminate the connection to the ServerX process and retry after one minute to re-establish the connection.
Required Action: Check the ServerX log for error messages that might help determine the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VPSX8154E FUNCTION(function) SENDING FAULT(fault) USERID(userid)

function: VPSX SOAP function name.
fault: Function fault string.
userid: Requesting user ID.

Message Meaning: A VPSX SOAP API request has failed and returned the indicated fault string.
System Action: None.
Required Action: Check the fault string to determine the cause of the error. If unable to identify the cause of the failure contact LRS technical support staff.

VPSX8155E SNMP THREAD TERMINATING DUE TO UNRECOVERABLE ERROR

Message Meaning: The VPSX SNMP thread that continually monitors the status of all SNMP enabled devices has terminated due to an unrecoverable error.
System Action: SNMP status information will not be collected until VPSX is restarted.
Required Action: Check previous error messages for the cause of the failure. If unable to identify the cause of the error contact LRS technical support staff.

VPSX8156E prtname OFFLINE errors

prtname: Printer name.
errors: Error conditions reported by the device.

Message Meaning: The SNMP printer monitor has detected that the indicated device has gone offline with the specified error conditions.
System Action: None.
Required Action: Operator intervention is required to correct the device error condition.

VPSX8157W prtname WARNING errors

prtname: Printer name.
errors: Warning conditions reported by the device.

Message Meaning: The SNMP printer monitor has detected the indicated non-critical errors for the specified printer.
System Action: None.
Required Action: None.

VPSX8158E ERROR SENDING SNMP GET REQUEST - ERROR(error)

error: Error description.

Message Meaning: The VPSX SNMP monitor thread has received the indicated error when attempting to send an SNMP GET request.
System Action: The SNMP monitor thread will terminate and VPSX must be restarted to re-enable this feature.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VPSX8159E ERROR OPENING ACCOUNTING FILE - ACCOUNTING DISABLED

Message Meaning: The accounting thread received an error attempting to open an accounting file.
System Action: The accounting feature will be disabled until VPSX is restarted.
Required Action: Check previous messages for the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VPSX8160E ACCOUNTING FILE EXPIRATION PROCESSING FAILED

Message Meaning: The accounting thread encountered an error attempting to remove expired accounting files.
System Action: Execution will continue but the accounting files will remain.
Required Action: Check previous messages for the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VPSX8161E SPOOL INDEX LOCKED BY ANOTHER VPSX - PID(pid)

pid: Process identifier.

Message Meaning: VPSX has detected that the spool index file is currently locked by another VPSX process. Spool directories can not be shared between VPSX servers.
System Action: VPSX initialization will fail.
Required Action: Verify that two VPSX instances have not been defined with the same spool directory.

VPSX8162E ERROR LOCKING SPOOL INDEX FILE - error

error: Error description.

Message Meaning: VPSX received an error when attempting to lock the spool index file.
System Action: VPSX initialization will fail.
Required Action: Check error description to identify the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VPSX8163E ERROR OPENING SAP R/3 RFCAPI LIBRARY(lib): error

lib: RFCAPI library name.
error: Error description.

Message Meaning: VPSX encountered an error attempting to open the SAP R/3 RFCAPI library.
System Action: The VPSX/OutputManager SAP R/3 interface will be disabled.
Required Action: Check that the RFC API library has been installed on the system and that the LD_LIBRARY_PATH variable in the VPSX shell script identifies the correct location. If unable to identify the cause of the error contact LRS technical support staff.

VPSX8164E ERROR LOADING SAP R/3 RFCAPI FUNCTION(func): error

func: SAP R/3 RFCAPI function name.
error: Error description.

Message Meaning: The dlsym() function returned an error attempting to dynamically load the indicated RFCAPI library function.
System Action: The VPSX/OutputManager SAP R/3 interface will be disabled.
Required Action: Use the NM command to check that the LIBRFCCM library contains the requested function. If unable to identify the cause of the error contact LRS technical support staff.

VPSX8165E ERROR ATTACHING SAP R/3 CALLBACK THREAD FOR SERVER(server)

server: SAP R/3 callback server name.

Message Meaning: VPSX encountered an error creating a new thread to communicate with the indicated SAP R/3 server.
System Action: The SAP dispatcher thread will flag the server connection as EDRAINED and retry the request in five minutes.
Required Action: Check previous messages for additional information about the error. If unable to identify the cause of the error contact LRS technical support staff.

VPSX8166E ERROR LOCATING SAP R/3 CALLBACK SERVER sysid_server_sysno - error

sysid: SAP system identifier.
server: SAP server name.
sysno: SAP system number.
error: Error description.

Message Meaning: VPSX encountered an error locating the server control block for the specified SAP R/3 callback target.
System Action: Check following messages for the consequences of this error condition.
Required Action: Contact LRS technical support staff.

VPSX8167E ERROR LOCATING SAP R/3 REPLY MESSAGE GROUP SYSID(sysid) RMG(rmg) - error

sysid:	SAP system identifier.
rmg:	SAP Reply Message Group.
error:	Error description.

Message Meaning: VPSX encountered an error locating the Reply Message Group control block for the specified SAP R/3 callback target.
System Action: Check following messages for the consequences of this error condition.
Required Action: Contact LRS technical support staff.

VPSX8168E ERROR QUEUING SAP R/3 CALLBACK EVENT(event) SPOOLID(spoolid) SERVER(sysid_server_sysno) - error

event:	Job event number.
spoolid:	Spool file identifier.
sysid:	SAP system identifier.
server:	SAP server name.
sysno:	SAP system number.
error:	Error description.

Message Meaning: VPSX encountered an error queuing a JOB event to a SAP callback target.
System Action: The job event will be discarded unless this is a completion event. Completion events will be re-queued when VPSX is restarted.
Required Action: Contact LRS technical support staff.

VPSX8169E SAP R/3 DISPATCHER THREAD TERMINATING DUE TO UNRECOVERABLE ERROR

Message Meaning: The VPSX SAP R/3 dispatcher thread has terminated due to an unrecoverable error.
System Action: SAP callback notifications will not be delivered until VPSX is restarted.
Required Action: Check previous messages for the cause of the error. If unable to identify the cause of the failure contact LRS technical support staff.

VPSX8170E ERROR SETTING THREAD STACK SIZE TO RFCAPI REQUIRED MINIMUM - error

error:	Error description.

Message Meaning: The pthread_attr_setstacksize() function returned an error when VPSX attempted to set the thread stack size to the minimum required for the SAP RFCAPI interface.
System Action: The SAP interface will be disabled.
Required Action: Contact LRS technical support staff.

VPSX8171E sysid_server_sysno SAP R/3 CALLBACK THREAD status - error

sysid:	SAP system identifier.
server:	SAP server name.
sysno:	SAP system number.
status:	EDRAINED or ABENDED.
error:	Error description.

Message Meaning: The indicated SAP R/3 callback thread has terminated due to an error.
System Action: If the thread status is EDRAINED the SAP R/3 dispatcher thread will retry the failed connection after five minutes. ABENDED callback threads will not be restarted until VPSX is reloaded.
Required Action: Check the error description and the detailed error information displayed in message VPSX8176 to identify the cause of the error condition. If unable to identify the cause of the failure contact LRS technical support staff.

VPSX8172E ERROR RECOVERING ACTIVE EVENTS TO PENDING QUEUE - error

error:	Error description.

Message Meaning: VPSX encountered an error recovering active callback events to the pending queue after an error.
System Action: None.
Required Action: Contact LRS technical support staff.

VPSX8173E ERROR QUEUING SAP R/3 CALLBACK EVENT(event) PRINTER(prtname) RMG(rmg_sysid) - error

event:	Device event number.
prtname:	Printer name.
rmg:	Reply Message Group.
sysid:	SAP system identifier.
error:	Error description.

Message Meaning: VPSX encountered an error queuing a device event to a SAP callback target.
System Action: The device event will be discarded.
Required Action: Contact LRS technical support staff.

VPSX8174E ERROR RETRIEVING SAP R/3 SYSTEM CONTROL BLOCK SYSID(sysid) ERROR(error)

sysid:	SAP system identifier.
error:	Error description.

Message Meaning: VPSX encounter an error retrieving the system control block for the indicated SAP R/3 system.
System Action: Check following messages for the consequences of this error.
Required Action: Contact LRS technical support staff.

VPSX8175E ERROR PROCESSING SAP R/3 GROUP CONFIGURATION SERVER NAME(server) IS INVALID

server: SAP R/3 callback server name.

Message Meaning: The SAP Reply Message Group configuration information retrieved from the SAP system contains an invalid callback server name. The callback server name should be formatted as sysid_server_sysno.
System Action: The callback server information will be ignored.
Required Action: Check the SAP R/3 LOMS definitions to ensure that a correct server name is specified.

VPSX8176E error-detail

error-detail: Detailed description of RFCAPI error.

Message Meaning: This message will be issued following VPSX8171E to display any detailed information returned by the last failing call to the SAP RFCAPI interface.
System Action: None.
Required Action: Check information to identify the cause of the error.

VPSX8177E CHECKPOINT DATABASE request FAILED - error FILE(src) LINE(line)

request: Database request type: READ, WRITE, DELETE, and UPDATE
error: Error description.
src: Source file name of calling program.
line: Source line number.

Message Meaning: The indicated checkpoint database request failed with the indicated error.
System Action: Check following messages for the consequences of this I/O error.
Required Action: Use the error description to identify the cause of the error. If unable to identify the cause of the error contact LRS technical support staff.

VPSX8178E ERROR ADDING CALLBACK SERVER(sysid_server_sysno) ERROR(error)

sysid: SAP system identifier.
server: SAP server name.
sysno: SAP system number.
error: Error description.

Message Meaning: VPSX encounter an error adding a new callback server control block.
System Action: Execution will continue without the specified callback target.
Required Action: Check the error description for the cause of the error. If unable to identify the cause of the error contact LRS technical support staff.

VPSX8179E SAP R/3 INTERFACE INITIALIZATION FAILED - FUNCTION DISABLED

Message Meaning: An error occurs initializing the SAP R/3 interface and this function has been disabled.
System Action: None.
Required Action: Check previous messages for the cause of the failure.

VPSX8180E ERROR INITIALIZING SOAP API SERVICES

Message Meaning: An error occurred adding the SOAP API services to the SOAP server instance.
System Action: Execution will continue but some API functions will be unavailable.
Required Action: Contact LRS technical support staff.

VPSX8181E ERROR QUEUING EVENT TO SAP CALLBACK DISPATCHER - error

error: Error description.

Message Meaning: An error occurred queuing a callback event to the SAP R/3 dispatcher thread.
System Action: The callback event will be discarded.
Required Action: Contact LRS technical support staff.

VPSX8182E ERROR COMMUNICATING WITH SERVER - error

error: Error description.

Message Meaning: VPSX encounter an error condition communicating with the ServerX process.
System Action: The ServerX connection will be terminated and recovery will be attempted every minute.
Required Action: Check previous messages for more information on the error. If unable to identify the cause of the error contact LRS technical support staff.

VPSX8183E prtname SPOOLID spooled ERROR RESPONSE FROM SMTP SERVER(mailhost) - response

prtname: Printer name.
spoolid: Spool identifier.
mailhost: SMTP mail server.
response: SMTP server response.

Message Meaning: The mail server rejected an SMTP command with the indicated error response.
System Action: Processing of the current file will stop and the status of the spool file and the printer will be set depending on the value of the ERRACTN keyword. The default action is to hold the file and continue processing.
Required Action: Check the response message for the cause of the error. If you are unable to determine the cause of the error contact LRS technical support staff.

VPSX8184E ERROR RELEASING MAIL CONTROL BLOCK - error

error: Error description.

Message Meaning: VPSX encountered an error releasing the MAIL control block.
System Action: Execution will continue.
Required Action: Check previous messages for the cause of the error. If you are unable to determine the cause, please contact LRS technical support staff.

VPSX8185E prtname SPOOLID spooled RECIPIENT recipient REJECTED BY SMTP SERVER

prtname: Printer name.
spoolid: Spool identifier.
recipient: email recipient

Message Meaning: The mail server rejected the indicated email recipient name.
System Action: Processing of the current file will stop and the status of the spool file and the printer will be set depending on the value of the ERRACTN keyword. The default action is to hold the file and continue processing.
Required Action: Check that the recipient name is correct and resubmit the print request. If you are unable to determine the cause of the error contact LRS technical support staff.

VPSX8186E IPP REQUEST REJECTED HOST(hostname) ERROR(error)

hostname: IP address or host name of IPP client.
error: Error description.

Message Meaning: VPSX rejected an inbound IPP request for the indicated reason.
System Action: The client IPP connection will be terminated and execution will continue.
Required Action: Check the error description for the cause of the error. If you are unable to determine the cause, please contact LRS technical support staff.

VPSX8187E IPP operation REQUEST FAILED(error) HOST(hostname)

operation: IPP operation name.
hostname: IP address or host name of IPP client.
error: Error description.

Message Meaning: The inbound IPP operation failed for the indicated reason.
System Action: The IPP client will receive the indicated error response.
Required Action: Check the error description for the cause of the error. If you are unable to determine the cause, please contact LRS technical support staff.

VPSX8188E IPP ERROR DETAIL(detail)

detail: Detailed error description.

Message Meaning: An inbound IPP operation failed for the indicated reason.
System Action: The IPP client will receive the indicated error detail response.
Required Action: Check the error description for the cause of the error. If you are unable to determine the cause, please contact LRS technical support staff.

VPSX8189E ERROR QUEUING EVENT TO thread THREAD - error

thread: VPSX system thread name (Mail or XCMD).
error: Error description.

Message Meaning: An error was encountered queuing a notification event to the indicated system thread.
System Action: The event notification request will be discarded.
Required Action: Check the error description for the cause of the error. If you are unable to determine the cause, please contact LRS technical support staff.

VPSX8190E ERROR SENDING MAIL NOTIFICATION: ACTION(action) ERROR(error)

action: Attempted action.
error: Error description.

Message Meaning: An error occurred sending an email notification to the SMTP mail server.
System Action: If the error condition is recoverable VPSX will discard low priority notification requests and will retry the operation after 5 minutes. Unrecoverable errors will cause the notification thread to terminate and email notification will be disabled.
Required Action: Check the error description for the cause of the error. If you are unable to determine the cause, please contact LRS technical support staff.

VPSX8191E MAIL NOTIFY THREAD ENDING DUE TO ERROR - error

error: Error description.

Message Meaning: The VPSX email notification thread has encountered an unrecoverable error and will terminate.
System Action: email notification will be disabled.
Required Action: Check the error description and previous messages for the cause of the error. If you are unable to determine the cause, please contact LRS technical support staff.

VPSX8192E notify-feature QUEUE: DELETE(deleted) RETAINED(retained)

Notify-feature: VPSX system notification feature.
deleted: Number of low priority events that have been discarded.
retained: Number of high priority events that have been retained in the queue.

Message Meaning: VPSX has encountered an error delivering notifications to the indicated notification feature. Low priority events have been discarded and high priority events have been retained for transmission when the notification feature is restarted.
System Action: If the error condition is recoverable, the notification feature will restart processing after a retry delay.
Required Action: Check the error description and previous messages for the cause of the error. If you are unable to determine the cause, please contact LRS technical support staff.

VPSX8193E MAIL NOTIFY THREAD CONNECTION ERROR: QUEUING PRIORITY EVENTS ONLY

Message Meaning: An error has caused the connection to the SMTP server to terminate.
System Action: Low priority events will be discarded until the connection is re-established. VPSX will retry the connection every 5 minutes.
Required Action: Check the error description and previous messages for the cause of the error. If you are unable to determine the cause, please contact LRS technical support staff.

VPSX8194W MAIL NOTIFY THREAD RETRYING CONNECTION TO SMTP SERVER

Message Meaning: The VPSX email notification thread is attempting to re-establish a connection to the SMTP mail server.
System Action: None.
Required Action: Check the error description and previous messages for the cause of the error. If you are unable to determine the cause, please contact LRS technical support staff.

