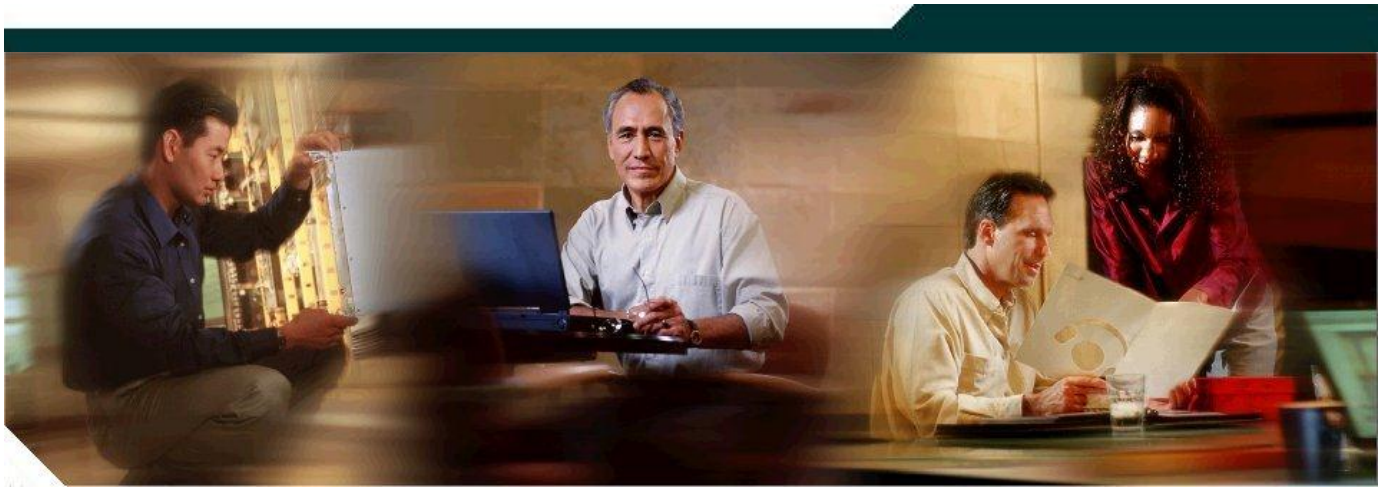

MegaRAID SAS Controller Replacement Procedure

For CDE220, CDE420 and CDE250 servers

Version 1.9

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Table of Contents

Document Revision History

The Document Revision History table below records technical changes to this document.

Document Version	Date	Change Summary
Initial Version 1.0	March 1, 2012	Initial version
Version 1.1	April 20, 2012	General clean up
Version 1.2	April 27, 2012	Added diagrams for the CDE250
Version 1.3	May 5, 2012	Edited step 1.1 (upgrade procedures) for each server
Version 1.4	May 25, 2012	Updates for the FW Package 12.12.0-0090
Version 1.5	Aug 2, 2012	Updates for the FW Package URL New Links
Version 1.6	Aug 22, 2012	Edited step 4 in Post-Upgrade Procedure
Version 1.7	Sept 18,2012	Edited step 1 page 12, 23, 35 and added diagrams
Version 1.8	Dec 04,2012	Added a note follow Appendix D to clear existing configuration on card if Foreign import failed. Pages 17, 28 and 39
Version 1.9	Dec 10, 2012	Added Pictures for Note in each product sections, moved the note up after step 6, added pictures to Appendix D for clearing configuration, changed Figures numbering to accommodate new screenshots.

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Overview

This document details the replacements of the build-in internal card MegaRAID SAS Controller AOC-SASLP-H8iR-CI025 in CDE220, CDE420 and CDE 250 servers with the newer one. The existing card in PCI slot 3 (from left to right when facing to the rear panel of the chassis) is to be replaced with the newer card.

The controller card change is required to resolve the following:

1. BBU warnings – battery was not charging and that it was disabled;
2. Battery charging was disabled after the BBU temperature went over 40C
3. Card could fail if run for extended time when the temperature went over 40C.

Front Panel

CDE220 Example:

Figure 1: CDE220 Front View

CDE250 Example:

Figure 2: CDE250 Front View

CDE420 Example:

Figure 3: CDE 420 Front View

Rear Panel

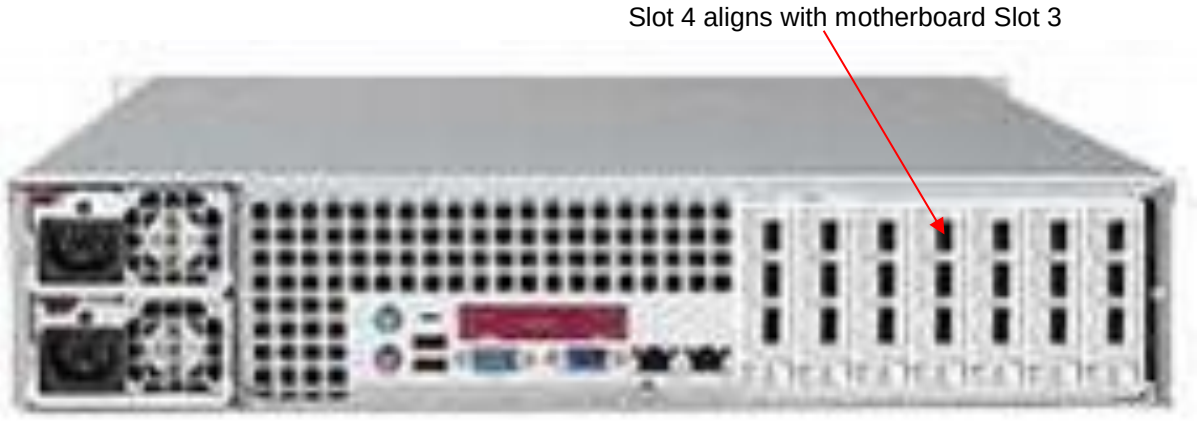


Figure 4: CDE220 Rear Panel View

Mother Board Layout

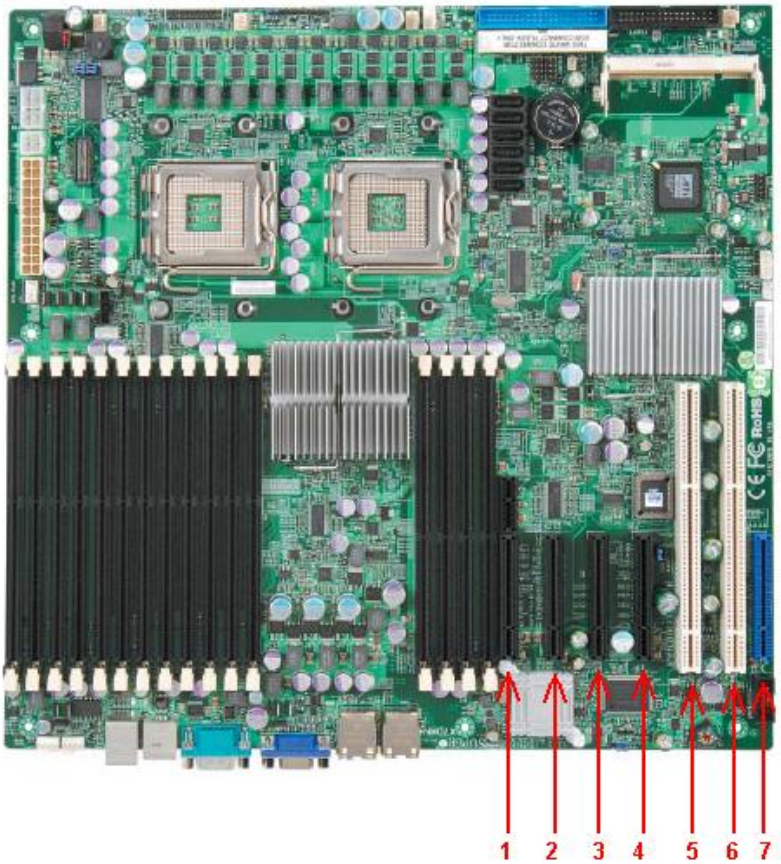


Figure 5: CDE-XX Mother Board View

Rear Panel

Figure 6: Rear View of CDE250

Mother Board Layout

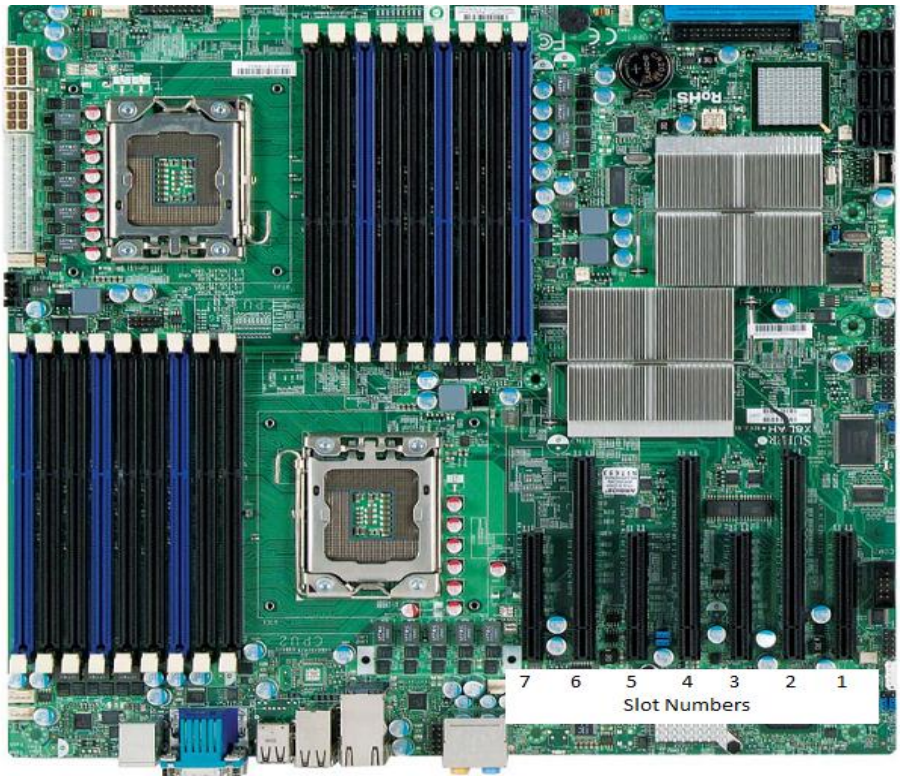


Figure 7: CDE-250 Mother Board View

Upgrade Overview:

Cisco recommends that Comcast should upgrade the CDS Devices in the following order:

- Streamers
- CGW
- Vaults

Upgrade Times for each device: 45 minutes.

