

Distribution Installer Support for Linux on System z dump tools

Currently Linux on System z customers have to install their dump devices manually, using bare Linux commands like, fdisk, dasdfmt, fdasd or zipl. It would be helpful, if the Linux installers could make that task easier.

For Linux on z/Series currently there exist three different dump methods: dump on DASD, Tape and zfcpx SCSI disks.

We suggest to not support tape by the installer, since DASDs are more convenient for the customer and tape dump is not the recommended way. Currently tape dump is only used for Systems with more than 27GB (maximum size for DASDs). But for completeness we describe the dump preparation process also for tape.

In the following a possible implementation for dump setup support in Linux installers is described.

1. User has to select dump method

- DASD
- TAPE
- SCSI (Currently LPAR only)

2.1. User has selected DASD

A DASD dump partition has to be created. The installer lists all available DASD devices. If a dump signature is found on a DASD, this should be displayed. The installer can identify a dump DASD using `zgetdump -d <device node> /etc/sysconfig/dumpconf` should be parsed in order to display, if a DASD is already defined for “dump on panic”.

Example:

- 0.0.4711: 4695 MB
- 0.0.4712: 4695 MB (Dump signature found) (configured for dump on panic)
- 0.0.4713: 4695 MB

The user has to specify:

- Device Number

The Installer has to do the following:

- Create dump partition. Suggestion: Use complete DASD in order to keep user interface easy
 - ECKD DASD: # `fdasd -a /dev/dasdx`
 - FBA DASD: Nothing to be done here
- Check if DASD partition is big enough for the Linux system (must be bigger than memory size)
- Prepare dump DASD:
 - # `zipl -d /dev/dasdx1`

- Update /etc/sysconfig/dumpconf for automatic dump:
 - ON_PANIC=dump
 - DUMP_TYPE=ccw
 - DEVICE=0.0.4712
- Start dumpconf service:
 - # /sbin/chkconfig --add dumpconf
 - # service dumpconf start

2.2. User has selected TAPE

A dump tape cartridge has to be prepared. The installer lists all possible tape devices. The user has to insert a tape cartridge and specify:

- Device Number of tape device

The installer has to do the following:

- Set Tape device online:
 - # chccwdev -e <devno>
- Prepare tape cartridge:
 - # zipl -d /dev/ntibmxxx

2.3. User selected SCSI

An ext3 dump partition on a SCSI disk has to be prepared for dump. The installer could print a list of all available WWPNs and LUNs for available SCSI disks using the san discovery tool. Alternatively, the user has to specify the values directly.

Example:

Select SCSI Adapter:

- 0.0.1700
- 0.0.1701
- ...

WWPNs for adapter 0.0.1700:

- 0x5005076401408f98
- ...

LUNs for WWPN 0x5005076401408f98:

- 0x4010400000000000
- 0x4010400100000000
- 0x4010400200000000
- ...

The user has to specify:

- DEVNO
- WWPN
- LUN
- Partition:
 - If partition is already there, the user has to specify the partition number.
 - Otherwise the user has to specify the size for the new partition.
 - Note: If always a complete SCSI dump disk is used, the user interface will be easier.
- Dump Options (probably defaults are useful):
 - Dump Directory (default: /dumps)
 - Dump Compression: gzip or none (default: gzip)
 - Dump Mode: interactive or auto (default: auto)

The Installer has to do the following:

- Check if the SCSI disk partition is big enough for the system (must be bigger than memory size)
- If the partition is not already there, create the partition:
 - # fdisk /dev/sdx
- If the partition is not already formatted, create an ext3 filesystem:
 - # mke2fs -j /dev/sdx
- Mount dump partition:
 - # mount /dev/sdx1 /mnt
- Create dump directory:
 - # mkdir -p /mnt/<dumpdir>
- Prepare SCSI dump disk:
 - # zipl -D /dev/sdx1 -t /mnt -P "<dump options>"
- Update /etc/sysconfig/dumpconf for automatic dump:
 - ON_PANIC=dump
 - DUMP_TYPE=fcp
 - DEVICE=0.0.1700
 - WWPN=0x500507630300c562
 - LUN=0x401040B400000000
 - BOOTPROG=0
 - BR_LBA=0
- Start dumpconf service:
 - # /sbin/chkconfig --add dumpconf
 - # service dumpconf start

For further information on how to prepare dump devices refer to:

<http://download.boulder.ibm.com/ibmdl/pub/software/dw/linux390/docu/126cdt01.pdf>