VPSX8195E prtname SPOOLID spooled notify-feature MESSAGE DISCARDED - error

prtname: Printer name.
spoolid: Spool identifier.
notify-feature: VPSX system notification feature.
error: Error description

Message Meaning: A notification event for the indicated spool file has been discarded due to an error.
System Action: Processing continues.
Required Action: Check the error description for the cause of the error. If you are unable to determine the cause, please contact LRS technical support staff.

VPSX8196E ERROR WRITING TO ACCOUNTING FILE - ACCOUNTING DISABLED

Message Meaning: The VPSX accounting function has been disabled due to an unrecoverable error writing to the accounting file.
System Action: Accounting will be disabled until VPSX is restarted.
Required Action: Check previous error messages for the cause of the failure. If you are unable to determine the cause of the failure please contact LRS technical support.

VPSX8197E XCMD THREAD WAITPID(pid) REQUEST FAILED (error)

pid: Process ID of external command co-process.
error: Error description.

Message Meaning: The VPSX external command notification feature encountered an error waiting for the process to terminate.
System Action: Processing continues.
Required Action: Check the error description for the cause of the error. If you are unable to determine the cause, please contact LRS technical support.

VPSX8198E XCMD PROCESS(pid) HAS NOT TERMINATED - KILLING PROCESS

pid: Process ID of external command co-process.

Message Meaning: The VPSX external command notification co-process has not terminated when requested and will be killed.
System Action: Processing continues.
Required Action: Check your external notification routine to ensure it will terminate then STDIN is closed.

VPSX8199E XCMD PROCESS(pid) TERMINATED WITH SIGNAL (signo - signame)

pid: Process ID of external command co-process.
signo: Signal number.
signame: Signal name.

Message Meaning: The VPSX external command notification co-process has terminated abnormally with the indicated signal.
System Action: Processing continues.
Required Action: Examine your external notification routine to determine cause of the signal.

VPSX8200E XCMD PROCESS(pid) file-action

pid: Process ID of external command co-process.
file-action: File description and indicated action.

Message Meaning: The VPSX external command notification co-process has closed the indicated file descriptor.
System Action: Processing continues.
Required Action: None.

VPSX8201E XCMD THREAD ENDING DUE TO ERROR (error)

error: Error description.

Message Meaning: The VPSX external command notification feature has terminated with the indicated error.
System Action: External command notification is disabled.
Required Action: Check the error description for the cause of the error. If you are unable to determine the cause, please contact LRS technical support.

VPSX8202E XCMD THREAD RETRYING

Message Meaning: The VPSX external command notification feature is retrying a failed command processor.
System Action: Processing continues.
Required Action: None.

VPSX8203E XCMD PROCESS ERROR FORKING (error)

error: Error description.

Message Meaning: The VPSX external command notification feature encountered an error forking the external command process.
System Action: External command notification is disabled.
Required Action: Check the error description for the cause of the error. If you are unable to determine the cause, please contact LRS technical support.

VPSX8204E XCMD PROCESS ERROR CREATING PIPE (error)

error: Error description.

Message Meaning: The VPSX external command notification feature encountered an error creating the pipe for communication with the co-process.
System Action: External command notification is disabled.
Required Action: Check the error description for the cause of the error. If you are unable to determine the cause, please contact LRS technical support staff.

VPSX8205E XCMD PROCESS(pid) FAILED (error)

pid: Process ID of external command co-process.
error: Error description.

Message Meaning: The VPSX external command notification routine failed with the indicated error.
System Action: External command notification will be retried after a retry delay.
Required Action: Check the error description for the cause of the error. If you are unable to determine the cause, please contact LRS technical support staff.

VPSX8206W XCMD RETURNED (rc) RESPONSE CODE

rc: Co-process event response code.

Message Meaning: The VPSX external command notification routine returned the indicated response code to an event notification record.
System Action: VPSX will take the appropriate action for the response code.
Required Action: Check external notification routine for cause of error.

VPSX8207E XCMD RETURNED (INVALID) RESPONSE CODE (rc)

rc: Co-process event response code.

Message Meaning: The VPSX external command notification routine returned the indicated invalid response code to an event notification record.
System Action: Event notification will be terminated.
Required Action: Check external notification routine for cause of error.

VPSX8208E XCMD THREAD IN ERROR RECOVERY: QUEUING PRIORITY EVENTS ONLY

Message Meaning: The VPSX external command notification feature is in error recovery due to a failed external notification routine and will only queue priority notification events.
System Action: None.
Required Action: None.

VPSX8209E XCMD THREAD ERROR (error)

error: Error description.

Message Meaning: The VPSX external command notification feature has encountered the indicated error.
System Action: Notification processing will be disabled.
Required Action: Check the error description for the cause of the error. If you are unable to determine the cause, please contact LRS technical support staff.

VPSX8210E XCMD PROCESSING DISABLED

Message Meaning: The VPSX external command notification feature has been disabled due to an unrecoverable error.
System Action: Notification processing will be disabled.
Required Action: Check previous error messages for the cause of the error. If you are unable to determine the cause, please contact LRS technical support staff.

VPSX8211E keyword EVENT VARIABLE DEFINITION CONTAINS INVALID VARIABLE NAME (var) FOR EVENT (event)

keyword: VPSX system keyword name.
var: Invalid symbolic variable name.
event: Event type.

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Message Meaning: The VPSX external command notification feature has detected an invalid symbolic variable in the indicated VPSX system keyword definition.
System Action: None.
Required Action: Validate and correct indicated VPSX system keyword value.

VPSX8212E keyword EVENT SELECTION DEFINITION CONTAINS INVALID EVENT NUMBER (event)

keyword: VPSX system keyword name.
event: Event number.

Message Meaning: The VPSX external command notification feature has detected an invalid event number in the indicated VPSX system keyword definition.
System Action: None.
Required Action: Validate and correct indicated VPSX system keyword value.

VPSX8213E FILE LINK FAILED NAMES(name1,name2) ERROR(error)

name1: Name of existing file.
name2: Name of link.
error: Error description.

Message Meaning: An error occurred attempting to create a link to an existing file.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If you are unable to determine the cause of the error contact LRS technical support staff.

VPSX9000A ERROR CREATING THREAD SPECIFIC DATA KEY RC=rc error

rc: Return code.
error: Error description.

Message Meaning: The pthread_key_create() function returned an error when VPSX attempted to create a thread specific data key for the thread control element.
System Action: Execution will terminate.
Required Action: Check the error description for the cause of the error. If unable to identify the cause of the error contact LRS technical support staff.

VPSX9001A ERROR INITIALIZING COMMON MUTEX AND CONDITION VARIABLE CONTROLS

Message Meaning: An error occurred initializing the system mutex and condition variable controls.
System Action: Execution will terminate.
Required Action: Check the error description for the cause of the error. If unable to identify the cause of the error contact LRS technical support staff.

VPSX9002A ERROR INITIALIZING MAIN TASK TCE

Message Meaning: An error occurred initializing the Thread Control Element for the main thread.
System Action: Execution will terminate.
Required Action: Check the error description for the cause of the error. If unable to identify the cause of the error contact LRS technical support staff.

VPSX9003A INVALID ARGUMENT arg

arg: Invalid argument name.

Message Meaning: An invalid argument was passed to the VPSX executable.
System Action: Execution will terminate.
Required Action: Correct the invalid argument and restart.

VPSX9004A arg VALUE NOT SPECIFIED

arg: Argument name.

Message Meaning: No value was specified for the indicated argument.
System Action: Execution will terminate.
Required Action: Correct the invalid argument and restart.

VPSX9005A UNKNOWN ARGUMENT arg

arg: Argument name.

Message Meaning: An unknown argument name was specified.
System Action: Execution will terminate.
Required Action: Correct the invalid argument and restart.

VPSX9006A ERROR PROCESSING CONFIGURATION FILE filename

filename: VPSX system initialization file name.

Message Meaning: An error occurred processing the system initialization keywords.
System Action: Execution will terminate.
Required Action: Correct the system initialization definitions.

VPSX9007A SERVER ROOT DIRECTORY(root) IS INACCESSABLE ERROR(error)

root: Server root directory.
error: Error description.

Message Meaning: The directory defined as the server root for this instance of VPSX is inaccessible.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VPSX9008A ERROR CHANGING TO SERVER ROOT DIRECTORY(root) ERROR(error)

root: Server root directory.
error: Error description.

Message Meaning: An error was returned when VPSX attempted to make the server root directory the current working directory for the process.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VPSX9009A LOG DIRECTORY(logdir) IS INACCESSABLE ERROR(error)

logdir: Log directory.
error: Error description.

Message Meaning: The directory defined as the log directory for this instance of VPSX is inaccessible.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VPSX9010A ERROR CREATING LOG DIRECTORY(logdir) ERROR(error)

logdir: Log directory.
error: Error description.

Message Meaning: An error occurred creating the directory defined as the log directory for this instance of VPSX.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VPSX9011A SPOOL DIRECTORY(spooldir) IS INACCESSABLE ERROR(error)

spooldir: Spool directory.
error: Error description.

Message Meaning: The directory defined as the spool directory for this instance of VPSX is inaccessible.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VPSX9012A ERROR CREATING SPOOL DIRECTORY(spooldir) ERROR(error)

spooldir: Spool directory.
error: Error description.

Message Meaning: An error occurred creating the directory defined as the spool directory for this instance of VPSX.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VPSX9013A TEMP DIRECTORY(tempdir) IS INACCESSABLE ERROR(error)

tempdir: Temp directory.
error: Error description.

Message Meaning: The directory defined as the temp directory for this instance of VPSX is inaccessible.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VPSX9014A ERROR CREATING TEMP DIRECTORY(tempdir) ERROR(error)

tempdir: Temp directory.
error: Error description.

Message Meaning: An error occurred creating the directory defined as the temp directory for this instance of VPSX.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VPSX9015A PRINTER DEFINITION DIRECTORY(prtrdir) IS INACCESSABLE ERROR(error)

prtrdir: Printer directory.
error: Error description.

Message Meaning: The directory defined as the printer definition directory for this instance of VPSX is inaccessible.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VPSX9016A ERROR CREATING PRINTER DEFINITION DIRECTORY(prtrdir) ERROR(error)

prtrdir: Printer directory.
error: Error description.

Message Meaning: An error occurred creating the directory defined as the printer definition directory for this instance of VPSX.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VPSX9017A SNAP DIRECTORY(snapdir) IS INACCESSABLE ERROR(error)

snapdir: SNAP directory.
error: Error description.

Message Meaning: The directory defined as the SNAP directory for this instance of VPSX is inaccessible.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VPSX9018A ERROR CREATING SNAP DIRECTORY(snapdir) ERROR(error)

snapdir: SNAP directory.
error: Error description.

Message Meaning: An error occurred creating the directory defined as the SNAP directory for this instance of VPSX.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VPSX9019A ERROR CREATING SYSTEM THREADS

Message Meaning: An error occurred creating the VPSX system threads.
System Action: Execution will terminate.
Required Action: Check previous messages for cause of error. If unable to identify the cause of the error contact LRS technical support staff.

VPSX9020A TASK(thread) ABENDED(signame) LAST KNOWN LOCATION SRC(src) LINE(line)

thread: VPSX thread name.
signame: Signal causing abnormal termination.
src: Last known source file.
line: Last known line number.

Message Meaning: A thread has terminated due to a hardware context signal.
System Action: The identified thread will terminate and VPSX will attempt to continue processing. If the failing thread was holding any locks at the time of the abend this could cause other thread to become blocked when they attempt to acquire this lock.
Required Action: Contact LRS technical support staff and provide them with the SNAP dump that will have been generated in the SNAP directory and the log for the current execution of VPSX.

VPSX9021A PCMD DIRECTORY(pcmddir) IS INACCESSABLE ERROR(error)

pcmddir: PCMD directory.
error: Error description.

Message Meaning: The directory defined as the printer command file directory for this instance of VPSX is inaccessible.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VPSX9022A ERROR CREATING PCMD DIRECTORY(pcmddir) ERROR(error)

pcmddir: PCMD directory.
error: Error description.

Message Meaning: An error occurred creating the directory defined as the printer command file directory for this instance of VPSX.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VPSX9023A SEPAR DIRECTORY(separdir) IS INACCESSABLE ERROR(error)

separdir: Separator directory.
error: Error description.

Message Meaning: The directory defined as the separator page directory for this instance of VPSX is inaccessible.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VPSX9024A ERROR CREATING SEPAR DIRECTORY(separdir) ERROR(error)

separdir: SEPAR directory.
error: Error description.

Message Meaning: An error occurred creating the directory defined as the separator page directory for this instance of VPSX.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VPSX9025A INVALID VPSX PRODUCT KEY (product) ERROR(error)

product: Product key name.
error: Error description.

Message Meaning: The product key for the indicated product is invalid.
System Action: If the KEYVPSX key is invalid execution will terminate and all other keys will simply disable the specific feature.
Required Action: Check that the correct product key provided by LRS has been entered into the system configuration file. If the key has been entered correctly contact LRS technical support staff.

VPSX9026A ERROR INITIALIZING PCB RED/BLACK TREE (error)

error: Error description.

Message Meaning: An error occurred initializing the Red/Black tree used to quickly access the printer control blocks.
System Action: Execution will terminate.
Required Action: Contact LRS technical support staff.

VPSX9027A ACCOUNTING DIRECTORY(acctdir) IS INACCESSABLE ERROR(error)

acctdir: Accounting directory.
error: Error description.

Message Meaning: The directory defined as the accounting directory for this instance of VPSX is inaccessible.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VPSX9028A ERROR CREATING ACCOUNTING DIRECTORY(acctdir) ERROR(error)

acctdir: Accounting directory.
error: Error description.

Message Meaning: An error occurred creating the directory defined as the accounting directory for this instance of VPSX.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VPSX9029A product PRODUCT HAS EXPIRED

product: Product key name.
error: Error description.

Message Meaning: The product key for the indicated product has expired.
System Action: If the KEYVPSX key has expired execution will terminate and all other keys will simply disable the specific feature.
Required Action: Contact LRS technical support staff to acquire a new product key.

VPSX9030A ERROR OPENING CHECKPOINT DATABASE - error

error: Error description.

Message Meaning: An error occurred opening the checkpoint database.
System Action: Execution will terminate.
Required Action: Check the error description and previous messages for the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VPSX9031A ERROR INITIALIZING CHECKPOINT DATABASE - error

error: Error description.

Message Meaning: An error occurred initializing the checkpoint database.
System Action: Execution will terminate.
Required Action: Check the error description and previous messages for the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VPSX9032A ERROR CREATING DATABASE RECORD TYPE rectype - error

rectype: Record type.
error: Error description.

Message Meaning: An error occurred creating the indicated record type in the checkpoint database.
System Action: Execution will terminate.
Required Action: Check the error description and previous messages for the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

ServerX Message General Information

The VSVX process will generate messages for all major events during execution. The messages will be written to the ServerX log files and can optionally be issued to the UNIX SYSLOG daemon. ServerX message logging is enabled/disabled via the LOG keyword in the system initialization file (VSVSTART) and, when enabled, the log files will be created in the directory specified via the LOGDIR keyword (default: serverroot/log). Logging to the UNIX SYSLOG is controlled via the SYSLOG keyword in the system initialization file.

ServerX actively manages all log files and will automatically remove files after an installation defined expiration period (LOGEXPR keyword). A new log file will be started each time the VSVX process is started or when the log file size reaches an installation defined maximum (LOGSIZE keyword).

Log file names are constructed using the date and time the log files were started and have a file extension of '.log'.

ServerX Message Format

All ServerX messages are prefixed with a 9 character message identifier that has the following format:

VSVXnnnnt

Where: **nnnn** - Unique message number.
t - Message type (see below).

Message Types:

D - Debug message (LRS internal use only).
I - Informational message.
W - Warning message.
E - Error message.
A - Critical alert message.

The message identifier is followed by the name of the internal thread issuing the message.

Example:

VSVX0100I <$MAIN$> VSVX INITIALIZATION SUCCESSFUL

ServerX Messages

VSVX0002I library_version

library_version: Shared library version information.