Replacement Preparations

- Make sure you have received the new MegaRAID card (LSI MegaRAID 9261-8i). Ensure that the BBU is either on the card or present in the box.
- Make sure you have downloaded the initrd.img installer which will install the new SAS driver to support the new MegaRAID controller. This installer will need to be copied over to the server that its MegaRAID controller will be replaced with the new one.
- You will need a Keyboard and Monitor available for Upgrade procedure. Terminal applications on an engineers' computer may have different key maps to send key strokes as required in the procedure. Example: in order to get in BIOS settings, you need to send "Del" key during boot up. Having a Keyboard and monitor helps to ensure that you do not run into key maps in your terminal software.
- Cisco recommends performing a file system check with 'fsck' to detect any file system errors that may have been caused by the old SAS adapter. Errors should be fixed prior to replacing the SAS controller. Cisco clients' field engineers will manage this additional procedural step.
- Cisco clients request that field engineers verify and correct if required the console redirect and baud rate settings in the system BIOS. Procedure has been added to the final reboot sequence.

High-Level Procedure

The following is a high-level summary of the steps to be performed in this replacement procedure. Utilize this summary to ensure that the MegaRAID controller replacement operators are familiar with each step, the overall tasks and the procedures.

!!! WARNING !!!

NOTE 1: One-by-one, execute each of the following steps on a single server following the order listed below. When complete, repeat these steps on the next target server.

NOTE 2: It is very important to install the new initrd.img before physically replacing the MegaRAID controller on the server running with 2.5.2 or earlier releases. The new initrc.img has included the new SAS driver to support the new MegaRAID controller. Without installing the initrc.img, the new MegaRAID controller cannot be initialized; therefore, the logical drive (/dev/sda) will not be started and the server will be booted to the OS Maintenance mode.

High-Level Summary of the Replacement Steps:

1. If the server is running with 2.5.2 or earlier releases, copy over the initrd.img installer (cdstv_CSCtw94200.bin) to /root on the server.

   Note: CDS-TV 2.5.3 or later version software includes the new initrc.img.
2. Execute the installer to install the new initrd.img file with the new SAS driver.
3. After executing the installer, verify the new initrd.img with the new SAS driver is placed correctly.
4. Power off the server, disconnect the power cords from the power supplies, remove the

power supplies and disconnect all the cables on the rear panel for physically replacing the MegaRAID controller.

5. Open the chassis to replace the old MegaRAID controller with the new one.
6. Import logical drive configuration from the physical drives to the new card, if prompted to do so.
7. Upgrade the firmware for the new MegaRAID controller by using the DOS bootable USB key with the new firmware.
8. Pull out the USB key and reboot the server after the firmware upgrade is done.

See the section below for the details of each step:

Detailed Procedure for Streamers:

Pre-Upgrade Procedure for Streamers:

1. Start first with the secondary Streamers in the cluster followed by the primary streamer.

2. Make sure there are no active streams before upgrading. This can be done by off lining the device in the manager prior to the upgrade. The offload command automatically pushes active streams to other streamer servers in the cluster and is not an end-user impacting operation.

   In the CDSM, select Maintain/Server/Server Offload Enable

3. Perform a file system health check prior to the card replacement. This step is to be performed in single user mode.
   a. Bootup the server

   b. During bootup, when list of Linux versions appears on the screen, select CDS-TV Linux version and hit 'e' for edit

   c. hit 'e' again on 2nd line as shown below

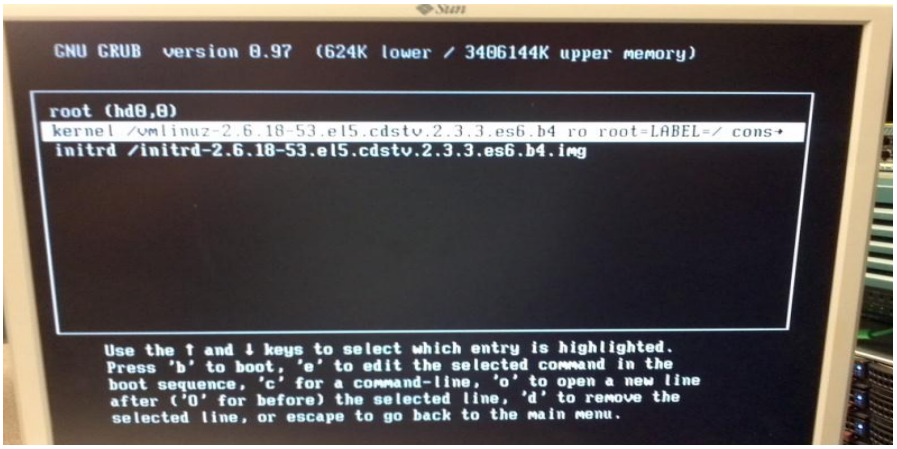


Figure 8: GRUB

d. At the end of that line backspace to ‘LABEL=/’ , hit spacebar and type in 'single'

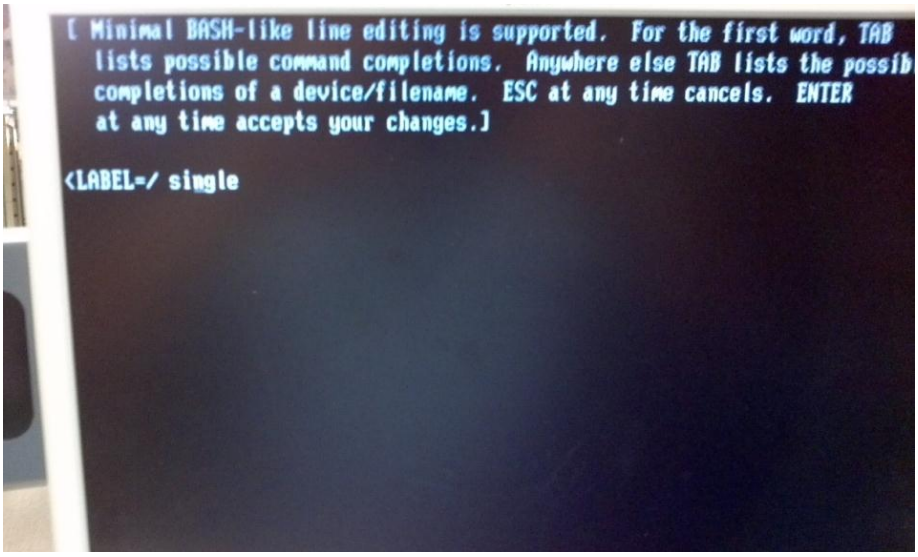


Figure 9: Bash

e. hit RETURN
f. Type in 'b' for boot
g. Wait for bootup to complete into single mode prompt where the system would perform a file system health check upon reboot. Note the ‘clean’ status for each partition.

```
boot up messages.
Checking filesystems
Checking all file systems.
[/sbin/fsck.ext3 (1) -- /] fsck.ext3 -a /dev/hda2
/1: ]clean, 23750/1937280 files, 346328/1935832 blocks
[/sbin/fsck.ext3 (1) -- /var] fsck.ext3 -a /dev/sda3
[/sbin/fsck.ext3 (2) -- /boot] fsck.ext3 -a /dev/hda1
/boot: clean, 52/64256 files, 45271/257008 blocks
/var1: clean, 182/2560864 files, 122093/2560359 blocks
[/sbin/fsck.ext3 (1) -- /home] fsck.ext3 -a /dev/sda2
/home1: clean, 380/7685440 files, 336081/7679070 blocks
[/sbin/fsck.ext3 (1) -- /arroyo] fsck.ext3 -a /dev/sda6
/arroyo1: clean, 1219/217808896 files, 8531636/217785164 blocks
[/sbin/fsck.ext3 (1) -- /arroyo/db] fsck.ext3 -a /dev/sda1
/arroyo/db: clean, 359/12812288 files, 470311/12799780 blocks
 [  OK  ]
Remounting root filesystem in read-write mode:  [  OK  ]
Mounting local filesystems:  [  OK
```

h. Reboot the server at the single mode prompt ‘sh-3.1’ by running the command:
sh-3.1# **shutdown -rF now**

Upgrade Procedure for Streamers

1. Installing the new SAS driver

Note: if the server is running with CDS-TV 2.5.3 or later version, skip this step as the new SAS driver is already included in the 2.5.3 image.

1. Install the new SAS driver before shutting down the server and replacing the MegarRAID card.

2. To install the new SAS driver:

   - SSH as root to the device that is targeted for an upgrade.
   - Copy over the initrd.img installer (cdstv_CSCtw94200.bin) to /root on the server
   - Execute the installer as below to install the new initrd.img file with the new SAS driver.

```
# sh /root/cdstv_CSCtw94200.bin
running install.sh ...
Update of initrd required.
Backing up /boot/initrd-2.6.18-53.el5.cdstv.2.5.2.b222.img to /boot/initrd-2.6.18-53.el5.cdstv.2.5.2.b222.img_bkup..
Updating /boot/initrd-2.6.18-53.el5.cdstv.2.5.2.b222.img..
Update Successful !!!
```

2. Verifying the new initrd.img

1. After executing the command above, the original initrd.img file will be renamed with the prefix of "_bkup" in /boot directory and the new initrd.img file will be placed into /boot to replace the old one.

