Procedure for Configuring MPIO on SLES 11

Note: This procedure does not support installing with Dual SCMs to SSDs as a boot device.

New Operating System Installation in a Dual SCM configuration.

1. Create Storage Pool -> Virtual Drive and assign to a compute module

Note the SCM assigned as the active path (see the red box in the screenshot on the next slide).
It is recommended to set controller Affinity to SCM1 during Virtual Drive creation, although installation to a drive with controller Affinity set to SCM2 is also supported.
If SCM1 is not the active path, it can be changed by selecting the virtual drive from the Storage tab, then clicking the "affinity" button, and choosing SCM1 from the drop-down menu.

2. Boot the compute module and enter the system BIOS (press F2 during POST)

If the active SCM for LUN 0 is SCM #1, place it first in the HDD boot order.
Typically, this will show up as ID00 (LUNs assigned to SCM #1 usually have lower ID values than SCM #2, but not always) LUN0.

3. If the active SCM for LUN 0 is SCM #2, place it first in the HDD boot order.

Typically, this will show up as ID01 (LUNs assigned to SCM #2 usually have higher ID values than SCM #1, but not always) LUN0.

4. It is recommended that you perform the installation with only a single VD assigned to the compute module; however, installations may be performed with multiple VDs assigned.

5. Install SLES 11. Make sure to select **Device ID** for the partition of disk
    a. Check the **Device ID** when you assign the mount-point for that partition. Just click fstab optional button under mount-point selection box.
    b. For more information, refer to SLES 10 SP2 BKM.

6. After installation has completed, Check **/boot/grub/menu.lst** and /**etc/fstab** to see whether root is set by disk id (This is found under **/dev/disk/by-id/**)
    In SLES 11, This will be done automatically, but you must check it.
    For more information, Refer to SLES 10 SP2 BKM.

7. Install path priority tools (multipath-intel-suse11-0.4.8-1).
    rpm -ivh multipath-intel-suse11-0.4.8-1.i586(x86_64).rpm

8. Copy multipath.conf to /etc/multipath.conf
    cp multipath.conf /etc/multipath.conf

9. Edit /etc/sysconfig/kernel
    include "dm-multipath scsi_dh scsi_dh_alua" in the INITRD_MODULES.
    Ex,
    INITRD_MODULES="mptsas processor thermal fan jbd ext3 edd dm-multipath scsi_dh scsi_dh_alua"

10. Check multipath configuration.
    chkconfig multipathd on

chkconfig multipathd (this show the status of multipathd)
chkconfig boot.multipath on
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11. Build new initramfs.
    mkinitrd -f multipath

12. Reboot the server by typing reboot.

13. To display the topology and check the multipath configuration, type the following:
    Multipath –ll (multipath –v4)

14. The server is now properly configured for Multipath usage.

15. Note: Some I/O errors are normal on a properly configured system. Each multipath device is composed of an active path and a standby path. The standby path is only used if the active path fails. Any I/Os to the standby path will be rejected while the active path is healthy. Normal attempts by the Linux OS to probe standby paths can result in some I/O errors in /var/log/messages as follows:

    Apr 23 10:28:49 slestest kernel: end_request: I/O error, dev sdd, sector 0
    Apr 23 10:28:49 slestest kernel: end_request: I/O error, dev sdd, sector 0
    Apr 23 10:28:49 slestest kernel: end_request: I/O error, dev sdc, sector 0
    Apr 23 10:28:49 slestest kernel: end_request: I/O error, dev sdc, sector 0

Other attempts to access the standby paths, such as with fdisk, will also result in failures. This is normal for Linux Multipath solutions and is not specific to an Intel® Modular Server.