Message Meaning: This message will be issued several times during startup to display the version, release, and fix levels of all LRS shared libraries used by the VSVX process.
System Action: None.
Required Action: None.

VSVX0003I ServerX STARTED AS DAEMON PROCESS

Message Meaning: VSVX has been started with the -d flag and disassociated itself from the starting process to execute as a daemon.
System Action: None.
Required Action: None.

VSVX0010I name THREAD ATTACHED

name: Name of the thread.

Message Meaning: A new thread has been created with the indicated name.
System Action: None.
Required Action: None.

VSVX0011I name THREAD DETACHED

name: Name of the thread.

Message Meaning: The indicated thread has been removed from the system.
System Action: None.
Required Action: None.

VSVX0012I name THREAD TERMINATED

name: Name of the thread.

Message Meaning: The indicated thread has terminated.
System Action: None.
Required Action: None.

VSVX0099I LIMITS(OPEN-FILES(file-limit,file-max) MEMORY(memory-limit,memory-max) ADDR-SPACE(addr-limit,addr-max))

file-limit:	Indicates the limit imposed by the operating system on the number of files that can be opened concurrently.
file-max:	Indicates the operating system maximum possible files limit.
memory-limit:	Indicates the limit imposed by the operating system on the amount of storage that can be acquired by the process.
memory-max:	Indicates the operating system maximum memory limit.
addr-limit:	Indicates the limit on the accessible address space.
addr-max:	Indicates the architectural maximum address space.

Message Meaning: Operating system resource limits.
System Action: None.
Required Action: None.

VSVX0100I VSVX INITIALIZATION SUCCESSFUL VERSION=VverRrel.fix

ver:	Software version of VSVX.
rel:	Software release.
fix:	Fix level.

Message Meaning: VSVX has successfully initialized using the indicated software level.
System Action: None.
Required Action: None.

VSVX0101I <thread> DIAGNOSTIC SNAP DUMP WRITTEN TO FILE(%s)

thread:	Thread generating SNAP dump.

Message Meaning: A severe error has occurred and VSVX has taken a diagnostic SNAP dump to enable problem determination. The dump file will be written to the directory identified via the SNAPDIR system initialization option.
System Action: Execution will continue.
Required Action: Report the problem to LRS technical support staff.

VSVX0102I SERVER CONFIGURATION UPDATED BY USER userid

userid:	Requesting user ID.

Message Meaning: The indicated user has updated the system configuration options.
System Action: None.
Required Action: None.

VSVX0103I TERMINATION REQUESTED BY USER userid

userid:	Requesting user ID.

Message Meaning: The indicated user has requested VSVX to terminate.
System Action: VSVX will terminate.
Required Action: None.

VSVX0104I CLOSELOG COMMAND ISSUED USER userid

userid: Requesting user ID.

Message Meaning: The indicated user has issued a closelog request to close the current log file and start a new log file.
System Action: The current log file will be switched.
Required Action: None.

VSVX0105I SNAP COMMAND COMMAND ISSUED USER userid

userid: Requesting user ID.

Message Meaning: The indicated user has requested a diagnostic SNAP dump.
System Action: A SNAP dump will be generated in the directory identified in the SNAPDIR system initialization keyword.
Required Action: None.

VSVX0106I INITIALIZING PROFILE DATABASE

Message Meaning: ServerX has not found a profile database so it is initializing a new set of database files.
System Action: None.
Required Action: None.

VSVX0107I TERMINATION REQUESTED BY SIGTERM SIGNAL

Message Meaning: LRS/ServerX has received a SIGTERM signal and is shutting down.
System Action: LRS/ServerX will terminate.
Required Action: None.

VSVX0108I UPGRADING PROFILE DATABASE

Message Meaning: ServerX has detected that the profile database format is incompatible with the level of the server executables and is upgrading the database to the new format. The old database files will be renamed and retained to enable recovery from a failed upgrade.
System Action: None.
Required Action: None.

VSVX1000I LOG FILE filename HAS EXPIRED

filename: Log file name.

Message Meaning: The indicated log file has expired and has been deleted from the log directory.
System Action: None.
Required Action: None.

VSVX1001I SNAP FILE filename HAS EXPIRED

filename: SNAP file name.

Message Meaning: The indicated diagnostic SNAP file has expired and has been deleted from the SNAP directory.
System Action: None.
Required Action: None.

VSVX1002I vpsid CONNECTION ESTABLISHED (desc)

vpsid: VPSX server identifier.
desc: VPSX description.

Message Meaning: The indicated VPSX server has established a monitor connection to the ServerX process.
System Action: None.
Required Action: None.

VSVX1003I vpsid CONNECTION TERMINATED (desc)

vpsid: VPSX server identifier.
desc: VPSX description.

Message Meaning: The indicated VPSX server has terminated its monitor connection to the ServerX process.
System Action: None.
Required Action: None.

VSVX3000I USER userid SESSION ESTABLISHED

userid: User identifier.

Message Meaning: The indicated user has authenticated with the server and established a session.
System Action: None.
Required Action: None.

VSVX3001I USER userid SESSION TERMINATED

userid: User identifier.

Message Meaning: The indicated user has logged off and terminated his session with the server.
System Action: None.
Required Action: None.

VSVX3002I USER userid SESSION TIMED-OUT

userid: User identifier.

Message Meaning: The indicated user has been idle for longer than the session expiration period defined via the SESSEXPR system keyword.
System Action: The user ID has been logged off.
Required Action: None.

VSVX3003I USER userid PASSWORD RESET BY admin

userid: User identifier.
admin: Administrative user ID.

Message Meaning: The indicated user's password has been reset by the system administrator.
System Action: The user ID has been logged off.
Required Action: None.

VSVX0224I prtname command COMMAND ISSUED BY USER userid

prtname: Printer name.
command: Printer command name.
userid: Requesting user ID.

Message Meaning: The indicated user has issued the specified printer command.
System Action: None.
Required Action: None.

VSVX8000E INSUFFICIENT STORAGE FOR TCE CONTROL BLOCK(thread)

thread: Thread name.

Message Meaning: A storage shortage was encountered while VSVX was attempting to acquire a new Thread Control Element.
System Action: The thread creation request will fail.
Required Action: Check the storage statistics for the VSVX server and review any soft limits that may have been imposed on VSVX by the operating system. The ULIMIT command can be used to query and set the storage limits and the current values are display in the VSVX0099I message during startup.

VSVX8001E ERROR INITIALIZING TCE MUTEX CONTROLS (thread)

thread: Thread name.

Message Meaning: VSVX encountered an error initializing the mutex controls for the indicated system thread.
System Action: Thread creation will fail.
Required Action: Check previous messages for the failing error code and contact LRS technical support staff if unable to determine the cause of the failure.

VSVX8002E THREAD_REMOVE() FUNCTION FAILED TCE(thread) NOT FOUND

thread: Thread name.

Message Meaning: VSVX attempted to remove a thread control element for a non-existent thread.
System Action: None.
Required Action: Contact LRS technical support staff.

VSVX8003E PTHREAD_CREATE() FUNCTION FAILED TCE(tce_addr) TASK(thread) RC(rc)

tce_addr: Address of Thread Control Element.
thread: Thread name.
rc: Function return code.

Message Meaning: The pthread_create() function reported an error creating a new thread.
System Action: Thread creation will fail.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8004E PTHREAD_JOIN() FUNCTION FAILED TCE(tce_addr) TASK(thread) RC(rc)

tce_addr: Address of Thread Control Element.
thread: Thread name.
rc: Function return code.

Message Meaning: The pthread_join() function reported an error detaching a terminated thread.
System Action: Execution will continue but the system resources associated with the thread will not be released.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8005E PTHREAD_SETSPECIFIC() FUNCTION FAILED TCE(tce_addr) TASK(thread) RC(rc)

tce_addr: Address of Thread Control Element.
thread: Thread name.
rc: Function return code.

Message Meaning: The pthread_setspecific() function reported an error assigning a thread specific key for the indicated thread.
System Action: The system thread reporting the error will fail.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8006E PTHREAD_CANCEL() FUNCTION FAILED TCE(tce_addr) TASK(thread) RC(rc)

tce_addr: Address of Thread Control Element.
thread: Thread name.
rc: Function return code.

Message Meaning: The pthread_cancel() function reported an error cancelling the indicated thread.
System Action: Execution will continue.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8007E PTHREAD_MUTEX_INIT() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_mutex_init() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8008E PTHREAD_MUTEX_LOCK() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_mutex_lock() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8009E PTHREAD_MUTEX_UNLOCK() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_mutex_unlock() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8010E PTHREAD_MUTEX_TRYLOCK() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_mutex_trylock() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8011E PTHREAD_MUTEX_DESTROY() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_mutex_destroy() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8012E PTHREAD_COND_INIT() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_cond_init() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8013E PTHREAD_COND_WAIT() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_cond_wait() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8014E PTHREAD_COND_TIMEDWAIT() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_cond_timedwait() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8015E PTHREAD_COND_SIGNAL() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_cond_signal() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8016E PTHREAD_COND_BROADCAST() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_cond_broadcast() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8017E PTHREAD_COND_DESTROY() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_cond_destroy() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8018E MALLOC() FUNCTION FAILED SOURCE(src) LINE(line) SIZE(size)

src: Source file name of calling function.
line: Line number in calling source file.
size: requested storage size.

Message Meaning: The malloc() function failed due to insufficient storage.
System Action: None.
Required Action: Check the storage statistics for the VSVX server and review any soft limits that may have been imposed on VSVX by the operating system. The ULIMIT command can be used to query and set the storage limits and the current values are display in the VSVX0099I message during startup.

VSVX8019E FREE() FUNCTION FAILED STORAGE ACCOUNTING AREA IS CORRUPT - SOURCE(src) LINE(line) ADDR(addr)

src: Source file name of calling function.
line: Line number in calling source file.
addr: Address of storage being freed.

Message Meaning: The free() function detected an invalid storage pointer or the storage header for the area addressed by the pointer is corrupt.
System Action: Execution will continue although the storage area will not be released.
Required Action: Contact LRS technical support staff.

VSVX8020E FILE OPEN FAILED NAME(filename) ERROR(error)

filename: Name of target file.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8021E FILE CLOSE FAILED ERRNO(errno) ERROR(error)

errno: System error number.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8022E FILE SEEK FAILED ERRNO(errno) ERROR(error)

errno: System error number.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8023E FILE PRINTF FAILED ERRNO(errno) ERROR(error)

errno: System error number.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8024E FILE READ FAILED ERRNO(errno) ERROR(error)

errno: System error number.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8025E FILE WRITE FAILED ERRNO(errno) ERROR(error)

errno: System error number.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8026E FILE DELETE FAILED NAME(filename) ERROR(error)

filename: Name of target file.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8027E ERROR CREATING DIRECTORY(dir) ERROR(error)

dir: Directory name.
error: Error description.

Message Meaning: A directory operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8028E ERROR OPENING DIRECTORY(dir) ERROR(error)

dir: Directory name.
error: Error description.

Message Meaning: A directory operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8029E ERROR CLOSING DIRECTORY ERRNO(errno) ERROR(error)

errno: System error number.
error: Error description.

Message Meaning: A directory operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8030E ERROR READING DIRECTORY ERRNO(errno) ERROR(error)

errno: System error number.
error: Error description.

Message Meaning: A directory operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8031E ERROR INITIALIZING KEYWORD CONTROL STRUCTURE

Message Meaning: VSVX encountered an error initializing a system keyword control structure.
System Action: If the failure occurred processing a printer definition, activation will fail but VSVX will continue to execute. If the VSVX system keywords are being processed, execution will terminate.
Required Action: Check previous messages for the cause of the failure. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8032E ERROR OPENING LOG FILE

Message Meaning: VSVX encountered an error opening a system log file
System Action: Execution will continue with logging disabled.
Required Action: Check previous messages for the cause of the failure. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8033E LOG EXPIRATION PROCESSING FAILED

Message Meaning: VSVX encountered an error expiring system log files.
System Action: Execution will continue.
Required Action: Check previous messages for the cause of the failure. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8034E FILE FLUSH REQUEST FAILED ERRNO(errno) ERROR(error)

errno: System error number.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8035E FILE RENAME FAILED OLD(old) NEW(new) ERROR(error)

old: Old file name.
new: New file name.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8036E REALLOC() FUNCTION FAILED SOURCE(src) LINE(line) SIZE(size)

src: Source file name of calling function.
line: Line number in calling source file.
size: Requested storage size.

Message Meaning: The realloc() function failed due to insufficient storage.
System Action: None.
Required Action: Check the storage statistics for the VSVX server and review any soft limits that may have been imposed on VSVX by the operating system. The ULIMIT command can be used to query and set the storage limits and the current values are displayed in the VSVX0099I message during startup.

VSVX8037E ERROR ALLOCATING KEYWORD VALUE STRUCTURE

Message Meaning: VSVX encountered an error allocating a keyword value structure.
System Action: Check following messages for the impact of this request failure.
Required Action: Check previous messages for the cause of the failure. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8038E GET FAILED FOR KEYWORD(name) INVALID KEYWORD NAME

name: Keyword name.

Message Meaning: A VSVX component issued a GET request for an undefined system keyword.
System Action: None.
Required Action: Contact LRS technical support staff.

VSVX8039E ERROR PROCESSING KEYWORD(name) LINE(line) NO VALUE SPECIFIED

name: System or printer keyword name.
line: Line number in configuration file.

Message Meaning: No value was specified for the indicated keyword. All keywords must be followed by an equal (=) symbol and a value.
System Action: None.
Required Action: Correct keyword definition.

VSVX8040E ERROR PROCESSING KEYWORD(name) LINE(line) EQUALS SYMBOL MISSING

name: System or printer keyword name.
line: Line number in configuration file.

Message Meaning: An equal (=) symbol is required after all keywords followed by the keyword value.
System Action: None.
Required Action: Correct keyword definition.

VSVX8041E ERROR PROCESSING KEYWORD(name) LINE(line) error

name: System or printer keyword name.
line: Line number in configuration file.
error: Error description.

Message Meaning: An error occurred validating the indicated keyword value.
System Action: None.
Required Action: Correct keyword value.

VSVX8042E PTHREAD_RWLOCK_INIT() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: A read/write lock operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8043E PTHREAD_RWLOCK_RDLOCK() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: A read/write lock operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8044E PTHREAD_RWLOCK_WRLOCK() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: A read/write lock operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8045E PTHREAD_RWLOCK_UNLOCK() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: A read/write lock operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8046E PTHREAD_RWLOCK_DESTROY() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: A read/write lock operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8047E PTHREAD_RWLOCK_TRYRDLOCK() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: A read/write lock operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8048E PTHREAD_RWLOCK_TRYWRLOCK() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src:	Source file name of calling function.
line:	Line number in calling source file.
rc:	Function return code.

Message Meaning: A read/write lock operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8050E OPEN FAILED NAME(filename) ERROR(error)

filename:	Name of target file.
error:	Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8051E CLOSE REQUEST FAILED FD(fd) ERROR(errno, error)

fd:	File descriptor.
errno:	System error number.
error:	Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8052E READ REQUEST FAILED FD(fd) LENGTH(len) ERROR(errno, error)

fd:	File descriptor.
len:	Length for I/O request.
errno:	System error number.
error:	Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8053E WRITE REQUEST FAILED FD(fd) LENGTH(len) ERROR(errno, error)

fd:	File descriptor.
len:	Length for I/O request.
errno:	System error number.
error:	Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8054E LSEEK POSITIONING REQUEST FAILED FD(fd) ERROR(errno, error)

fd:	File descriptor.
errno:	System error number.
error:	Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8055E FILE LINK FAILED NAMES(name1,name2) ERROR(error)

name1:	Name of existing file.
name2:	Name of link.
error:	Error description.

Message Meaning: An error occurred attempting to create a link to an existing file.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If you are unable to determine the cause of the error contact LRS technical support staff.