   For example, on a server running with 2.5.2 release image, the following two lines in /boot are expected after executing the installer:

```
-rw-r--r-- 1 root root 2544113 Jan 31 10:22 initrd-2.6.18-53.el5.cdstv.25x.r222.img
-rw-r--r-- 1 root root 2511703 Jan 31 10:20 initrd-2.6.18-53.el5.cdstv.25x.r222.img_bkup
```

2. Verify the size and MD5 checksum of initrd<XX>.img

   For example, for initrd-2.6.18-53.el5.cdstv.2.5.2.b222.img for 2.5.2 above, size is is 2544113 bytes. And its MD5 checksum is 459d14e40b0967fa0db5ee1ee24270cf

```
# md5sum initrd-2.6.18-53.el5.cdstv.25x.r222.img
459d14e40b0967fa0db5ee1ee24270cf  initrd-2.6.18-53.el5.cdstv.25x.r222.img
```

3. Physically Replacing the MegaRAID controller

1. SSH as root to the device that is targeted for an upgrade. Stop database by issuing the following commands:
   a. as root, issue "db_shutdown"
   b. make sure avsdb process shuts down, "pgrep avsdb" and "netstat –an |grep 9999" should return nothing
2. Inspect the Streamer chassis and ensure all connecting cables are labeled, if fibers are in use for streaming, ensure that TX/RX are marked by color or label. If any cables/fibers are missing label, use temporary label to show near end interface.

3. Power off the server, disconnect the power cords from the power supplies, remove the power supplies and disconnect all the cables on the rear panel.
4. Place the chassis on a workstation and remove the top cover;
5. Note: Make sure you have an ESD strap on and you are properly grounded before doing the following steps:
6. Unscrew the bracket of card at slots 3. Disconnect the SATA cables attached to the card which connect to the internally mounted drives.
7. Pull out card mentioned above.
8. The new MegaRAID controller comes with the following two parts (see Figure 10)
   a. The card itself (LSI MegaRAID 9261-8i)
   b. The BBU for the card
9. Before installing the new MegaRAID controller, make sure that the BBU is installed onto the card properly. Figure 10 (below) shows the new MegaRAID card with the BBU installed. If the BBU is not installed onto the card, but instead provided in the box, follow the instructions in Appendix B to install it.

Figure 10: New MegaRAID controller

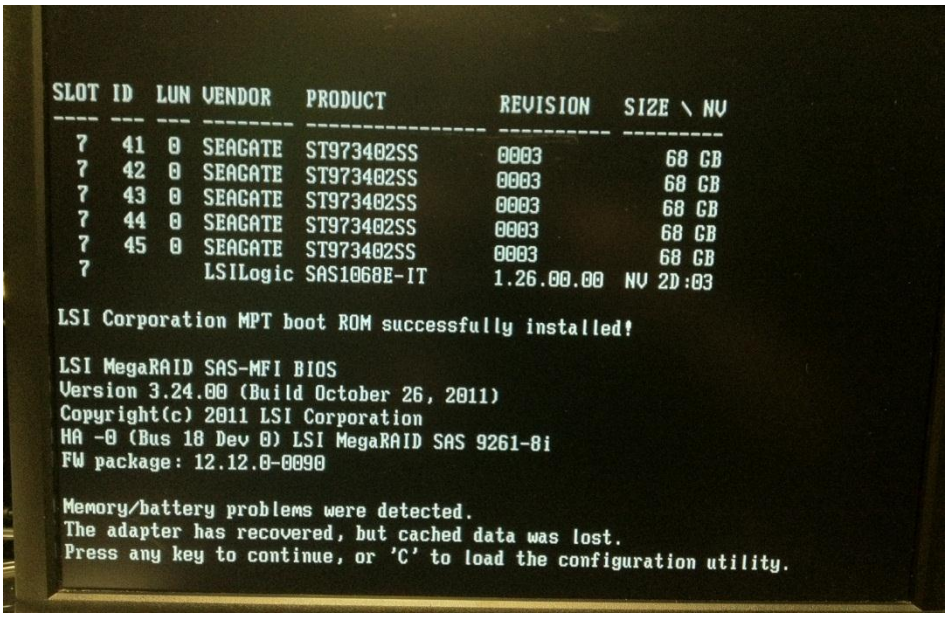
10. Install the new MegaRAID controller card into slot 3 – ensuring it is fully seated into the PCIe slot.
11. Re-attach slot screw to firmly attach new SAS controller into slot 3 and check that all slots screws are tightened.
12. Replace the top cover and put the chassis back.
13. Replace the power supplies and reconnect all cables, make sure you verify labels after all cables and fiber/copper are connected to interfaces.

4. Importing the Logical Drive Configuration

After replacing the MegaRAID controller physically, the existing logical drive configuration on this server is no longer on the new MegaRAID controller but it still exists on the physical internal drives. So, we need to import the configuration from the internal drive to the new

MegaRAID controller. This can be done when initializing the new MegaRAID controller during the first booting up after replacing the controller if prompted.

1. Power up the server. During the first time after replacing the MegaRAID controller, if the following messages ” Memory/battery problems were detected” “The adapter has recovered, but cached data was lost” are seen as in the below figure, then press any key to continue. Other messages could be displayed on the local RGB monitor shown in Figure 11. The console will then pause waiting for operator input:



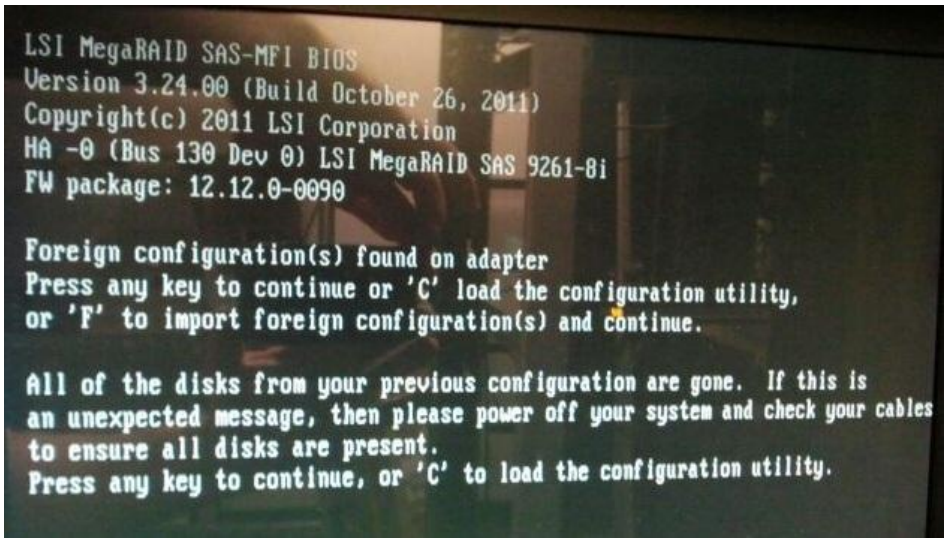


Figure 11: Messages displayed on the screen

Note: If the prompt to import the “Foreign configuration” was not seen as above, go to #10.

2. When these messages are shown up, type ‘F’ to import logical drive configuration from the internal physical drive to the new MegaRAID controller, and then continue.

3. After typing ‘F’, more messages will be shown. Please refer to Figure 12 below.

4. Press ‘C’ to load the configuration utility and verify the configuration. A few more messages are displayed.

5. Press ‘Y’ to continue loading the utility and wait to get into the MegaRAID WebBIOS Configuration Utility.

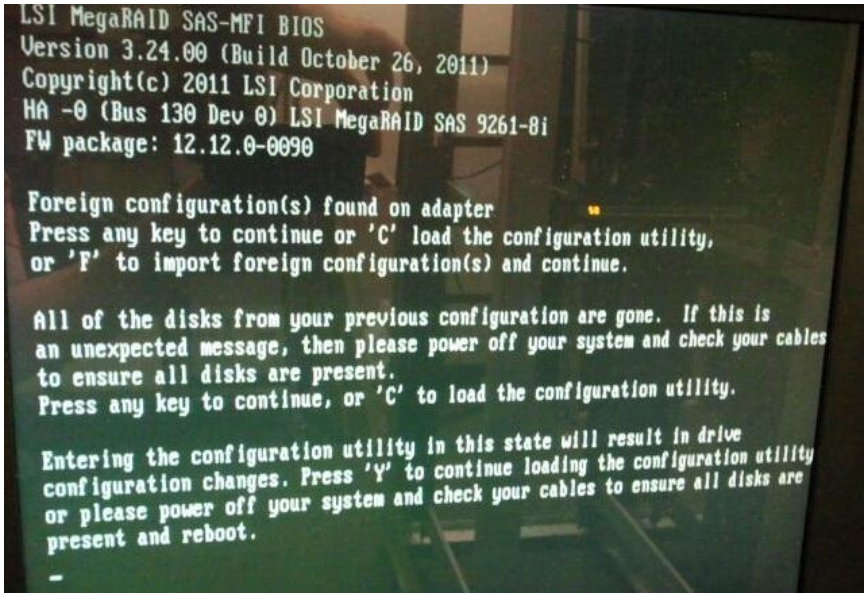


Figure 12: Messages displayed on the screen after typing ‘F’ and ‘C’