VSVX8058E PWRITE REQUEST FAILED FD(fd) LENGTH(len) OFFSET(offset) ERROR(errno,error)

fd:	File descriptor.
len:	Length of data.
offset:	File offset.
errno:	System error number.
error:	Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8059E PREAD REQUEST FAILED FD(fd) LENGTH(len) OFFSET(offset) ERROR(errno,error)

fd:	File descriptor.
len:	Length of data.
offset:	File offset.
errno:	System error number.
error:	Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8082E INSUFFICIENT STORAGE FOR SEND AND RECEIVED BUFFERS

Message Meaning: Insufficient storage was available for send and receive buffers for the indicated thread.
System Action: Thread will terminate.
Required Action: Check the storage statistics for the VSVX server and review any soft limits that may have been imposed on VSVX by the operating system. The ULIMIT command can be used to query and set the storage limits and the current values are display in the VSVX0099I message during startup.

VSVX8083E ERROR INITIALIZING SERVER PORT FOR API INTERFACE - FUNCTION DISABLED

Message Meaning: VSVX was unable to initialize the TCP/IP port for inbound API requests.
System Action: All API functions will be disabled until VSVX is restarted.
Required Action: Check previous messages for the cause of the error. If unable to determine the cause of the problem contact LRS technical support staff.

VSVX8084E ERROR INITIALIZING SERVER PORT FOR VPSX MONITOR CONNECTIONS - FUNCTION DISABLED

Message Meaning: VSVX was unable to initialize the TCP/IP port for inbound VPSX monitor connections.
System Action: All connection requests from VPSX server will fail.
Required Action: Check previous messages for the cause of the error. If unable to determine the cause of the problem contact LRS technical support staff.

VSVX8085E VPS MONITOR DISPATCHER DISABLED DUE TO UNRECOVERABLE ERROR

Message Meaning: The VPSX monitor dispatcher thread that manages all connection requests from VPSX servers has been disabled due to an unrecoverable error.
System Action: No new monitor connections will be established until the server is restarted.
Required Action: Check previous messages for the cause of the error. If unable to determine the cause of the problem contact LRS technical support staff.

VSVX8086E TCP/IP CLIENT INTERFACES DISABLED DUE TO UNRECOVERABLE ERROR

Message Meaning: The VSVX client request dispatcher encountered an unrecoverable error condition and all external TCP/IP interfaces have been disabled.
System Action: All TCP/IP client interfaces will be disabled until VSVX is restarted.
Required Action: Check previous messages for the cause of the error. If unable to determine the cause of the problem contact LRS technical support staff.

VSVX8087E UNRECOVERABLE ERROR ACCEPTING API CONNECTION - PORT DISABLED

Message Meaning: The VSVX client request dispatcher encountered an unrecoverable error accepting API requests and the API port has been disabled.
System Action: All API functions will be disabled until VSVX is restarted.
Required Action: Check previous messages for the cause of the error. If unable to determine the cause of the problem contact LRS technical support staff.

VSVX8090E CONNECTION REQUEST REJECTED FROM HOST ipaddr reason

ipaddr: Client IP address.
reason: Reason for rejection.

Message Meaning: VSVX rejected an inbound connection requests for the indicated reason.
System Action: None.
Required Action: If the problem persists contact LRS technical support staff.

VSVX8092E ERROR ENABLING RECOVERY HANDLER ERROR(error)

error: Error description.

Message Meaning: VSVX was unable to establish a recovery environment because of the indicated error.
System Action: VSVX recovery termination processing will be disabled and fatal program signals will cause the VSVX process to terminate.

Fatal Program Signals

SIGSEGV	Segmentation Violation
SIGFPE	Floating Point Exception
SIGILL	Illegal Instruction
SIGBUS	Bus Error
SIGPIPE	Write to Closed Socket or PIPE

Required Action: Use the error description to determine the cause of the error. If unable to identify the cause of the error contact LRS technical support staff.

VSVX8093E ERROR OPENING SNAP FILE(filename) error

filename: SNAP file name.
error: Error description.

Message Meaning: VSVX encountered an error attempting to open a new SNAP file in the SNAP directory (SNAPDIR system keyword).
System Action: None.
Required Action: Use the error description to determine the cause of the error. If unable to identify the cause of the error contact LRS technical support staff.

VSVX8094E SNAP EXPIRATION PROCESSING FAILED

Message Meaning: The expiration thread encountered an error trying to remove expired SNAP files from the SNAP directory.
System Action: None.
Required Action: Use the error description to attempt to determine the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VSVX8095E ERROR WRITING SNAP DUMP(filename) ERROR(error)

filename: SNAP file name.
error: Error description.

Message Meaning: VSVX encountered an error attempting to write a new SNAP file in the SNAP directory (SNAPDIR system keyword).
System Action: None.
Required Action: Use the error description to determine the cause of the error. If unable to identify the cause of the error contact LRS technical support staff.

VSVX8097E TCP/IP ACCEPT REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8098E TCP/IP BIND REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8099E TCP/IP CLOSE REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8100E TCP/IP CONNECT REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8101E TCP/IP HOST NAME RESOLUTION FAILED, HOST(hostname) ERROR(error)

hostname: Symbolic host name.
error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8102E TCP/IP ERROR RETRIEVING LOCAL HOST NAME, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8103E TCP/IP LISTEN REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8104E TCP/IP RECEIVE REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8105E TCP/IP SELECT REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8106E TCP/IP SEND REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8107E TCP/IP SET SCOKET OPTIONS REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8108E TCP/IP SHUTDOWN REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8109E TCP/IP UNABLE TO CREATE SOCKET, ERROR(error)

error: Error description.

Message Meaning: The TCP/IP socket function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8117E ERROR CREATING TEMPORARY FILE

Message Meaning: VSVX was unable to create a temporary file.
System Action: Check following messages for the impact of this failure.
Required Action: Check previous messages for the cause of the failure. If unable to identify the cause of the error contact LRS technical support staff.

VSVX8118E FILE(filename) CLOSED AT THREAD TERMINATION

Message Meaning: VSVX has detected that a thread has terminated without closing a file that it previously opened.
System Action: The file has been automatically closed.
Required Action: Contact LRS technical support staff.

VSVX8119E SOCKET(sd) CLOSED AT THREAD TERMINATION

sd: Socket descriptor.

Message Meaning: VSVX has detected that a thread has terminated without closing a TCP/IP socket that it previously opened.
System Action: The socket has been automatically closed.
Required Action: Contact LRS technical support staff.

VSVX8125E ERROR WRITING PARAMETER FILE(filename) ERROR(error)

filename: Parameter file name.
error: Error description.

Message Meaning: VSVX encountered an error writing system keywords to the indicated parameter file.
System Action: Keyword changes will be lost on restart.
Required Action: Use the error description to identify the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VSVX8126E ERROR RETRIEVING RESOURCE LIMITS FOR resource - error

resource: System resource type.
error: Error description.

Message Meaning: VSVX encountered an error attempting to retrieve the indicated resource limit information.
System Action: None.
Required Action: None.

VSVX8127E ERROR PROCESSING API REQUEST DATA - error HOST(hostname)

hostname: Remote host name.
error: Error description.

Message Meaning: VSVX encountered an error processing an API request from the indicated host.
System Action: None.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8128E ERROR REPORTED BY api_src ON LINE api_line CALLED BY src ON LINE line

api_src: Web services API source file reporting error.
api_line: Web services API line number.
src: Calling routine source file.
line: Calling routine line number.

Message Meaning: The LRS Web services API reported an exception when processing an inbound SOAP XML request.
System Action: None.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8129E ERROR DETAIL: error

error: Error description.

Message Meaning: The LRS Web services API reported an exception when processing an inbound SOAP XML request.
System Action: None.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8130E ERROR RECEIVING API REQUEST DATA HOST(hostname) ERROR(error)

hostname: Remote host name.
error: Error description.

Message Meaning: VSVX encountered an error receiving an API request from the indicated host.
System Action: None.
Required Action: Use the error description and previous messages to attempt to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8131E ERROR SENDING API RESPONSE TO HOST(hostname) ERROR(error)

hostname: Remote host name.
error: Error description.

Message Meaning: VSVX encountered an error sending an API response to the indicated host.
System Action: None.
Required Action: Use the error description and previous messages to attempt to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8132E ERROR CALLING VPSX SOAP FUNCTION function - error

function: Remote SOAP function name.
error: Error description.

Message Meaning: The Web services API reported an exception attempting to execute the specified SOAP function in the remote VPSX.
System Action: None.
Required Action: Check the VPSX log for error messages that might help determine the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VSVX8133E ERROR REPORTED BY api_src ON LINE api_line CALLED BY src ON LINE line

api_src: Web services API source file reporting error.
api_line: Web services API line number.
src: Calling routine source file.
line: Calling routine line number.

Message Meaning: The LRS Web services API reported an exception when processing an outbound VPSX SOAP XML request.
System Action: None.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8134E ERROR DETAIL: error

error: Error description.

Message Meaning: The LRS Web services API reported an exception when processing an outbound VPSX SOAP XML request.
System Action: None.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8135E VPSX SERVER vpsid REPORTED A FAULT PROCESSING function - fault

vpsid: VPSX system identifier.
function: Remote SOAP function name.
fault: Remote function fault string.

Message Meaning: The indicated VPSX process returned a fault when processing the indicated API request.
System Action: None.
Required Action: Check the VPSX log for error messages that might help determine the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VSVX8300E ERROR RECEIVING VPS MONITOR REQUEST FROM HOST(hostname) ERROR(error)

hostname: Hostname or IP address.
error: Error description.

Message Meaning: An error occurred receiving VPSX monitor request data from the indicated host.
System Action: The VPSX monitor connection will be terminated.
Required Action: Check previous messages for the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8301E VPS MONITOR CONNECTION REJECTED HOST(hostname)

hostname: Hostname or IP address.

Message Meaning: A VPSX monitor connection was rejected from the indicated host because of a problem processing the new connection.
System Action: None.
Required Action: Check previous messages for the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8302E ERROR ACQUIRING LOCK FOR VPS INFORMATION BLOCKS

Message Meaning: The server received an error acquiring a lock on the VPS information block chain when processing a new connection request.
System Action: None.
Required Action: Check previous messages for the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8303E INSUFFICIENT STORAGE FOR VPS INFORMATION BLOCK

Message Meaning: The server was unable to allocate storage for a new VPS information block.
System Action: The VPS monitor connection will be terminated.
Required Action: Check the storage statistics for the VSVX server and review any soft limits that may have been imposed on VSVX by the operating system. The ULIMIT command can be used to query and set the storage limits and the current values are display in the VSVX0099I message during startup.

VSVX8304E MONITOR CONNECTION ALREADY ACTIVE FOR VPS SYSTEM vpsid

vpsid: VPSX system identifier.

Message Meaning: The server has received a VPSX monitor connection request from a VPSX system that is using the same system identifier as an already connected server.
System Action: The connection request will be rejected.
Required Action: Verify that there are not two VPSX servers using the same VPS system identifier. Each VPSX system connected to the server must have a unique system identifier.

VSVX8305E ERROR INITIALIZING SOAP API SERVICES

Message Meaning: An error occurred adding the SOAP API services to the SOAP server instance.
System Action: Execution will continue but some API functions will be unavailable.
Required Action: Contact LRS technical support staff.

VSVX8306E ERROR SENDING VPS MONITOR RESPONSE TO HOST(hostname) ERROR(error)

hostname: Hostname or IP address.
error: Error description.

Message Meaning: The server received an error when it attempted to send a response to a VPSX server.
System Action: The VPSX monitor connection will be terminated.
Required Action: Check previous messages for the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8307E INSUFFICIENT STORAGE FOR PRINTER INFORMATION BLOCK

Message Meaning: The server was unable to allocate storage for a new printer information block.
System Action: The VPS monitor connection will be terminated.
Required Action: Check the storage statistics for the VSVX server and review any soft limits that may have been imposed on VSVX by the operating system. The ULIMIT command can be used to query and set the storage limits and the current values are display in the VSVX0099I message during startup.

VSVX8308E FUNCTION(function) SENDING FAULT(fault) USERID(userid)

function: API function name.
fault: API fault string.
userid: Requesting user ID.

Message Meaning: The indicated ServerX API function has reported the specified fault.
System Action: None.
Required Action: Use the fault description to identify the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VSVX8309E ERROR REMOVING PRINTER INFORMATION BLOCK prtname

prtname: Printer name.

Message Meaning: An error was encountered deleting a printer information block.
System Action: The VPS monitor connection will be terminated.
Required Action: Check previous messages for the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

VSVX8310E auth-error

auth-error: Authentication error description.

Message Meaning: The user authentication function returned the indicated error processing a logon request.
System Action: Logon request will be rejected.
Required Action: None.

VSVX8311E ERROR OPENING SECURITY INTERFACE LIBRARY(library): error

library: External security interface library.
error: Error description from DLOPEN request.

Message Meaning: An error was encountered attempting to open the external security interface library specified.
System Action: Initialization will continue using the internal security interface.
Required Action: Use the error description to determine the cause of the error and confirm that the LD_LIBRARY_PATH environment variable includes the ServerX installation directory.

VSVX8312E ERROR LOADING SECURITY INTERFACE FUNCTION(function) error

function: Security interface function.
error: Error description from DLSYM request.

Message Meaning: An error was encountered attempting to load the external security interface function specified.
System Action: Initialization will continue using the internal security interface.
Required Action: Use the error description to determine the cause of the error. If unable to identify the cause of the open failure contact LRS technical support staff.

VSVX8313E ROOT AUTHORITY REQUIRED FOR interface SECURITY INTERFACE - DEFAULTING TO INTERNAL

interface: External security interface.

Message Meaning: Root authority is required to use the external security interface for user authentication.
System Action: Initialization will continue using the internal security interface.
Required Action: Execute ServerX with root authority.

VSVX8314E SECURITY DATABASE request FAILED - error

request: Database request type.
error: Error description.

Message Meaning: The indicated security database I/O request failed with the indicated error.
System Action: None.
Required Action: Use the error description to determine the cause of the error. If unable to identify the cause of the open failure contact LRS technical support staff.

VSVX8315E ERROR CLOSING SECURITY INTERFACE LIBRARY error

error: Error description from DLCLOSE request.

Message Meaning: An error was encountered attempting to close the external security interface library.
System Action: None.
Required Action: Use the error description to determine the cause of the error. If unable to identify the cause of the open failure contact LRS technical support staff.

VSVX8316E PROFILE DATABASE request FAILED - error

request: Database request type.
error: Error description.

Message Meaning: The indicated profile database I/O request failed with the indicated error.
System Action: None.
Required Action: Use the error description to determine the cause of the error. If unable to identify the cause of the open failure contact LRS technical support staff.

VSVX9000A ERROR CREATING THREAD SPECIFIC DATA KEY RC=rc error

rc: Return code.
error: Error description.

Message Meaning: The pthread_key_create() function returned an error when VSVX attempted to create a thread specific data key for the thread control element.
System Action: Execution will terminate.
Required Action: Check the error description for the cause of the error. If unable to identify the cause of the error contact LRS technical support staff.

VSVX9001A ERROR INITIALIZING COMMON MUTEX AND CONDITION VARIABLE CONTROLS

Message Meaning: An error occurred initializing the system mutex and condition variable controls.
System Action: Execution will terminate.
Required Action: Check the error description for the cause of the error. If unable to identify the cause of the error contact LRS technical support staff.

VSVX9002A ERROR INITIALIZING MAIN TASK TCE

Message Meaning: An error occurred initializing the Thread Control Element for the main thread.
System Action: Execution will terminate.
Required Action: Check the error description for the cause of the error. If unable to identify the cause of the error contact LRS technical support staff.

VSVX9003A INVALID ARGUMENT arg

arg: Invalid argument name.

Message Meaning: An invalid argument was passed to the VSVX executable.
System Action: Execution will terminate.
Required Action: Correct the invalid argument and restart.

VSVX9004A arg VALUE NOT SPECIFIED

arg: Argument name.