6. After loading the WebBIOS configuration utility, the following screen will be displayed:

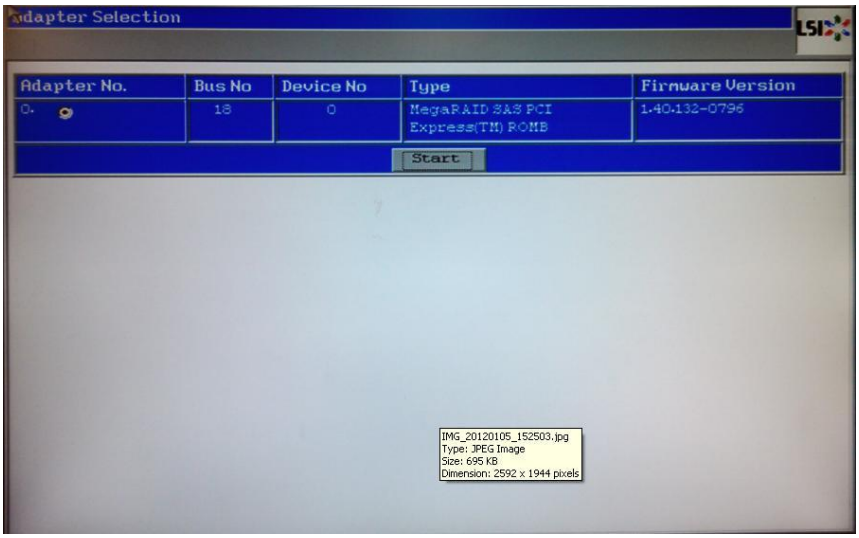


Figure 13: Getting into MegaRAID WebBIOS Configuration Utility

Note: If Foreign Configuration cannot be imported, please refer to Appendix D to clear the existing configuration on the MegaRAID SAS controller card, card have been previously used or tested and retains cache. If you see following screen (Figure 14) indicating offline Virtual drives, please refer to Appendix D:

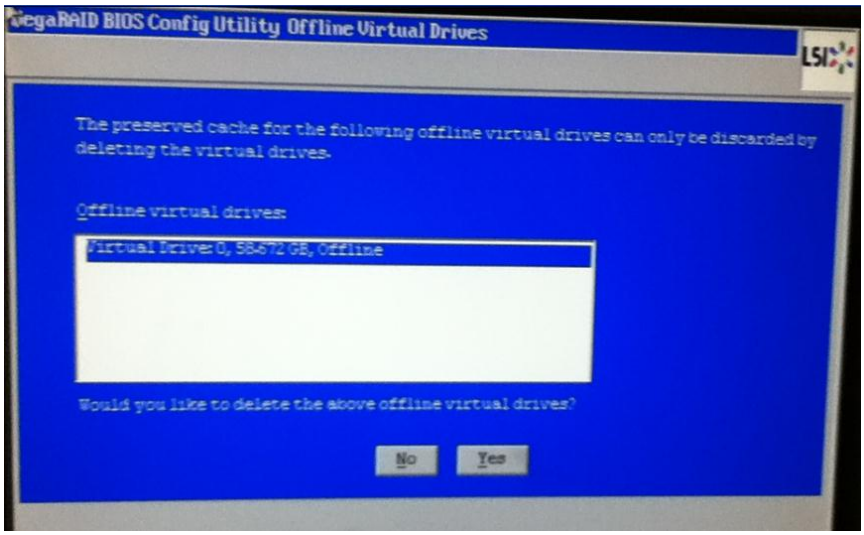


Figure 14: WebBIOS found existing offline Virtual Drives

7. Click on “Start” button to get the current controller configuration. In case you see the screen below “ **Foreign Configuration Found, Want to Import?**” Click on “**Preview**” to go to the next screen “ **Foreign Configuration As Imported. Click IMPORT to Import and merge this configuration**”. After that verify that you can see the logical drive (Virtual drive) and the two physical drives:

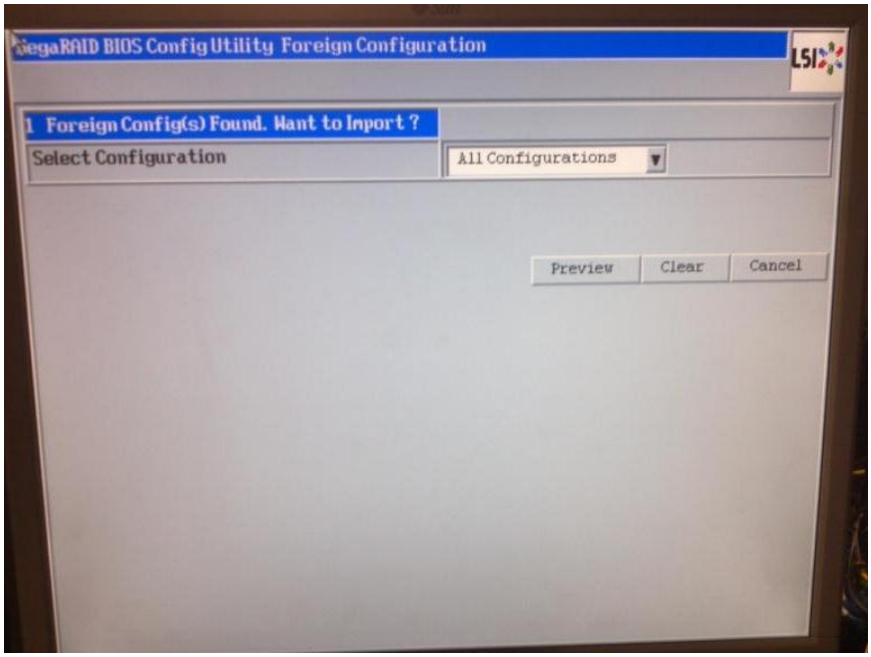


Figure 15: WebBIOS Importing the Foreign Configuration

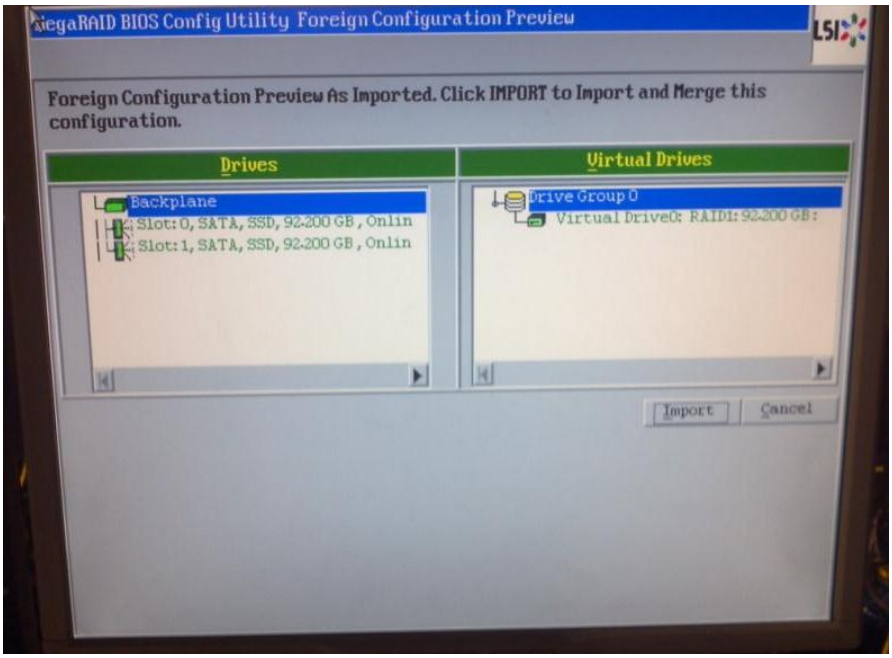


Figure 16: WebBIOS Foreign Configuration Preview

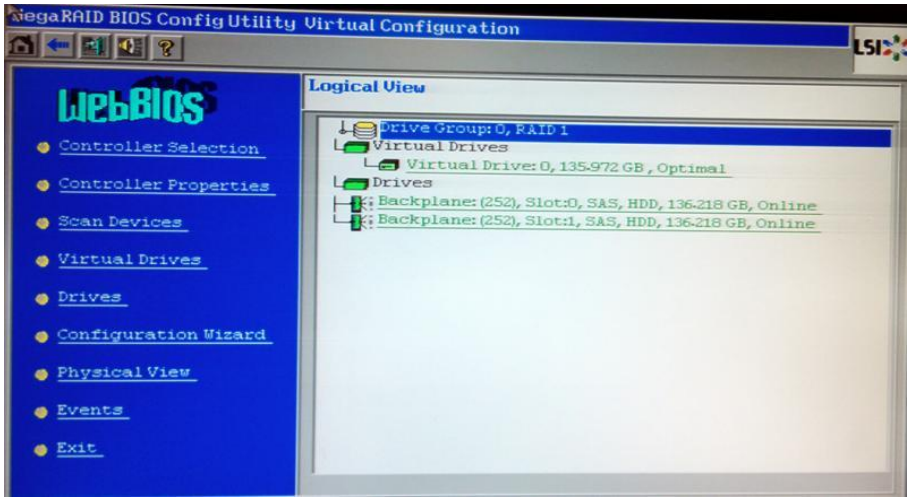


Figure 17: Correct Logical Drive Information

8. If the information in Figure 16 is not shown on your screen, the MegaRAID configuration may not be imported correctly. In this case, please ‘Exit’ the utility without saving the configuration, then power cycle it to import the configuration again by repeating this step.

9. Select Exit ->Yes ->reboot the server by turning on and off the power button. Please see figure 18 below

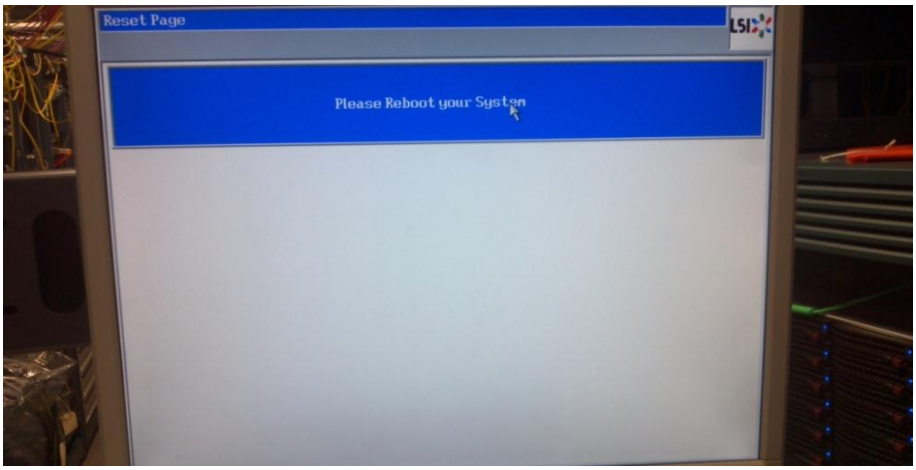


Figure 18: LSI Reboot prompt

10. If the information in Figure 17 is shown on the screen, the configuration is correctly imported. The server will boot up properly, then.