Message Meaning: No value was specified for the indicated argument.
System Action: Execution will terminate.
Required Action: Correct the invalid argument and restart.

VSVX9005A UNKNOWN ARGUMENT arg

arg: Argument name.

Message Meaning: An unknown argument name was specified.
System Action: Execution will terminate.
Required Action: Correct the invalid argument and restart.

VSVX9006A ERROR PROCESSING CONFIGURATION FILE filename

filename: VSVX system initialization file name.

Message Meaning: An error occurred processing the system initialization keywords.
System Action: Execution will terminate.
Required Action: Correct the system initialization definitions.

VSVX9007A SERVER ROOT DIRECTORY(root) IS INACCESSABLE ERROR(error)

root: Server root directory.
error: Error description.

Message Meaning: The directory defined as the server root for this instance of VSVX is inaccessible.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VSVX9008A ERROR CHANGING TO SERVER ROOT DIRECTORY(root) ERROR(error)

root: Server root directory.
error: Error description.

Message Meaning: An error was returned when VSVX attempted to make the server root directory the current working directory for the process.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VSVX9009A LOG DIRECTORY(logdir) IS INACCESSABLE ERROR(error)

logdir: Log directory.
error: Error description.

Message Meaning: The directory defined as the log directory for this instance of VSVX is inaccessible.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VSVX9010A ERROR CREATING LOG DIRECTORY(logdir) ERROR(error)

logdir: Log directory.
error: Error description.

Message Meaning: An error occurred creating the directory defined as the log directory for this instance of VSVX.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VSVX9013A TEMP DIRECTORY(tempdir) IS INACCESSABLE ERROR(error)

tempdir: Temp directory.
error: Error description.

Message Meaning: The directory defined as the temp directory for this instance of VSVX is inaccessible.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VSVX9014A ERROR CREATING TEMP DIRECTORY(tempdir) ERROR(error)

tempdir: Temp directory.
error: Error description.

Message Meaning: An error occurred creating the directory defined as the temp directory for this instance of VSVX.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VSVX9017A SNAP DIRECTORY(snapdir) IS INACCESSABLE ERROR(error)

snapdir: SNAP directory.
error: Error description.

Message Meaning: The directory defined as the SNAP directory for this instance of VSVX is inaccessible.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VSVX9018A ERROR CREATING SNAP DIRECTORY(snapdir) ERROR(error)

snapdir: SNAP directory.
error: Error description.

Message Meaning: An error occurred creating the directory defined as the SNAP directory for this instance of VSVX.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VSVX9019A ERROR CREATING SYSTEM THREADS

Message Meaning: An error occurred creating the VSVX system threads.
System Action: Execution will terminate.
Required Action: Check previous messages for cause of error. If unable to identify the cause of the error contact LRS technical support staff.

VSVX9020A TASK(thread) ABENDED(signame) LAST KNOWN LOCATION SRC(src) LINE(line)

thread: VSVX thread name.
signame: Signal causing abnormal termination.
src: Last known source file.
line: Last known line number.

Message Meaning: A thread has terminated due to a hardware context signal.
System Action: The identified thread will terminate and VSVX will attempt to continue processing. If the failing thread was holding any locks at the time of the abend this could cause other threads to become blocked when they attempt to acquire this lock.
Required Action: Contact LRS technical support staff and provide them with the SNAP dump that will have been generated in the SNAP directory and the log for the current execution of VSVX.

VSVX9021A ERROR INITIALIZING RED/BLACK TREES - error

error: Error description.

Message Meaning: The server encountered an error initializing the red/black tree structures used to provide rapid access to the printer information blocks.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VSVX9022A CONTROL DIRECTORY(cntldir) IS INACCESSABLE ERROR(error)

cntldir: Control directory.
error: Error description.

Message Meaning: The directory defined as the control directory for this instance of VSVX is inaccessible.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VSVX9023A ERROR CREATING CONTROL DIRECTORY(cntldir) ERROR(error)

cntldir: Control directory.
error: Error description.

Message Meaning: An error occurred creating the directory defined as the separator page directory for this instance of VSVX.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

VSVX9024A ERROR OPENING PROFILE DATABASE - error

error: Error description.

Message Meaning: An error occurred opening the profile database.
System Action: Execution will terminate.
Required Action: Check the error description and previous messages for the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VSVX9025A ERROR CREATING PROFILE DATABASE - error

error: Error description.

Message Meaning: An error occurred creating the profile database.
System Action: Execution will terminate.
Required Action: Check the error description and previous messages for the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VSVX9026A ERROR ADDING PROFILE RECORD TYPES - error

error: Error description.

Message Meaning: An error occurred creating the profile database record types.
System Action: Execution will terminate.
Required Action: Check the error description and previous messages for the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VSVX9027A ERROR ADDING DEFAULT SECURITY RULES - error

error: Error description.

Message Meaning: An error occurred adding the default security rules to the security database.
System Action: Execution will terminate.
Required Action: Check the error description and previous messages for the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VSVX9028A ERROR ADDING DEFAULT PROFILE RECORD - error

error: Error description.

Message Meaning: An error occurred adding the default profile record to the profile database.
System Action: Execution will terminate.
Required Action: Check the error description and previous messages for the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

VSVX9029A PROFILE DATABASE LOCKED BY ANOTHER LRS/ServerX - PID(pid)

pid: Process identifier.

Message Meaning: LRS/ServerX has detected that the profile database is currently locked by another LRS/ServerX process. The profile database can not be shared between LRS/ServerX servers.
System Action: Initialization will fail.
Required Action: Check that you have not defined two LRS/ServerX instances with the same runtime directories.

VSVX9030A ERROR LOCKING PROFILE DATABASE - error

error: Error description.

Message Meaning: LRS/ServerX received an error when attempting to lock the profile database.
System Action: Initialization will fail.
Required Action: Check error description to identify the cause of the error. If you are unable to identify the cause of the problem contact LRS technical support staff.

VSVX9031A ERROR UPGRADING PROFILE DATABASE - error

error: Error description.

Message Meaning: LRS/ServerX encountered an error upgrading the profile database files to a new format.
System Action: Initialization will fail.
Required Action: Check error description to identify the cause of the error. If you are unable to identify the cause of the problem contact LRS technical support staff.

LRS/NetX Message General Information

The NETX process will generate messages for all major events during execution. These messages will be written to the LRS/NetX log files and can optionally be issued to the UNIX SYSLOG daemon. LRS/NetX message logging is enabled/disabled via the LOG keyword in the system initialization file (LNTSTART) and, when enabled, the log files will be created in the directory specified via the LOGDIR keyword (default: serverroot/log). Logging to the UNIX SYSLOG is controlled via the SYSLOG keyword in the system initialization file.

LRS/NetX actively manages all log files and will automatically remove files after an installation defined expiration period (LOGEXPR keyword). A new log file will be started each time the NETX process is started or when the log file size reaches an installation defined maximum (LOGSIZE keyword).

Log file names are constructed using the date and time the log files were started and have a file extension of '.log'.

LRS/NetX Message format

All LRS/NetX messages are prefixed with a 9 character message identifier that has the following format:

LNTXnnnnt

Where: **nnnn** - Unique message number.
t - Message type (see below).

Message Types:

D - Debug message (LRS internal use only).
I - Informational message.
W - Warning message.
E - Error message.
A - Critical alert message.

The message identifier is followed by the name of the internal thread issuing the message.

Example:

LNTX0100I <$MAIN$> LRS/NetX INITIALIZATION SUCCESSFUL

LRS/NetX Messages

LNTX0002I library_version

library_version: Shared library version information.

Message Meaning: This message will be issued several times during startup to display the version, release, and fix levels of all LRS shared libraries used by the LRS/NetX process.
System Action: None.
Required Action: None.

LNTX0003I LRS/NetX STARTED AS DAEMON PROCESS

Message Meaning: LRS/NetX has disassociated itself from the starting process to execute as a daemon.
System Action: None.
Required Action: None.

LNTX0010I name THREAD ATTACHED

name: Name of the thread.

Message Meaning: A new thread has been created with the indicated name.
System Action: None.
Required Action: None.

LNTX0011I name THREAD DETACHED

name: Name of the thread.

Message Meaning: The indicated thread has been removed from the system.
System Action: None.
Required Action: None.

LNTX0012I name THREAD TERMINATED

name: Name of the thread.

Message Meaning: The indicated thread has terminated.
System Action: None.
Required Action: None.

LNTX0099I LIMITS(OPEN-FILES(file-limit,file-max) MEMORY(memory-limit,memory-max) ADDR-SPACE(addr-limit,addr-max))

file-limit:	Indicates the limit imposed by the operating system on the number of files that can be opened concurrently.
file-max:	Indicates the operating system maximum file limit.
memory-limit:	Indicates the limit imposed by the operating system on the amount of storage that can be acquired by the process.
memory-max:	Indicates the operating system maximum memory limit.
addr-limit:	Indicates the limit on the accessible address space.
addr-max:	Indicates the architectural maximum address space.

Message Meaning: Operating system resource limits.
System Action: None.
Required Action: None.

LNTX0100I LRS/NetX INITIALIZATION SUCCESSFUL VERSION=VverRrel.fix

ver:	Software version of LRS/NetX.
rel:	Software release.
fix:	Fix level.

Message Meaning: LRS/NetX has successfully initialized using the indicated software level.
System Action: None.
Required Action: None.

LNTX0103I TERMINATION REQUESTED BY USER userid

userid:	Requesting user ID.

Message Meaning: The indicated user has requested LRS/NetX to terminate.
System Action: LRS/NetX will terminate.
Required Action: None.

LNTX0104I CLOSELOG COMMAND ISSUED USER userid

userid:	Requesting user ID.

Message Meaning: The indicated user has issued a closelog request to close the current log file and start a new log file.
System Action: The current log file will be switched.
Required Action: None.

LNTX0105I SNAP COMMAND COMMAND ISSUED USER userid

userid:	Requesting user ID.

Message Meaning: The indicated user has requested a diagnostic SNAP dump.
System Action: A SNAP dump will be generated in the directory identified in the SNAPDIR system initialization keyword.
Required Action: None.

LNTX0106I SYSTEM CONFIGURATION UPDATED BY USER userid

userid: Requesting user ID.

Message Meaning: The indicated user has updated the system configuration options.
System Action: None.
Required Action: None.

LNTX0107I TERMINATION REQUESTED BY SIGTERM SIGNAL

Message Meaning: LRS/NetX has received a SIGTERM signal and is shutting down.
System Action: LRS/NetX will terminate.
Required Action: None.

LNTX0200I <thread> DIAGNOSTIC SNAP DUMP WRITTEN TO FILE(%s)

thread: Thread generating SNAP dump.

Message Meaning: A severe error has occurred and VSVX has taken a diagnostic SNAP dump to enable problem determination. The dump file will be written to the directory identified via the SNAPDIR system initialization option.
System Action: Execution will continue.
Required Action: Report the problem to LRS technical support staff.

LNTX1000I LOG FILE filename HAS EXPIRED

filename: Log file name.

Message Meaning: The indicated log file has expired and has been deleted from the log directory.
System Action: None.
Required Action: None.

LNTX1001I SNAP FILE filename HAS EXPIRED

filename: SNAP file name.

Message Meaning: The indicated diagnostic SNAP file has expired and has been deleted from the SNAP directory.
System Action: None.
Required Action: None.

LNTX1002I server SERVER CONNECTION ESTABLISHED HOST(hostname) PORT(port)

server: Server identifier.
hostname: Hostname or IP address.
port: Remote server port address.

Message Meaning: LRS/NetX has established a connection to the indicated ServerX process.
System Action: None.
Required Action: None.

LNTX1003I server SERVER CONNECTION TERMINATED HOST(hostname) PORT(port)

server: Server identifier.
hostname: Hostname or IP address.
port: Remote server port address.

Message Meaning: LRS/NetX has detected that the indicated ServerX process is unavailable.
System Action: LRS/NetX will attempt to re-establish a connection to the server every minute. Until LRS/NetX has determined that the ServerX process is available, all user requests for this server will be rejected.
Required Action: Check previous messages for the cause of the connection failure. If unable to determine the cause of the error contact LRS technical support staff.

LNTX1004I DUPLICATE SERVER CONNECTION FOUND FOR KEYWORD(keyword) HOST(hostname) PORT(port)

keyword: System initialization keyword SERVERnn.
server: Server keyword name.
desc: Server description.

Message Meaning: LRS/NetX has detected two definitions for the same ServerX process.
System Action: The indicated server definition will be flagged as duplicate.
Required Action: Correct the server definitions in the system initialization file.

LNTX1005I FAILED CONNECTION ATTEMPT TO server HOST(hostname) PORT(port)

server: Server identifier or N/A.
hostname: Hostname or IP address.
port: Remote server port address.

Message Meaning: A connection request to the indicated ServerX process has failed. N/A will be displayed for the server ID if a connection has never been successfully established to this server. (The server identifier is retrieved from the ServerX process on first connection).
System Action: None.
Required Action: Check previous messages for the cause of the error. If the ServerX process is running and the connection requests still fail, check that the hostname and port number match the ServerX configured port for API requests (ServerX Keyword: TCPPORTA).

LNTX8000E INSUFFICIENT STORAGE FOR TCE CONTROL BLOCK(thread)

thread: Thread name.

Message Meaning: A storage shortage was encountered while LRS/NetX was attempting to acquire a new Thread Control Element.
System Action: The thread creation request will fail.
Required Action: Check the storage statistics for the LRS/NetX server and review any soft limits that may have been imposed on LRS/NetX by the operating system. The ULIMIT command can be used to query and set the storage limits, and the current values are display in the LRS/NetX0099I message during startup.

LNTX8001E ERROR INITIALIZING TCE MUTEX CONTROLS (thread)

thread: Thread name.

Message Meaning: LRS/NetX encountered an error initializing the mutex controls for the indicated system thread.
System Action: Thread creation will fail.
Required Action: Check previous messages for the failing error code and contact LRS technical support staff if unable to determine the cause of the failure.

LNTX8002E THREAD_REMOVE() FUNCTION FAILED TCE(thread) NOT FOUND

thread: Thread name.

Message Meaning: LRS/NetX attempted to remove a thread control element for a non-existent thread.
System Action: None.
Required Action: Contact LRS technical support staff.

LNTX8003E PTHREAD_CREATE() FUNCTION FAILED TCE(tce_addr) TASK(thread) RC(rc)

tce_addr: Address of Thread Control Element.
thread: Thread name.
rc: Function return code.

Message Meaning: The pthread_create() function reported an error creating a new thread.
System Action: Thread creating will fail.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8004E PTHREAD_JOIN() FUNCTION FAILED TCE(tce_addr) TASK(thread) RC(rc)

tce_addr: Address of Thread Control Element.
thread: Thread name.
rc: Function return code.

Message Meaning: The pthread_join() function reported an error detaching a terminated thread.
System Action: Execution will continue but the system resources associated with the thread will not be released.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8005E PTHREAD_SETSPECIFIC() FUNCTION FAILED TCE(tce_addr) TASK(thread) RC(rc)

tce_addr: Address of Thread Control Element.
thread: Thread name.
rc: Function return code.

Message Meaning: The pthread_setspecific() function reported an error assigning a thread specific key for the indicated thread.
System Action: The system thread reporting the error will fail.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8006E PTHREAD_CANCEL() FUNCTION FAILED TCE(tce_addr) TASK(thread) RC(rc)

tce_addr: Address of Thread Control Element.
thread: Thread name.
rc: Function return code.

Message Meaning: The pthread_cancel() function reported an error cancelling the indicated thread.
System Action: Execution will continue.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8007E PTHREAD_MUTEX_INIT() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_mutex_init() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8008E PTHREAD_MUTEX_LOCK() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_mutex_lock() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8009E PTHREAD_MUTEX_UNLOCK() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_mutex_unlock() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8010E PTHREAD_MUTEX_TRYLOCK() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_mutex_trylock() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8011E PTHREAD_MUTEX_DESTROY() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_mutex_destroy() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8012E PTHREAD_COND_INIT() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_cond_init() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8013E PTHREAD_COND_WAIT() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_cond_wait() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8014E PTHREAD_COND_TIMEDWAIT() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_cond_timedwait() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8015E PTHREAD_COND_SIGNAL() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_cond_signal() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8016E PTHREAD_COND_BROADCAST() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_cond_broadcast() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8017E PTHREAD_COND_DESTROY() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: The pthread_cond_destroy() function failed with the indicated return code.
System Action: None.
Required Action: Check the return code from the indicated function for an explanation of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8018E MALLOC() FUNCTION FAILED SOURCE(src) LINE(line) SIZE(size)

src: Source file name of calling function.
line: Line number in calling source file.
size: Requested storage size.

Message Meaning: The malloc() function failed due to insufficient storage.
System Action: None.
Required Action: Check the storage statistics for the LRS/NetX server and review any soft limits that may have been imposed on LRS/NetX by the operating system. The ULIMIT command can be used to query and set the storage limits and the current values are display in the LRS/NetX0099I message during startup.

LNTX8019E FREE() FUNCTION FAILED STORAGE ACCOUNTING AREA IS CORRUPT - SOURCE(src) LINE(line) ADDR(addr)

src: Source file name of calling function.
line: Line number in calling source file.
addr: Address of storage being freed.

Message Meaning: The free() function detected an invalid storage pointer or the storage header for the area addressed by the pointer is corrupt.
System Action: Execution will continue although the storage area will not be released.
Required Action: Contact LRS technical support staff.

LNTX8020E FILE OPEN FAILED NAME(filename) ERROR(error)

filename: Name of target file.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8021E FILE CLOSE FAILED ERRNO(errno) ERROR(error)

errno: System error number.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8022E FILE SEEK FAILED ERRNO(errno) ERROR(error)

errno: System error number.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8023E FILE PRINTF FAILED ERRNO(errno) ERROR(error)

errno: System error number.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8024E FILE READ FAILED ERRNO(errno) ERROR(error)

errno: System error number.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8025E FILE WRITE FAILED ERRNO(errno) ERROR(error)

errno: System error number.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8026E FILE DELETE FAILED NAME(filename) ERROR(error)

filename: Name of target file.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8027E ERROR CREATING DIRECTORY(dir) ERROR(error)

dir: Directory name.
error: Error description.

Message Meaning: A directory operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8028E ERROR OPENING DIRECTORY(dir) ERROR(error)

dir: Directory name.
error: Error description.

Message Meaning: A directory operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8029E ERROR CLOSING DIRECTORY ERRNO(errno) ERROR(error)

errno: System error number.
error: Error description.

Message Meaning: A directory operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8030E ERROR READING DIRECTORY ERRNO(errno) ERROR(error)

errno: System error number.
error: Error description.

Message Meaning: A directory operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8031E ERROR INITIALIZING KEYWORD CONTROL STRUCTURE

Message Meaning: LRS/NetX encountered an error initializing a system keyword control structure.
System Action: If the failure occurred processing a printer definition, activation will fail but LRS/NetX will continue to execute. If the LRS/NetX system keywords are being processed, execution will terminate.
Required Action: Check previous messages for the cause of the failure. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8032E ERROR OPENING LOG FILE

Message Meaning: LRS/NetX encountered an error opening a system log file.
System Action: Execution will continue with logging disabled.
Required Action: Check previous messages for the cause of the failure. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8033E LOG EXPIRATION PROCESSING FAILED

Message Meaning: LRS/NetX encountered an error while processing expired system log files.
System Action: Execution will continue.
Required Action: Check previous messages for the cause of the failure. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8034E FILE FLUSH REQUEST FAILED ERRNO(errno) ERROR(error)

errno: System error number.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8035E FILE RENAME FAILED OLD(old) NEW(new) ERROR(error)

old: Old file name.
new: New file name.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8036E ERROR ALLOCATING KEYWORD VALUE STRUCTURE

Message Meaning: LRS/NetX encountered an error allocating a keyword value structure.
System Action: Check following messages for the impact of this request failure.
Required Action: Check previous messages for the cause of the failure. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8037E GET FAILED FOR KEYWORD(name) INVALID KEYWORD NAME

name: Keyword name.

Message Meaning: A LRS/NetX component issued a GET request for an undefined system keyword.
System Action: None.
Required Action: Contact LRS technical support staff.

LNTX8038E ERROR PROCESSING KEYWORD(name) LINE(line) NO VALUE SPECIFIED

name: System or printer keyword name.
line: Line number in configuration file.

Message Meaning: No value was specified for the indicated keyword. All keywords must be followed by an equal (=) symbol and a value.
System Action: None.
Required Action: Correct keyword definition.

LNTX8039E ERROR PROCESSING KEYWORD(name) LINE(line) EQUALS SYMBOL MISSING

name: System or printer keyword name.
line: Line number in configuration file.

Message Meaning: An equal (=) symbol is required after all keywords followed by the keyword value.
System Action: None.
Required Action: Correct keyword definition.

LNTX8040E ERROR PROCESSING KEYWORD(name) LINE(line) error

name: System or printer keyword name.
line: Line number in configuration file.
error: Error description.

Message Meaning: An error occurred validating the indicated keyword value.
System Action: None.
Required Action: Correct keyword value.

LNTX8041E PTHREAD_RWLOCK_INIT() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: A read/write lock operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8042E PTHREAD_RWLOCK_RDLOCK() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: A read/write lock operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8043E PTHREAD_RWLOCK_WRLOCK() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: A read/write lock operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8044E PTHREAD_RWLOCK_UNLOCK() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: A read/write lock operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8045E PTHREAD_RWLOCK_DESTROY() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: A read/write lock operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8046E PTHREAD_RWLOCK_TRYRDLOCK() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: A read/write lock operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8047E PTHREAD_RWLOCK_TRYWRLOCK() FUNCTION FAILED SOURCE(src) LINE(line) RC(rc)

src: Source file name of calling function.
line: Line number in calling source file.
rc: Function return code.

Message Meaning: A read/write lock operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8048E OPEN REQUEST FAILED NAME(filename) ERROR(errno, error)

filename: Name of target file.
errno: System error number.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8049E CLOSE REQUEST FAILED FD(fd) ERROR(errno, error)

fd: File descriptor.
errno: System error number.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8050E READ REQUEST FAILED FD(fd) LENGTH(len) ERROR(errno, error)

fd: File descriptor.
len: Length for I/O request.
errno: System error number.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8051E WRITE REQUEST FAILED FD(fd) LENGTH(len) ERROR(errno, error)

fd: File descriptor.
len: Length for I/O request.
errno: System error number.
error: Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8052E LSEEK POSITIONING REQUEST FAILED FD(fd) ERROR(errno, error)

fd:	File descriptor.
errno:	System error number.
error:	Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8053E PWRITE REQUEST FAILED FD(fd) LENGTH(len) OFFSET(offset) ERROR(errno,error)

fd:	File descriptor.
len:	Length of data.
offset:	File offset.
errno:	System error number.
error:	Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8054E PREAD REQUEST FAILED FD(fd) LENGTH(len) OFFSET(offset) ERROR(errno,error)

fd:	File descriptor.
len:	Length of data.
offset:	File offset.
errno:	System error number.
error:	Error description.

Message Meaning: A file operation failed with the indicated error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8055E INSUFFICIENT STORAGE FOR SEND AND RECEIVED BUFFERS

Message Meaning: Insufficient storage was available for send and receive buffers for the indicated thread.
System Action: Thread will terminate.
Required Action: Check the storage statistics for the LRS/NetX server and review any soft limits that may have been imposed on LRS/NetX by the operating system. The ULIMIT command can be used to query and set the storage limits and the current values are displayed in the LRS/NetX0099I message during startup.

LNTX8056E ERROR INITIALIZING SERVER PORT FOR WEB ACCESS INTERFACE - FUNCTION DISABLED

Message Meaning: LRS/NetX was unable to initialize the TCP/IP port for inbound requests from the LRS/Web Connect client running on the Web server.
System Action: All Web functions will be disabled until LRS/NetX is restarted.
Required Action: Check previous messages for the cause of the error. If unable to determine the cause of the problem contact LRS technical support staff.

LNTX8057E TCP/IP CLIENT INTERFACES DISABLED DUE TO UNRECOVERABLE ERROR

Message Meaning: The LRS/NetX client request dispatcher encountered an unrecoverable error condition and all external TCP/IP interfaces have been disabled.
System Action: All TCP/IP client interfaces will be disabled until LRS/NetX is restarted.
Required Action: Check previous messages for the cause of the error. If unable to determine the cause of the problem contact LRS technical support staff.

LNTX8058E UNRECOVERABLE ERROR ACCEPTING WEB ACCESS CONNECTION - PORT DISABLED

Message Meaning: The LRS/NetX client request dispatcher encountered an unrecoverable error accepting Web server requests and the Web Access port has been disabled.
System Action: All Web functions will be disabled until LRS/NetX is restarted.
Required Action: Check previous messages for the cause of the error. If unable to determine the cause of the problem contact LRS technical support staff.

LNTX8059E CONNECTION REQUEST REJECTED FROM HOST ipaddr reason

ipaddr: Client IP address.
reason: Reason for rejection.

Message Meaning: LRS/NetX rejected an inbound connection request for the indicated reason.
System Action: None.
Required Action: If the problem continues contact LRS technical support staff.

LNTX8060E ERROR ENABLING RECOVERY HANDLER ERROR(error)

error: Error description.

Message Meaning: LRS/NetX was unable to establish a recovery environment because of the indicated error.

System Action: LRS/NetX Recovery termination processing will be disabled and fatal program signals will cause the LRS/NetX process to terminate.

Fatal Program Signals

SIGSEGV	Segmentation Violation
SIGFPE	Floating Point Exception
SIGILL	Illegal Instruction
SIGBUS	Bus Error
SIGPIPE	Write to Closed Socket or PIPE

Required Action: Use the error description to determine the cause of the error. If unable to identify the cause of the error contact LRS technical support staff.

LNTX8061E ERROR OPENING SNAP FILE(filename) error

filename: SNAP file name.
error: Error description.

Message Meaning: LRS/NetX encountered an error attempting to open a new SNAP file in the SNAP directory (SNAPDIR system keyword).

System Action: None.

Required Action: Use the error description to determine the cause of the error. If unable to identify the cause of the error contact LRS technical support staff.

LNTX8062E SNAP EXPIRATION PROCESSING FAILED

Message Meaning: The expiration thread encountered an error trying to remove expired SNAP files from the SNAP directory.

System Action: None.

Required Action: Use the error description to attempt to determine the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

LNTX8063E ERROR WRITING SNAP DUMP(filename) ERROR(error)

filename: SNAP file name.
error: Error description.

Message Meaning: LRS/NetX encountered an error attempting to write a new SNAP file in the SNAP directory (SNAPDIR system keyword).

System Action: None.

Required Action: Use the error description to determine the cause of the error. If unable to identify the cause of the error contact LRS technical support staff.

LNTX8064E TCP/IP ACCEPT REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8065E TCP/IP BIND REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8066E TCP/IP CLOSE REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8067E TCP/IP CONNECT REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8068E TCP/IP HOST NAME RESOLUTION FAILED, HOST(hostname) ERROR(error)

hostname: Symbolic host name.
error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8069E TCP/IP ERROR RETRIEVING LOCAL HOST NAME, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8070E TCP/IP LISTEN REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8071E TCP/IP RECEIVE REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8072E TCP/IP SELECT REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8073E TCP/IP SEND REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8074E TCP/IP SET SCOKET OPTIONS REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8075E TCP/IP SHUTDOWN REQUEST FAILED, ERROR(error)

error: Error description.

Message Meaning: The indicated TCP/IP function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8076E TCP/IP UNABLE TO CREATE SOCKET, ERROR(error)

error: Error description.

Message Meaning: The TCP/IP socket function returned the specified error.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8077E ERROR CREATING TEMPORARY FILE

Message Meaning: LRS/NetX was unable to create a temporary file.
System Action: Check following messages for the impact of this failure.
Required Action: Check previous messages for the cause of the failure. If unable to identify the cause of the error contact LRS technical support staff.

LNTX8078E FILE(filename) CLOSED AT THREAD TERMINATION

Message Meaning: LRS/NetX has detected that a thread has terminated without closing a file that it previously opened.
System Action: The file has been automatically closed.
Required Action: Contact LRS technical support staff.

LNTX8079E SOCKET(sd) CLOSED AT THREAD TERMINATION

sd: Socket descriptor.

Message Meaning: LRS/NetX has detected that a thread has terminated without closing a TCP/IP socket that it previously opened.
System Action: The socket has been automatically closed.
Required Action: Contact LRS technical support staff.

LNTX8080E FILE LINK FAILED NAMES(name1,name2) ERROR(error)

name1: Name of existing file.
name2: Name of link.
error: Error description.

Message Meaning: An error occurred attempting to create a link to an existing file.
System Action: Check following messages for the impact of this request failure.
Required Action: Use the error description to identify the cause of the error. If you are unable to determine the cause of the error contact LRS technical support staff.

LNTX8081E ERROR WRITING PARAMETER FILE(filename) ERROR(error)

filename: Parameter file name.
error: Error description.

Message Meaning: LRS/NetX encountered an error while writing system keywords to the indicated parameter file.
System Action: Keyword changes will be lost on restart.
Required Action: Use the error description to identify the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

LNTX8082E ERROR RETRIEVING RESOURCE LIMITS FOR resource: error

resource: System resource type.
error: Error description.

Message Meaning: LRS/NetX encountered an error attempting to retrieve the indicated resource limit information.
System Action: None.
Required Action: None.

LNTX8083E ERROR RECEIVING WEB CONNECT NETWORK HEADER - error

error: Error description.

Message Meaning: LRS/NetX encountered an error while receiving the network header for an LRS/Web Connect request.
System Action: Client connection will be terminated.
Required Action: Use the error description to identify the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

LNTX8084E INVALID WEB CONNECT NETWORK HEADER RECEIVED CLIENT(client)

client: Browser client and Web server address.

Message Meaning: LRS/NetX received an invalid LRS/Web Connect network header.
System Action: Client connection will be terminated.
Required Action: Use the error description to identify the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

LNTX8085E ERROR RECEIVING CLIENT REQUEST DATA - error

error: Error description.

Message Meaning: LRS/NetX encountered an error while receiving the client request data for an LRS/Web Connect request.
System Action: Client connection will be terminated.
Required Action: Use the error description to identify the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

LNTX8086E WEB ACCESS REQUEST FAILED (error)

error: Error description.

Message Meaning: LRS/NetX encountered an error while processing a Web transaction.
System Action: Client connection will be terminated.
Required Action: Use the error description to identify the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

LNTX8087E HTML PAGE CONSTRUCTION FAILED RC=rc CLIENT(client)

rc: Web application return code.
client: Browser client and Web server address.

Message Meaning: An LRS/NetX Web application has returned an error processing a Web request.
System Action: Client connection will be terminated.
Required Action: Check previous messages for the cause of the failure. If unable to identify the cause of the problem contact LRS technical support staff.

LNTX8088E REQUIRED KEYWORD(keyword) NOT FOUND IN INBOUND URL/POST DATA

keyword: URL or HTML Post data keyword.

Message Meaning: An inbound Web request is missing the indicated (required) keyword value.
System Action: Client connection will be terminated.
Required Action: Correct the URL being used by the client to access an LRS/NetX application. If unable to identify the cause of the problem contact LRS technical support staff.

LNTX8089E ERROR RETRIEVING TEXT STRING textid (error)

textid: Text identifier.
error: Error description.

Message Meaning: An LRS/NetX Web application has requested the text associated with the indicated text identifier and the request has failed with the indicated error.
System Action: Error processing depends on the Web application being executed. The returned Web page may contain missing information.
Required Action: If unable to identify the cause of the problem contact LRS technical support staff.

LNTX8091E ERROR SWAPPING HTML TAG tag ERROR(error)

tag: HTML tag identifier.
error: Error description.