11. If the prompt to import the “Foreign configuration” was not seen, verify the configuration by loading the WebBIOS when prompted by entering “<CNTL>-H”. Follow the same procedure as mentioned after Figure 12 (Figure 12 through 17).

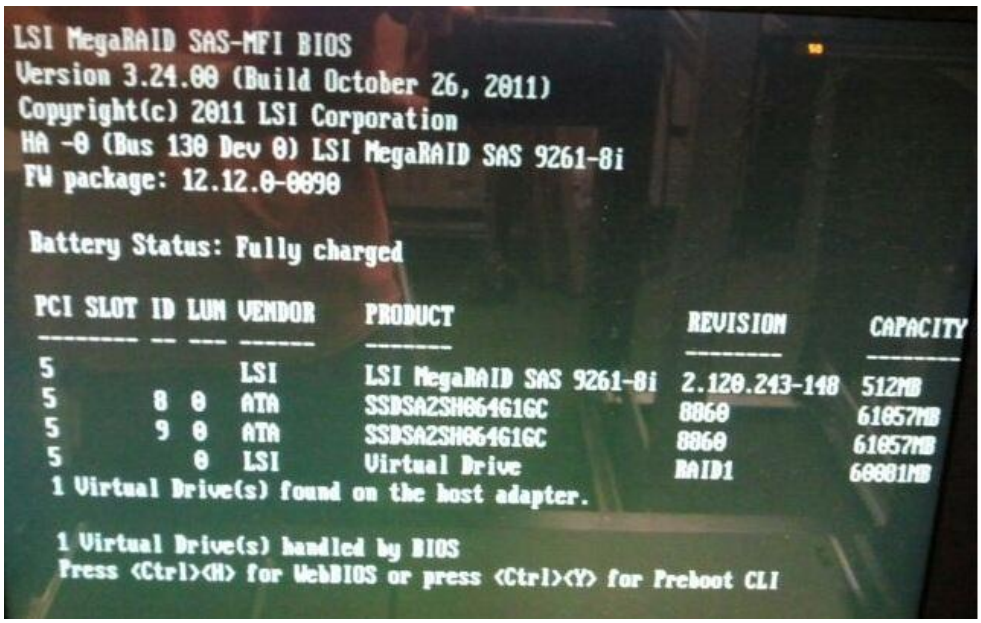


Figure 19: MegaRAID controller card correct initialization and Firmware

Post-Upgrade Procedure for CDE220 Streamers Only:

1. Check for LED status on the interface ports
2. When the Streamer starts its POST procedure, enter the system BIOS setup by pressing <DELETE> within the first 10 seconds and while the “enter BIOS” option is displayed on the screen. When in the BIOS confirm the following elements below, save the BIOS settings and reboot.

   Advanced -> Console Redirection:
   - Console Type is set to **VT100, 8 bit**
   - Baud rate is set to **9600**
   - Flow Control is set to **XON/XOFF**

   Default Values:
   - Advanced -> Advanced Chipset Control -> SERR Signal Condition: is set to “**Uncorrectable”**
   - Advanced -> Advance Chipset Control -> Max Payload Size: **128B**

3. After rebooting, check the firmware version of the SAS controller. This will appear after the BIOS and first LSI adapter POST screens. Figure 19 above is the screen shot to refer.

4. The “FW package:” string should be displayed as 12.12.0-0090. If it is not 12.12.0-0090, reboot the box and follow the BIOS upgrade procedure in Appendix A.

5. Perform a file system health check prior to the card replacement. This step is to be performed in single user mode.

   a. Bootup the server
   b. During bootup, when list of Linux versions appears, select CDS TV Linux version and hit 'e' for edit.

   c. hit 'e' again on 2nd line as shown below:

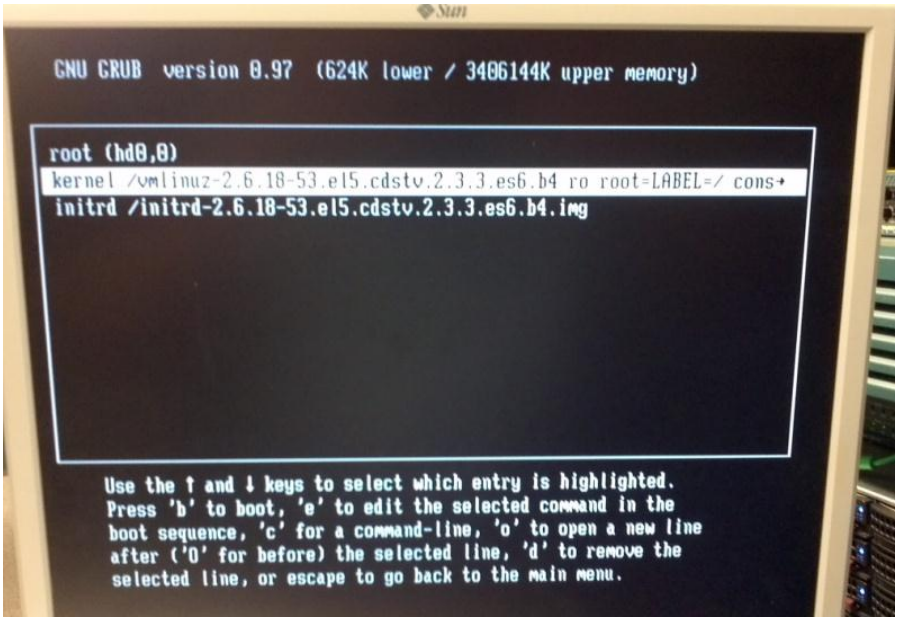


Figure 20: GRUB

d. At the end of that line backspace to ‘LABEL=/’ , hit spacebar and type in 'single'

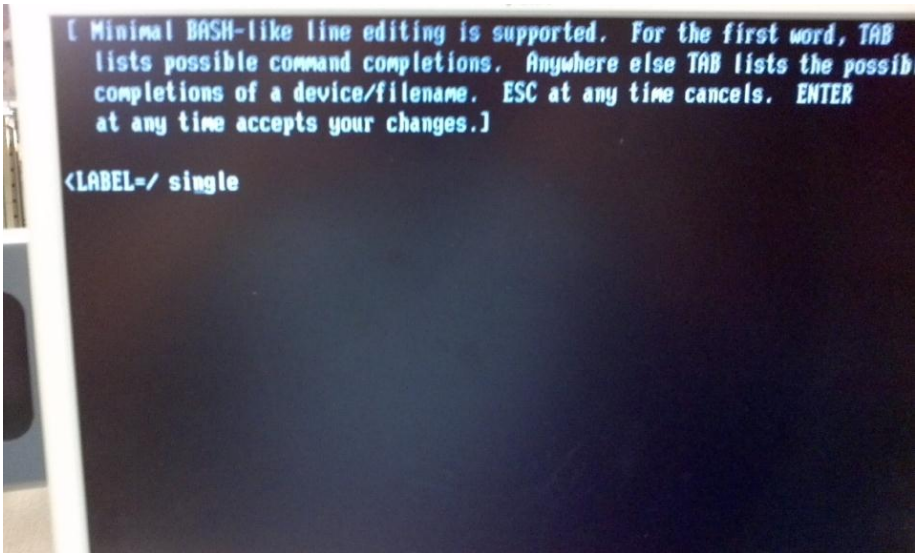


Figure 21: Bash

e. hit RETURN
f. Type in 'b' for boot
g. Wait for bootup to complete into single mode prompt where the system would perform a file system health check upon reboot. Note the ‘clean’ status for each partition.

```
boot up messages.
Checking filesystems
Checking all file systems.
[/sbin/fsck.ext3 (1) -- /] fsck.ext3 -a /dev/hda2
/1: ]clean, 23750/1937280 files, 346328/1935832 blocks
[/sbin/fsck.ext3 (1) -- /var] fsck.ext3 -a /dev/sda3
[/sbin/fsck.ext3 (2) -- /boot] fsck.ext3 -a /dev/hda1
/boot: clean, 52/64256 files, 45271/257008 blocks
/var1: clean, 182/2560864 files, 122093/2560359 blocks
[/sbin/fsck.ext3 (1) -- /home] fsck.ext3 -a /dev/sda2
/home1: clean, 380/7685440 files, 336081/7679070 blocks
[/sbin/fsck.ext3 (1) -- /arroyo] fsck.ext3 -a /dev/sda6
/arroyo1: clean, 1219/217808896 files, 8531636/217785164 blocks
[/sbin/fsck.ext3 (1) -- /arroyo/db] fsck.ext3 -a /dev/sda1
/arroyo/db: clean, 359/12812288 files, 470311/12799780 blocks
 [  OK  ]
Remounting root filesystem in read-write mode:  [  OK  ]
Mounting local filesystems:  [  OK ]
```

h. Reboot the server at the single mode prompt ‘sh-3.1’ by running the command:

```
sh-3.1# shutdown -rF now
```

6. After the file system check is complete and clean, reboot and verify that the Streamer shows up Green in the CDSM/VVIM and remove the offload status at the following menu:

   Maintain/Server/Server Offload Online/Disable

7. On site engineer login using username “root”, password “rootroot” .Use ” /home/stats/ifstats” command to see if there are any errors
   Example:

```
ifstat: Thu Oct 28 05:33:01 2010
=================================================================
Int    R-Mbps    X-Mbps    R-Bytes       X-Bytes
eth0:    0.58    0.39    1088543703    862586838
eth1:    0.00    0.00    20100765118    396150330
eth2:    22.36    178.26    76769268012    302026793912
eth3:    0.00    173.48    4814784    303403606668
eth4:    21.66    172.64    76761475384    302042111800
eth5:    22.29    178.29    76747790924    302079733868
eth6:    0.00    179.09    4821376    302082805164
eth7:    22.42    179.00    76777223880    302028469464
eth8:    21.59    173.11    76767383634    302081217352
eth9:    22.37    178.85    76766286360    302091012368
```

8. Check protocoltiming logs for transmission errors.
9. Proceed to the next Streamer.

Detailed Procedure for CGW:

Pre-Upgrade Procedure for CGW:

1. Start first with the secondary CGW followed by the primary CGW.
2. Make sure that the CGW is offloaded.
3. Perform a file system health check prior to the card replacement. This step is to be performed in single user mode.
   a. Bootup the server
   b. During bootup, when list of Linux versions appears on the screen, select CDS TV Linux version and hit 'e' for edit
   c. Hit 'e' again on 2nd line as shown below

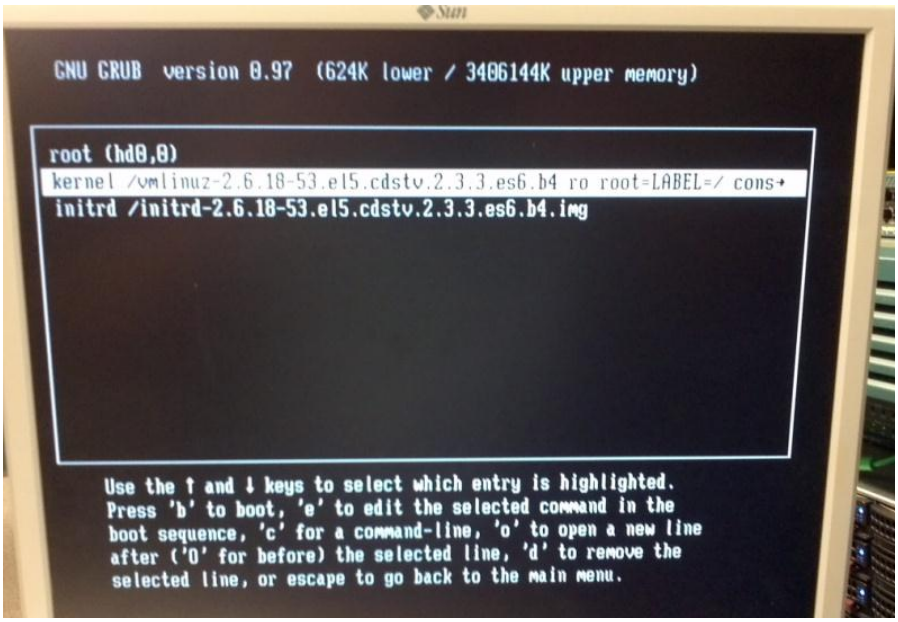


Figure 22: GRUB

d. At the end of that line backspace to ‘LABEL=/’ , hit spacebar and type in 'single'

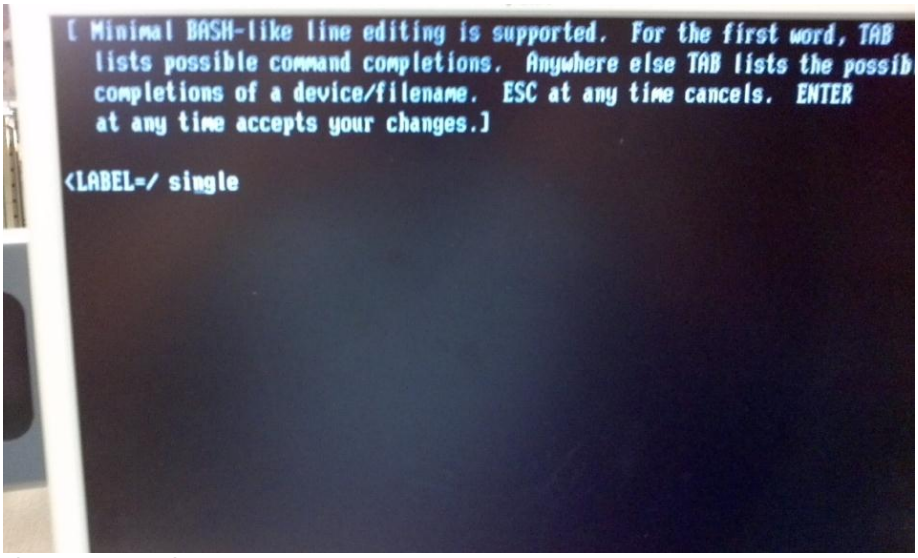


Figure 23: Bash

e. hit RETURN

f. Type in 'b' for boot

g. Wait for bootup to complete into single mode prompt where the system would perform a file system health check upon reboot. Note the ‘clean’ status for each partition.

boot up messages.
Checking filesystems
Checking all file systems.

```
[/sbin/fsck.ext3 (1) -- /] fsck.ext3 -a /dev/hda2
/1: ]clean, 23750/1937280 files, 346328/1935832 blocks
[/sbin/fsck.ext3 (1) -- /var] fsck.ext3 -a /dev/sda3
[/sbin/fsck.ext3 (2) -- /boot] fsck.ext3 -a /dev/hda1
/boot: clean, 52/64256 files, 45271/257008 blocks
/var1: clean, 182/2560864 files, 122093/2560359 blocks
[/sbin/fsck.ext3 (1) -- /home] fsck.ext3 -a /dev/sda2
/home1: clean, 380/7685440 files, 336081/7679070 blocks
[/sbin/fsck.ext3 (1) -- /arroyo] fsck.ext3 -a /dev/sda6
/arroyo1: clean, 1219/217808896 files, 8531636/217785164 blocks
[/sbin/fsck.ext3 (1) -- /arroyo/db] fsck.ext3 -a /dev/sda1
/arroyo/db: clean, 359/12812288 files, 470311/12799780 blocks
 [  OK  ]
Remounting root filesystem in read-write mode:  [  OK  ]
Mounting local filesystems:  [  OK ]
```

h. Reboot the server at the single mode prompt ‘sh-3.1’ by running the command:
sh-3.1# **shutdown -rF now**

Upgrade Procedure for CGW

1. Installing the new SAS driver

Note: if the server is running with CDS-TV 2.5.3 or later version, skip this step as the new SAS driver is already included in the 2.5.3 image.

1. Install the new SAS driver before shutting down the server and replacing the MegarRAID card.

2. To install the new SAS driver:

   - SSH as root to the device that is targeted for an upgrade.
   - Copy over the initrd.img installer (cdstv_CSCtw94200.bin) to /root on the server
   - Execute the installer as below to install the new initrd.img file with the new SAS driver.

```
# sh /root/cdstv_CSCtw94200.bin
running install.sh ...
Update of initrd required.
Backing up /boot/initrd-2.6.18-53.el5.cdstv.2.5.2.b222.img to /boot/initrd-2.6.18-53.el5.cdstv.2.5.2.b222.img_bkup..
Updating /boot/initrd-2.6.18-53.el5.cdstv.2.5.2.b222.img..
Update Successful !!!
```

2. Verifying the new initrd.img

1. After executing the command above, the original initrd.img file will be renamed with the prefix of “_bkup” in /boot directory and the new initrd.img file will be placed into /boot to replace the old one.

   For example, on a server running with 2.5.2 release image, the following two lines in /boot are expected after executing the installer:

```
-rw-r--r-- 1 root root 2544113 Jan 31 10:22 initrd-2.6.18-53.el5.cdstv.25x.r222.img
-rw-r--r-- 1 root root 2511703 Jan 31 10:20 initrd-2.6.18-53.el5.cdstv.25x.r222.img_bkup
```

Verify the size and MD5 checksum of initrd<XX>.img

For example, for initrd-2.6.18-53.el5.cdstv.2.5.2.b222.img for 2.5.2 above, size is is 2544113 bytes. And its MD5 checksum is 459d14e40b0967fa0db5ee1ee24270cf

```
# md5sum initrd-2.6.18-53.el5.cdstv.25x.r222.img
459d14e40b0967fa0db5ee1ee24270cf  initrd-2.6.18-53.el5.cdstv.25x.r222.img
```

3. Physically Replacing the MegaRAID controller

1. SSH as root to the device that is targeted for an upgrade. Stop database by issuing the following commands:
    a. as root, issue " db_shutdown"
    a. make sure avsdb process shuts down, " pgrep avsdb" and “netstat –an |grep 9999” should return nothing
2. Inspect the CGW chassis and ensure all connecting cables are labeled, if fibers are in use for streaming, ensure that TX/RX are marked by color or label. If any cables/fibers are missing label, use temporary label to show near end interface.
3. Power off the server, disconnect the power cords from the power supplies, remove the power supplies and disconnect all the cables on the rear panel.
4. Place the chassis on a workstation and remove the top cover.
5. Note: Make sure you have an ESD strap on and you are properly grounded before doing the following steps:
6. Unscrew the bracket of card at slots 3. Disconnect the SATA cables attached to the card which connect to the internally mounted drives.
7. Pull out card mentioned above.
8. The new MegaRAID controller comes with the following two parts (see Figure 24)
    a. The card itself (LSI MegaRAID 9261-8i)
    b. The BBU for the card
9. Before installing the new MegaRAID controller, make sure that the BBU is installed onto the card properly. Figure 24 (below) shows the new MegaRAID card with the BBU installed. If the BBU is not installed onto the card, but instead provided in the box, follow the instructions in Appendix B to install it.