Message Meaning: An LRS/NetX Web application has attempted to swap the indicated tag in the HTML template and the request has failed with the indicated error.
System Action: Error processing depends on the Web application being executed. The returned Web page may contain missing information.
Required Action: If unable to identify the cause of the problem contact LRS technical support staff.

LNTX8092E ERROR PROCESSING PARM LIST, ERROR(error)

error: Error description.

Message Meaning: An LRS/NetX Web application encountered an error retrieving the required HTML parameter values from the inbound post data.
System Action: Error processing depends on the Web application being executed. The returned Web page may contain missing information.
Required Action: If unable to identify the cause of the problem contact LRS technical support staff.

LNTX8093E ERROR SWAPPING HTML TEMPLATE template ERROR(error)

template: HTML template.
error: Error description.

Message Meaning: An LRS/NetX Web application has attempted to swap the indicated HTML template in the HTML page and the request has failed with the indicated error.
System Action: Error processing depends on the Web application being executed. The returned Web page may contain missing information.
Required Action: If unable to identify the cause of the problem contact LRS technical support staff.

LNTX8094E REALLOC() FUNCTION FAILED SOURCE(src) LINE(line) SIZE(size)

src: Source file name of calling function.
line: Line number in calling source file.
size: requested storage size.

Message Meaning: The realloc() function failed due to insufficient storage.
System Action: None.
Required Action: Check the storage statistics for the LRS/NetX server and review any soft limits that may have been imposed by the operating system. The ULIMIT command can be used to query and set the storage limits and the current values are display in the LNTX0099I message during startup.

LNTX8095E server SERVER REQUEST FAILED - error SOURCE(src) LINE(line)

server: Service identifier.
error: Error description.
src: Source file name of calling function.
line: Line number in calling source file.

Message Meaning: An error occurred attempting to execute an API request against the indicated server.
System Action: Error processing depends on the Web application being executed.
Required Action: If unable to identify the cause of the problem contact LRS technical support staff.

LNTX8096E SEND RESPONSE FAILED - error SOURCE(src) LINE(line)

error: Error description.
src: Source file name of calling function.
line: Line number in calling source file.

Message Meaning: An error occurred attempting to send a response to the requesting LRS/Web Connect client running in the Web server.
System Action: Error processing depends on the Web application being executed.
Required Action: If unable to identify the cause of the problem contact LRS technical support staff.

LNTX8097E ERROR LOADING HTML PAGE page - error SOURCE(src) LINE(line)

page: HTML page template file name.
error: Error description.
src: Source file name of calling function.
line: Line number in calling source file.

Message Meaning: An error occurred attempting to load the indicated HTML page template.
System Action: Error processing depends on the Web application being executed.
Required Action: If unable to identify the cause of the problem contact LRS technical support staff.

LNTX8098E INVALID TRANSACTION ID trid SPECIFIED

trid: Transaction identifier.

Message Meaning: The inbound HTML post data contains an invalid LRS/NetX transaction identifier.
System Action: If the client has not already established a session the LRS/NetX help page will be returned.
Required Action: If unable to identify the cause of the problem contact LRS technical support staff.

LNTX8099E ERROR DECOMPRESSING CLIENT REQUEST DATA - error

error: Error description.

Message Meaning: LRS/NetX encountered an error attempting to decompress the request data from the LRS/Web Connect client.
System Action: The connection will be terminated.
Required Action: If unable to identify the cause of the problem contact LRS technical support staff.

LNTX8300E FUNCTION(function) SENDING FAULT(fault) USERID(userid)

function: LRS/NetX SOAP function name.
fault: Function fault string.
userid: Requesting user ID.

Message Meaning: A LRS/NetX SOAP API request has failed and returned the indicated fault string.
System Action: None.
Required Action: Check the fault string to determine the cause of the error. If unable to identify the cause of the failure contact LRS technical support staff.

LNTX8301E ERROR INITIALIZING SOAP API SERVICES

Message Meaning: An error occurred adding the SOAP API services to the SOAP server instance.
System Action: Execution will continue but some API functions will be unavailable.
Required Action: Contact LRS technical support staff.

LNTX8302E ERROR PROCESSING SOAP REQUEST - error CLIENT(client)

client: Remote client and Web server address.
error: Error description.

Message Meaning: An error occurred processing an inbound client SOAP API request.
System Action: The client connection will be closed.
Required Action: Use the error description to identify the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

LNTX8303E ERROR REPORTED BY api_src ON LINE api_line CALLED BY src ON LINE line

api_src: Web services API source file reporting error.
api_line: Web services API line number.
src: Calling routine source file.
line: Calling routine line number.

Message Meaning: The LRS Web services API reported an exception when processing an inbound SOAP XML request.
System Action: None.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX88304E ERROR DETAIL: error

error: Error description.

Message Meaning: The LRS Web services API reported an exception when processing an inbound SOAP XML request.
System Action: None.
Required Action: Use the error description to identify the cause of the error. If unable to determine the cause of the error contact LRS technical support staff.

LNTX8305E ERROR SENDING SOAP RESPONSE - CLIENT(client)

client: Remote client and Web server address.

Message Meaning: An error occurred sending the SOAP response to the LRS/Web Connect client for delivery to the remote client.
System Action: The client connection will be closed.
Required Action: Use the error description to identify the cause of the error. If unable to identify the cause of the problem contact LRS technical support staff.

LNTX9000A ERROR CREATING THREAD SPECIFIC DATA KEY RC=rc error

rc: Return code.
error: Error description.

Message Meaning: The pthread_key_create() function returned an error when LRS/NetX attempted to create a thread specific data key for the thread control element.
System Action: Execution will terminate.
Required Action: Check the error description for the cause of the error. If unable to identify the cause of the error contact LRS technical support staff.

LNTX9001A ERROR INITIALIZING COMMON MUTEX AND CONDITION VARIABLE CONTROLS

Message Meaning: An error occurred initializing the system mutex and condition variable controls.
System Action: Execution will terminate.
Required Action: Check the error description for the cause of the error. If unable to identify the cause of the error contact LRS technical support staff.

LNTX9002A ERROR INITIALIZING MAIN TASK TCE

Message Meaning: An error occurred initializing the Thread Control Element for the main thread.
System Action: Execution will terminate.
Required Action: Check the error description for the cause of the error. If unable to identify the cause of the error contact LRS technical support staff.

LNTX9003A INVALID ARGUMENT arg

arg: Invalid argument name.

Message Meaning: An invalid argument was passed to the LRS/NetX executable.
System Action: Execution will terminate.
Required Action: Correct the invalid argument and restart.

LNTX9004A arg VALUE NOT SPECIFIED

arg: Argument name.

Message Meaning: No value was specified for the indicated argument.
System Action: Execution will terminate.
Required Action: Correct the invalid argument and restart.

LNTX9005A UNKNOWN ARGUMENT arg

arg: Argument name.

Message Meaning: An unknown argument name was specified.
System Action: Execution will terminate.
Required Action: Correct the invalid argument and restart.

LNTX9006A ERROR PROCESSING CONFIGURATION FILE filename

filename: LRS/NetX system initialization file name.

Message Meaning: An error occurred processing the system initialization keywords.
System Action: Execution will terminate.
Required Action: Correct the system initialization definitions.

LNTX9007A LRS/NetX ROOT DIRECTORY(root) IS INACCESSABLE ERROR(error)

root: LRS/NetX root directory.
error: Error description.

Message Meaning: The directory defined as the server root for this instance of LRS/NetX is inaccessible.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

LNTX9008A ERROR CHANGING TO SERVER ROOT DIRECTORY(root) ERROR(error)

root: Server root directory.
error: Error description.

Message Meaning: An error was returned when LRS/NetX attempted to make the server root directory the current working directory for the process.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

LNTX9009A LOG DIRECTORY(logdir) IS INACCESSABLE ERROR(error)

logdir: Log directory.
error: Error description.

Message Meaning: The directory defined as the log directory for this instance of LRS/NetX is inaccessible.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

LNTX9010A ERROR CREATING LOG DIRECTORY(logdir) ERROR(error)

logdir: Log directory.
error: Error description.

Message Meaning: An error occurred creating the directory defined as the log directory for this instance of LRS/NetX.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

LNTX9011A TEMP DIRECTORY(tempdir) IS INACCESSABLE ERROR(error)

tempdir: Temp directory.
error: Error description.

Message Meaning: The directory defined as the temp directory for this instance of LRS/NetX is inaccessible.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

LNTX9012A ERROR CREATING TEMP DIRECTORY(tempdir) ERROR(error)

tempdir: Temp directory.
error: Error description.

Message Meaning: An error occurred creating the directory defined as the temp directory for this instance of LRS/NetX.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

LNTX9013A SNAP DIRECTORY(snapdir) IS INACCESSABLE ERROR(error)

snapdir: SNAP directory.
error: Error description.

Message Meaning: The directory defined as the SNAP directory for this instance of LRS/NetX is inaccessible.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

LNTX9014A ERROR CREATING SNAP DIRECTORY(snapdir) ERROR(error)

snapdir: SNAP directory.
error: Error description.

Message Meaning: An error occurred creating the directory defined as the SNAP directory for this instance of LRS/NetX.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

LNTX9015A ERROR CREATING SYSTEM THREADS

Message Meaning: An error occurred creating the LRS/NetX system threads.
System Action: Execution will terminate.
Required Action: Check previous messages for cause of error. If unable to identify the cause of the error contact LRS technical support staff.

LNTX9016A TASK(thread) ABENDED(signame) LAST KNOWN LOCATION SRC(src) LINE(line)

thread: LRS/NetX thread name.
signame: Signal causing abnormal termination.
src: Last known source file.
line: Last known line number.

Message Meaning: A thread has terminated due to a hardware context signal.
System Action: The identified thread will terminate and LRS/NetX will attempt to continue processing. If the failing thread was holding any locks at the time of the abend this could cause other threads to become blocked when they attempt to acquire this lock.
Required Action: Contact LRS technical support staff and provide them with the SNAP dump that will have been generated in the SNAP directory and the log for the current execution of LRS/NetX.

LNTX9017A HTMP DIRECTORY(htmldir) IS INACCESSABLE ERROR(error)

htmldir: HTML directory.
error: Error description.

Message Meaning: The directory defined as the HTML template directory for this instance of LRS/NetX is inaccessible.
System Action: Execution will terminate.
Required Action: Check the error description to determine the cause of the error.

LNTX9018A ERROR CREATING HTML DIRECTORY(hmtldir) ERROR(error)

htmldir:	HTML directory.
error:	Error description.

Message Meaning: An error occurred creating the directory defined as the HTML template directory for this instance of LRS/NetX.

System Action: Execution will terminate.

Required Action: Check the error description to determine the cause of the error.

Appendix A
VPSX for Windows Installation

The installation process for VPSX in a Windows environment consists of a standard InstallShield dialog that will guide you through the installation of the VPSX components. The installation process will install and configure the following components of VPSX Enterprise Output Management (EOM).

- VPSX -Print server.
- LRS/ServerX - Security manager and central printer directory server.
- LRS/NetX - Web Application server.

In addition to the above components, it will be necessary to install the LRS/Web Connect component on a supported Web server to present the Web Interface. The Web server can be the native Windows IIS server or a Web server on any supported platform.

Distribution Material

The installation material is distributed on CD or electronically using the LRS EFT (Electronic File Transfer) shipping system. The CD and zipped EFT download file will contain the following files:

Installation file	Directory	Description
keyvpsx.lic	\	Product license file.
vpsxinst.exe	\VPSX_for_Windows	VPSX EOM installation package.
lrswc2inst.exe	\LRS_WebConnect	LRS/Web Connect installation package.
lrsqinst.exe	\LRSQueue	LRSQueue installation package.

System Requirements

VPSX will execute on the following versions of Windows:

- Microsoft Windows Server™ 2003
- Windows XP Professional with Service Pack 1 or later
- Windows 2000 Server with Service Pack 3 or later
- Windows 2000 Professional with Service Pack 3 or later
- Microsoft Windows Server™ 2003 SP1 (Requires Microsoft hotfix KB899522)

Windows Services for UNIX 3.5

In addition to the base Windows operating system it is necessary to install two components of the Microsoft Services for UNIX(SFU) package. Microsoft SFU is currently available as a free download from Microsoft but will be incorporated as a standard feature in Windows 2003 Server R2 and Windows Vista.

Downloading Microsoft SFU

The Microsoft Services for UNIX 3.5 feature is available for download on the Microsoft Web Site. **http://www.microsoft.com/sfu**.

Installing Required Microsoft SFU Components

VPSX requires the following two components of the Microsoft SFU package:

- Base Utilities
- Interix GNU Utilities

The SFU download is packaged as a self extracting zip file. After downloading the installation material, execute the package and unzip the files into a temporary installation directory.

To install the required components, open a command window and change directory to the extracted installation directory. The Microsoft installer can then be executed to install the necessary components using the following command:

```
msiexec /i sfusetup.msi ADDLOCAL="BaseUtils,GNUUtils" SFUDIR="C:\SFU" /qb+
```

Where:

- **/i sfusetup.msi** identifies the Microsoft installer package.
- **ADDLOCAL** identifies the required components (case sensitive).
- **SFUDIR** identifies the installation directory.

Microsoft SFU Prerequisites

If you are installing SFU under Windows XP SP2 or Windows 2003 server please review the following two prerequisites. (Note: The VPSX installation routine will check for these prerequisites during installation and issue a warning if attention is required.)

Windows 2003 SP1

Service pack 1 introduced an error that will cause SFU applications to crash. This error has been corrected by Microsoft hotfix KB899522. This fix can be obtained from Microsoft support and must be applied before attempting to install VPSX.

Windows XP SP2 and Windows 2003

If your server has an Intel processor with the Execute-Disable (XD) feature, or an AMD processor with the No-Execute (NX) feature, this can cause SFU applications to crash. These features are relatively new and will be automatically enabled by Windows if the processor supports PAE (Physical Address Extension).

The VPSX installation procedure will check if these features are supported and will issue a warning if detected. You can also manually check for this feature by accessing the Windows 'Control-panel' and selecting the 'System' icon. The processor information, displayed on the 'General Tab', will indicate 'Physical Address Extension' below the processor make and model.

If your processor supports either of these features it will be necessary to disable this option to ensure that VPSX operates correctly. To disable this feature it is necessary to edit the boot.ini file in the root directory and specify the following option:

/NoExecute=AlwaysOff

On Windows XP systems this boot option defaults to "/NoExecute=OptIn" and Windows 2003 systems default to "/NoExecute=OptOut".

After changing this option it will be necessary to re-boot the server for the change to take effect.

VPSX Installation

Before beginning the VPSX installation process, the Microsoft SFU components must be installed and you must be signed on to the target system with Administrator privileges.

If you are installing from a CD, the VPSX installation process can be launched from the LRS product selection list by selecting the product and clicking **SETUP**. Alternatively, the installation process can be launched by executing the **VPSXINST** executable in the **VPSX_for_Windows** directory.

The installation process will prompt for a 60 byte product key that will have been provided with the installation material or as a separate e-mail. The install also requires a product license file that identifies the licensed hosts. The license file will be called '**keyvpsx.lic**' and can be found in the root directory of the installation package or may have been provided separately. The installation process will ask you to identify the folder that contains the license file.

Installation Directories

The installation process will install the product material into the following directories below the SFU installation directory:

/sfu/LRS/lrxlib	Common function library.
/sfu/LRS/vpsx	VPSX executables.
/sfu/LRS/vpsx/pcmd	Sample printer command files.
/sfu/LRS/vpsx/samples	Sample configuration files.
/sfu/LRS/vpsx/separ	Sample separator page templates.
/sfu/LRS/vsvx	LRS/ServerX executables.
/sfu/LRS/vsvx/samples	Sample configuration files.
/sfu/LRS/netx	LRS/NetX executables.
/sfu/LRS/netx/html	HTML page template directory.
/sfu/LRS/netx/html/net	LRS/NetX common HTML page templates.
/sfu/LRS/netx/html/vmcfx	VMCFX HTML page templates.
/sfu/LRS/netx/resources	WEB page resources files.
/sfu/LRS/netx/resources/vmcfx	VMCFX Web Interfaces resources.
/sfu/LRS/netx/sample	Sample configuration files.
/sfu/LRS/netx/vmcfx	VMCFX WEB Interface executables.
/sfu/LRS/man1	Manual pages for all components.

Runtime Directories

The installation process will automatically create the following directories to contain files created during the execution of the VPSX server processes. After installation the location of these directories can be changed using the Web Interface.

/sfu/LRSROOT/vpsxroot/		VPSX server root directory.
	/spool	Spool directories and files.
	/log	Log files.
	/separ	Sample separator page templates.
	/pcmd	Sample printer command files.
	/prtr	Printer configuration files.
	/acct	Accounting files.
	/cntl	Checkpoint database.
	/snap	SNAP dump diagnostic files.
	/tmp	Temporary files.
/sfu/LRSROOT/vsvxroot/		LRS/ServerX root directory.
	/cntl	User profile/security database.
	/log	Log files.
	/snap	SNAP dump diagnostic files.
	/tmp	Temporary files.
/sfu/LRSROOT/netxroot/		LRS/NetX root directory.
	/log	Log files.
	/snap	SNAP dump diagnostic files.
	/tmp	Temporary files.

Controlling the VPSX Servers

The installation process will add a Windows program group that provides simple controls to start, stop, query, and check the version of the VPSX components installed. The VPSX server components are defined as Windows services and can also be stopped and started using the standard Windows Service Manager and, by default, will start automatically when the system is restarted.

Configuring the Web Interface

To access the VPSX Web Interface it is necessary to install the LRS/Web Connect component on an existing Web server. The LRS/Web Connect component acts as a forwarding agent, routing requests for VPSX Web pages to the LRS/NetX Web application server and returning the result to the Web server.

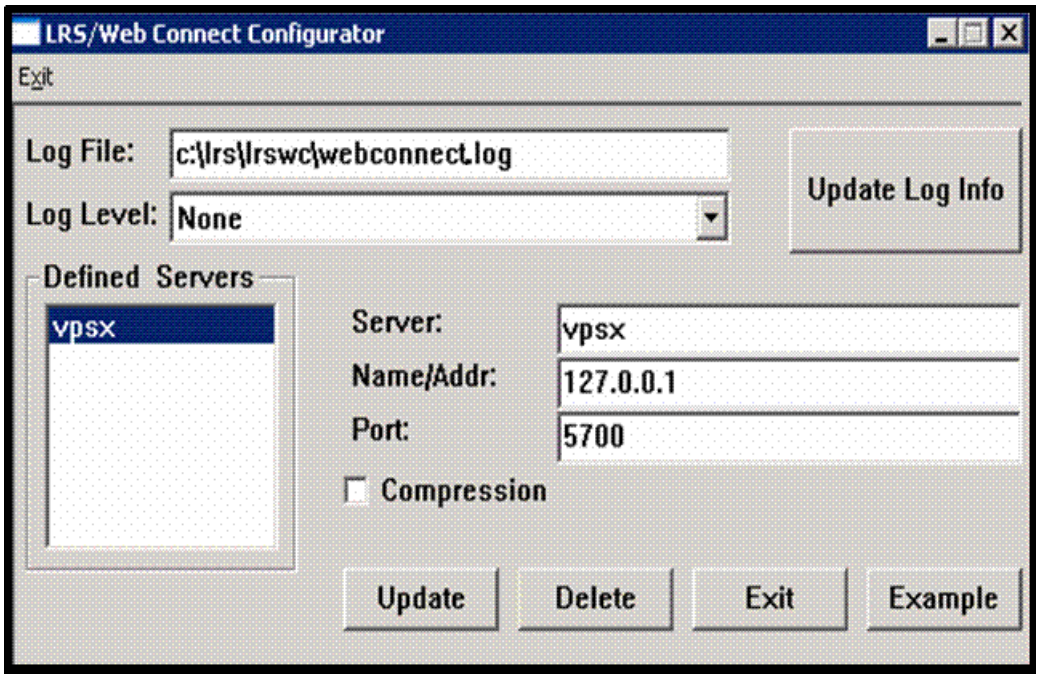
In this section it will be assumed that the LRS/Web Connect component will be installed on a Microsoft IIS Web server although it could be installed on any supported Web server.

For complete information on installing LRS/Web Connect on a Windows based Web server please refer to the LRS/Web Connect documentation. After completing the basic installation, continue with the following steps to configure a connection profile.

Configuring a Web Connect Profile for VPSX

Once LRS/Web Connect is installed it is necessary to define a connection profile to route Web interface requests to the LRS/NetX Web application server. LRS/Web Connect connection profiles are configured via a GUI configuration tool that can be accessed from the 'LRS_Web Connect for IIS server' program group.

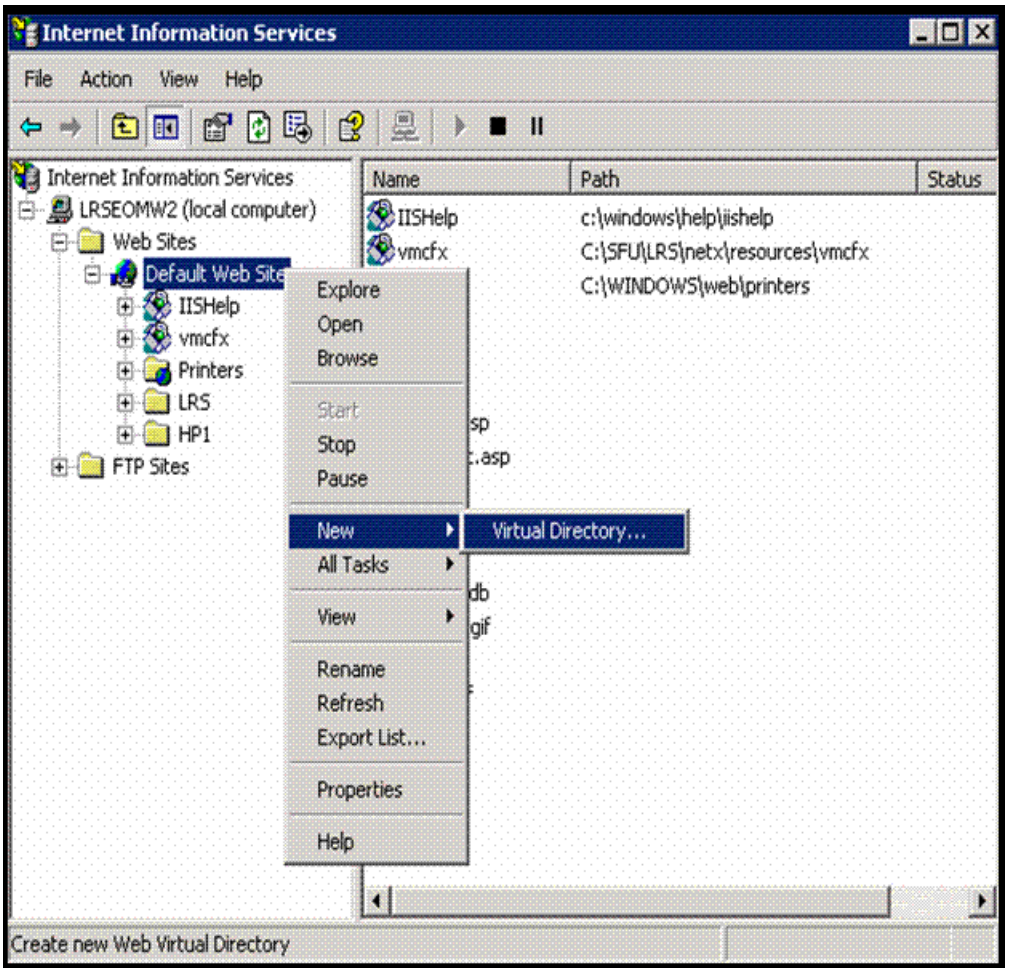
Below is an example of the VPSX connection profile required to access the VPSX Web Interface.



Define VPSX Resource Directory to IIS Web Server

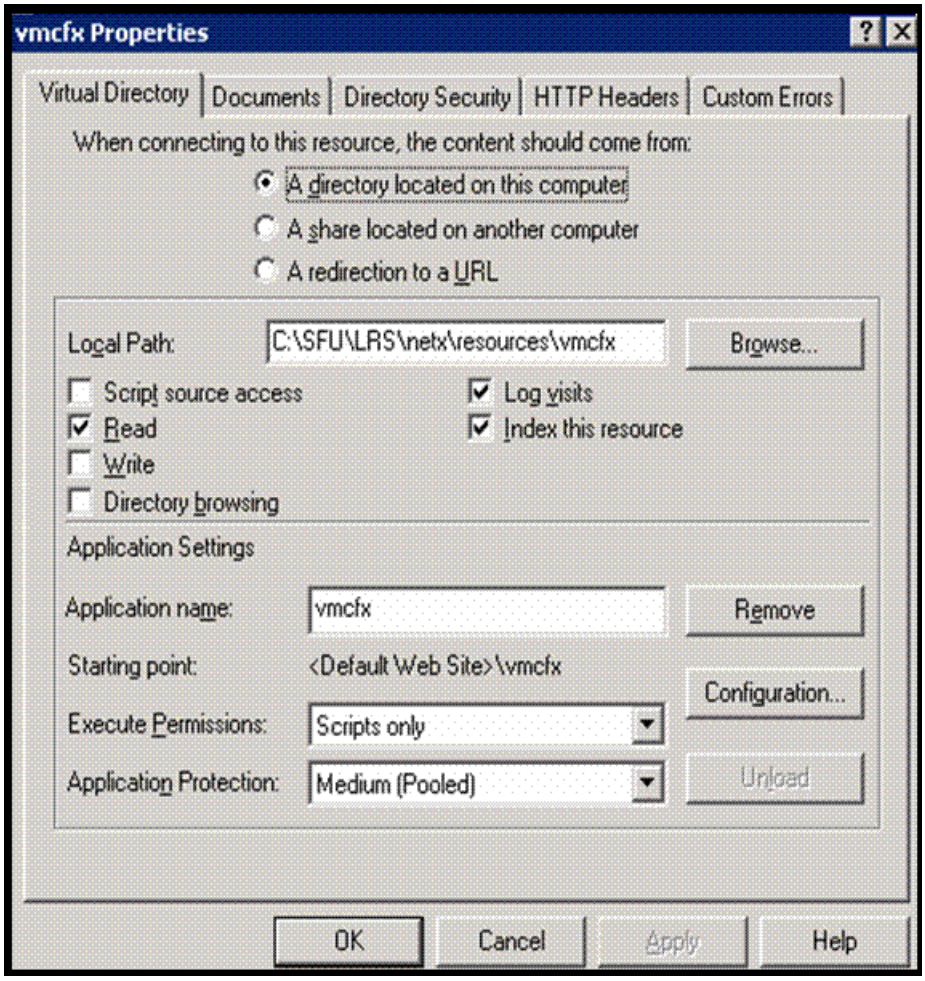
Before accessing the VPSX Web Interface it is necessary to define a Virtual Directory to the IIS Web server to provide access to the static resources required for the VPSX Web pages.

Access the 'Internet Information Services' configuration manager via the control panel->**Administrative tools**. Then right click on the 'Default Web Sites' element of the configuration tree and select **new->Virtual Directory**.



When prompted for an Alias enter '**vmcfx**'. Specify '**c:\sfu\LRS\netx\resources\vmcfx**' when prompted for the associated directory name. (Note: The directory location may be different if SFU was not installed in the default location.) Click **Next** to complete the definition of the Virtual Directory.

The '**vmcfx**' Virtual Directory will now appear in the IIS configuration tree and you can confirm the details by right clicking on the **vmcfx** element and selecting **Properties**. The Virtual Directory definition should match the example below:



Accessing the VPSX Web Interface

After completing the LRS/Web Connect installation and defining the IIS Virtual Directory, it is now possible to access the VPSX Web Interface. If the VPSX servers have not already been started you can now start the servers using the links in the VPSX program group.

You can access the VPSX logon screen using the following URL:

http://host-name/lrs/nlrswc2.exe/vpsx?trid=logonv

Where:

Host-name is the TCP/IP hostname of the Windows server running VPSX.

When the logon screen is displayed you can logon using the default user ID:

USERID = admin

PASSWORD = password

Appendix B
Spool Attribute Substitution Variables

The table below contains a complete list of spool file attribute variables that can be included in separator pages, accounting record layouts, and filter process command arguments. The spool attribute variables will be resolved at execution time and will be replaced with the associated attribute value for the currently active spool file. In addition to spool file attributes the value of any VPSX system or printer configuration keyword can be specified using the following syntax (&sys_keyword or &prt_keyword) where keyword is any valid VPSX system or printer keyword name.

Variables specified in accounting record and filter command templates must be prefixed with the ampersand character (i.e. &owner). Spool attribute variables included in separator page templates must be prefixed with the less-than and question mark characters (<?) and terminated with the greater-than symbol (i.e. <?owner>).

Variable name	**Description**
Bytes	Byte count.
Class	Spool file class (single character).
Classif	Spool file classification 1-31 characters (LPR only).
Copies	Spool file copy count.
CTime	Creation time (03:20:25 September/28/2004).
Datatype	Spool file data type.
ENDPAGE	End page number for partial print request or zero.
Filename	Originating file name 1-255 characters.
Form	1-8 character form name or null.
Format	Format name 1-16 characters or null.
FORMDEF	AFP FORMDEF name.
Hold	Spool file hold indicator (Y/N).
Host	Originating host name 1-127 characters.
IPPJobID	IPP job identifier returned by remote IPP server/device after successfully delivery of a job. **Note:** This attributes has been superseded by variable RmtJobID and could be removed in a future release.
Jobname	Jobname 1-15 characters.
Lines	Line count.
MailAcpt	Email server acceptance message including unique message ID (1-80 Characters).
Mailbcc	Email blind copy recipient (1-99 characters).
Mailcc	Email copy recipients (1-999 characters).
Mailcset	Email character set (1-40 characters).
MailFile	Email file attachment name (1-60 characters).
Mailfrom	Sender’s email address (1-60 characters).

Variable name	Description
Mailrply	Email reply-to address (1-60 characters).
Mailto	Primary email recipients (1-999 characters).
Notlevel	Event notification level (1-5).
Notmail	Event notification email address (1-60 characters).
OpSys	Originating operating system.
Origin	Spool file origin (LPR, LRSQ or SAP).
Owner	Spool file owner 1-31 characters.
Pages	Document page count.
Printer	Name of currently active printer.
Priority	Numeric priority 1-255 (255 = high).
Prtpages	Number of page impressions physically printed. (For COMMTYPE=TCPIP/PJL this will reflect the exact number of pages delivered to the output tray; for other communication types it will indicate the number of pages successfully delivered to the device or server.)
PTime	Printed time (03:20:25 September/28/2004).
QTime	Maximum queue time for unprinted files in hours (0-9999).
Retain	Spool file retention period in hours (0-9999).
RmtJobID	Contains the remote job identifier returned by a remote server after delivery using the IPP or LRSQ protocols.
RmtQueue	Spool file remote queue name attribute.
SAPCBACK	SAP R/3 Callback target.
SAPDEPT	SAP R/3 Department name.
SAPPNAME	SAP R/3 Internal printer name.
SAPRECIP	SAP R/3 Recipient name.
SAPRMG	SAP R/3 Reply Message Group.
SAPSPL	SAP R/3 Spool file identifier.
SAPSYSID	SAP R/3 System Identifier.
SAPSYSNO	SAP R/3 System number.
Separ	Separator requested (Y/N).
Spoolid	Spool file identifier.
STime	Print start time (03:20:25 September/28/2004).
STRTPAGE	Start page number for partial print request or zero.
Title	Title for banner page 1-127 characters.
Totpages	Total page count including requested copies.
UDATA1 - 16	User data fields 1-16 contain 0-64 characters of user specified information.

Appendix C
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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