Figure 24: New MegaRAID controller

10. Install the new MegaRAID controller card into slot 3 – ensuring it is fully seated into the PCIe slot.
11. Re-attach slot screw to firmly attach new SAS controller into slot 3, and check that all slots screws are tightened.
12. Replace the top cover and put the chassis back.
13. Replace the power supplies and reconnect all cables, make sure you verify labels after all cables and fiber/copper are connected to interface.

4. Importing the Logical Drive Configuration

After replacing the MegaRAID controller physically, the existing logical drive configuration on this server is no longer on the new MegaRAID controller but it still exists on the physical internal drives. So, we need to import the configuration from the internal drive to the new MegaRAID controller. This can be done when initializing the new MegaRAID controller during the first booting up after replacing the controller if prompted.

1. Power up the server. During the first time after replacing the MegaRAID controller, if the following messages" Memory/battery problems were detected" "The adapter has recovered, but cached data was lost" are seen as in the below figure, then press any key to continue. Other messages could be displayed on the local RGB monitor shown in Figure 25. The console will then pause waiting for operator input:

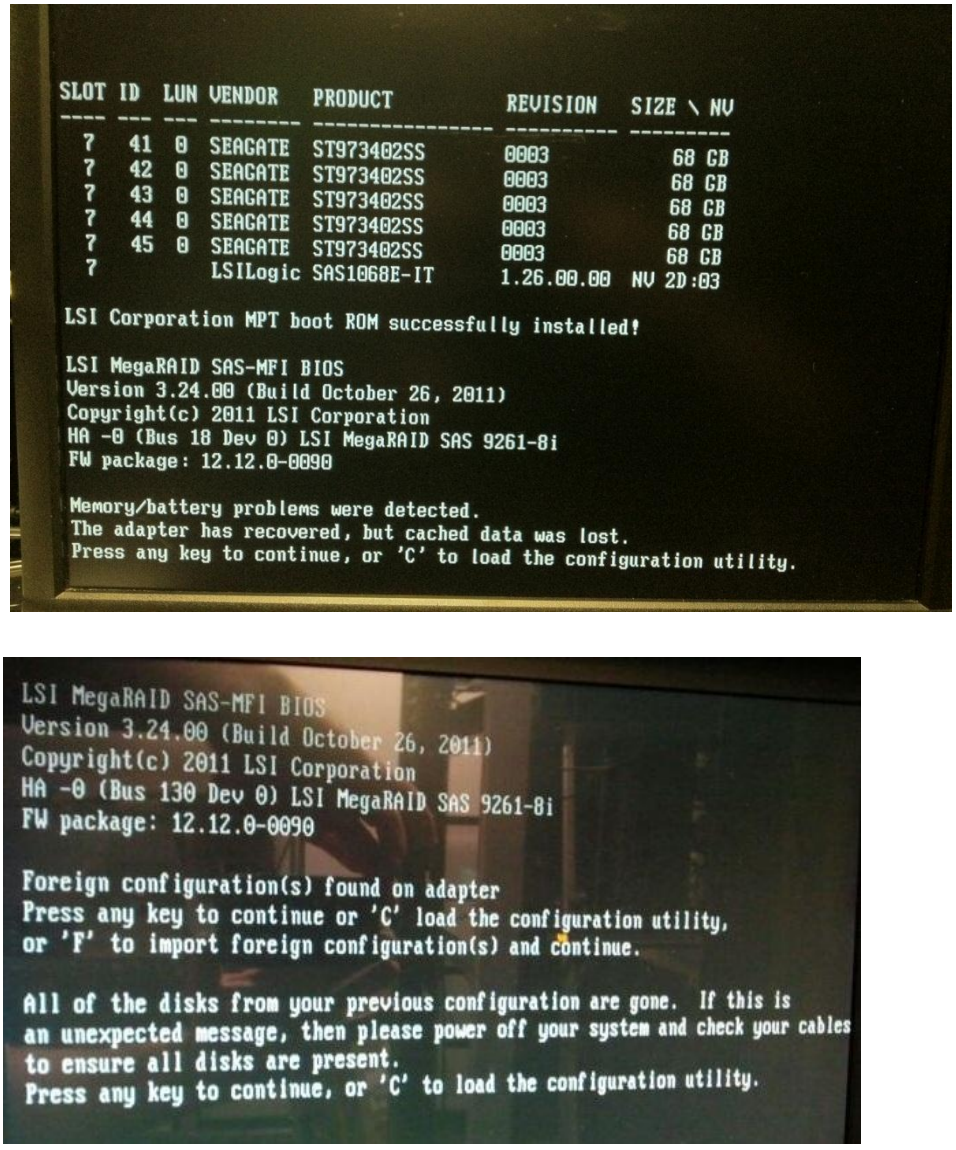


Figure 25: Messages displayed on the screen

Note: If the prompt to import the “Foreign configuration” was not seen as above, go to #10.

2. When these messages are shown up, type ‘F’ to import logical drive configuration from the internal physical drive to the new MegaRAID controller, and then continue.

3. After typing ‘F’, more messages will be shown. Please refer to Figure 26 below.

4. Press ‘C’ to load the configuration utility and verify the configuration. A few more messages are displayed.

5. Press ‘Y’ to continue loading the utility and wait to get into the MegaRAID WebBIOS Configuration Utility.

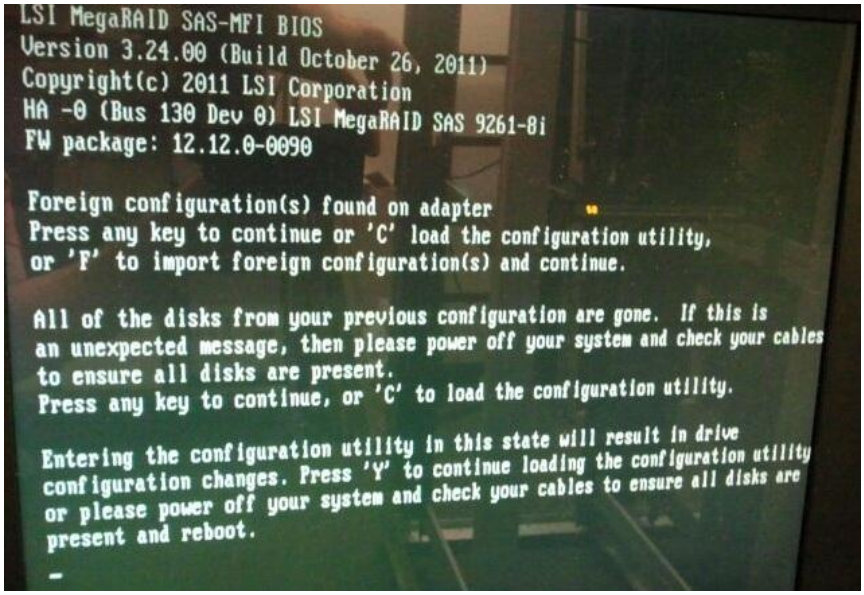


Figure 26: Messages displayed on the screen after typing 'F' and 'C'

6. After loading the WebBIOS configuration utility, the following screen will be displayed:

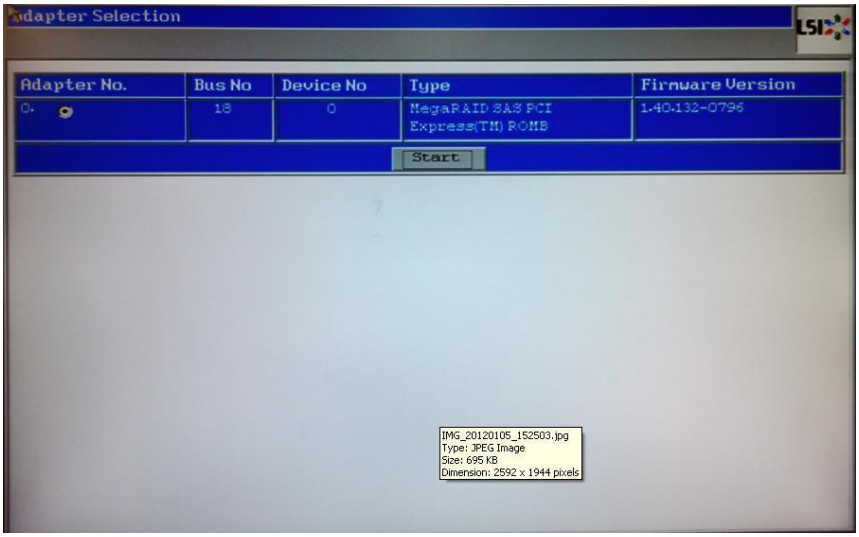


Figure 27: Getting into MegaRAID WebBIOS Configuration Utility

Note: If Foreign Configuration cannot be imported, please refer to Appendix D to clear the existing configuration on the MegaRAID SAS controller card, card have been previously used or tested and retains cache. If you see following screen (Figure 28) indicating offline Virtual drives, please refer to Appendix D:

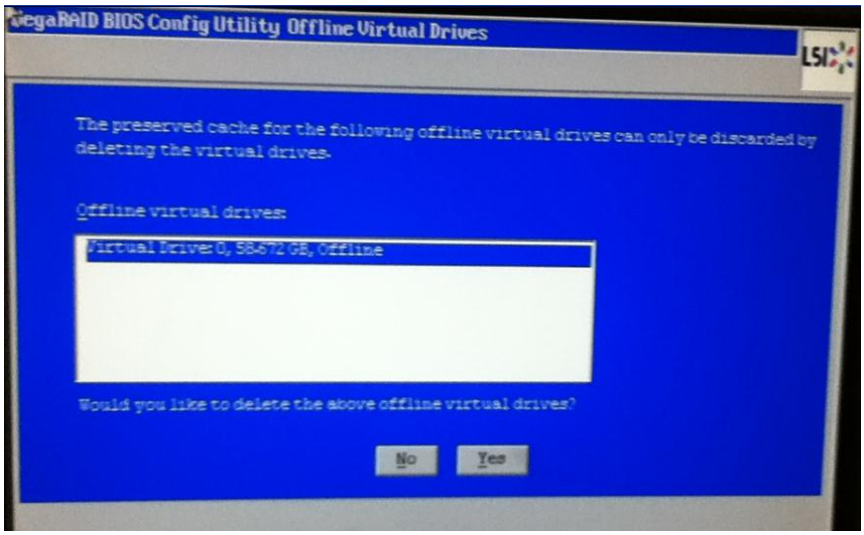


Figure 28: WebBIOS found existing offline Virtual Drives

7. Click on “Start” button to get the current controller configuration. In case you see the screen below “ **Foreign Configuration Found, Want to Import?**” Click on “**Preview**” to go to the next screen “ **Foreign Configuration As Imported. Click IMPORT to Import and merge this configuration**”. After that verify that you can see the logical drive (Virtual drive) and the two physical drives:

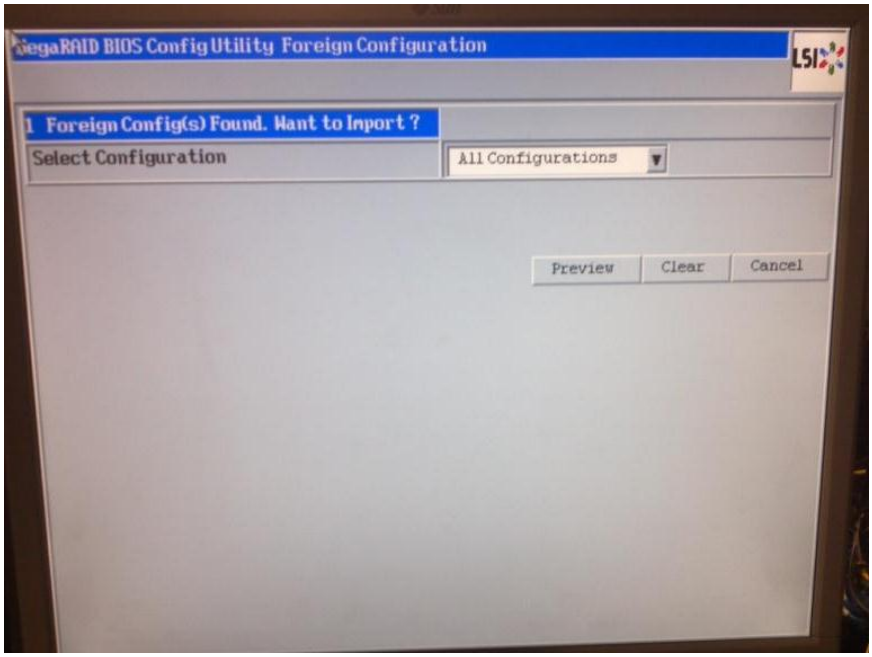


Figure 29: WebBIOS importing the Foreign Configuration

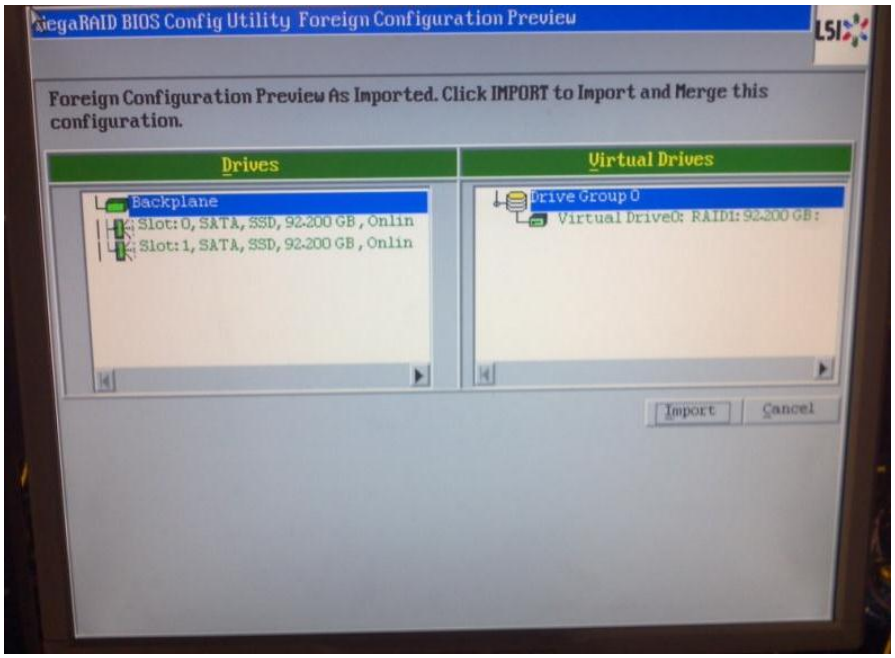


Figure 30: WebBIOS Foreign Configuration Preview

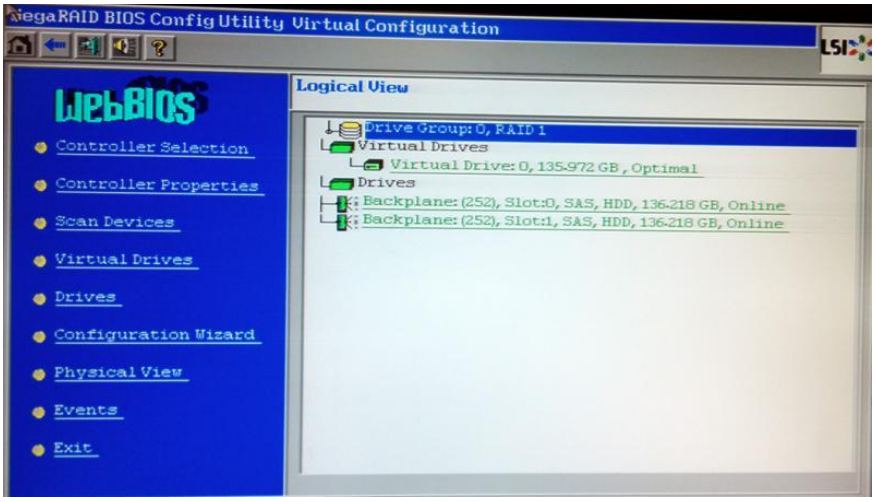


Figure 31: Correct Logical Drive Information

8. If the information in Figure 31 is not shown on your screen, the MegaRAID configuration may not be imported correctly. In this case, please Exit the utility without saving the configuration, then power cycle it to import the configuration again by repeating this step.

9. Select exit >yes >reboot the server by turning on and off the power button. Please see figure 32 below

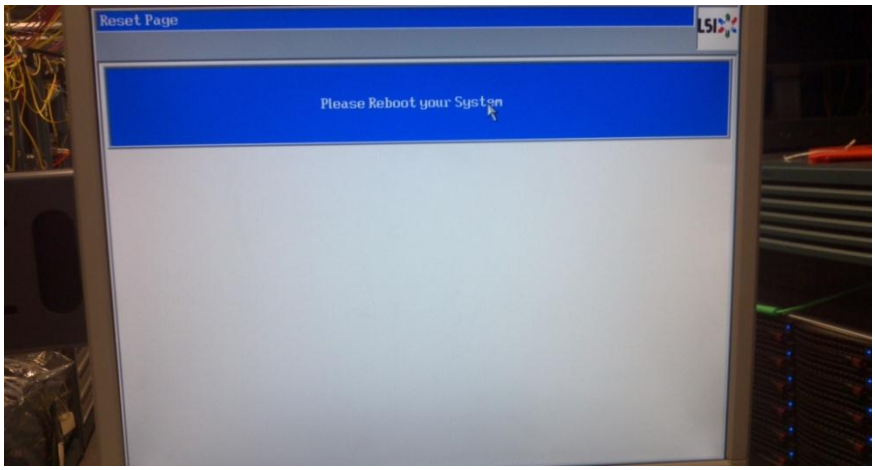


Figure 32: LSI Reboot prompt

10. If the information in Figure 31 is shown on the screen, the configuration is correctly imported. The server will boot up properly, then.

11. If the prompt to import the “Foreign configuration” was not seen, verify the configuration by loading the WebBIOS when prompted by entering “<CNTL>-H”. Follow the same procedure as mentioned after Figure 25 (Figure 25 through 30).

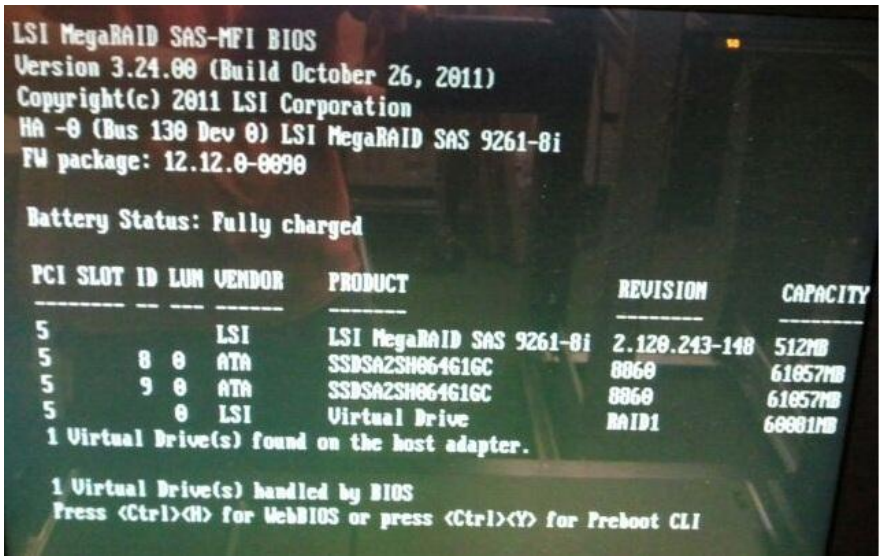


Figure 33: MegaRAID controller card correct initialization and Firmware

Post-Upgrade Procedure for CDE-420 CGW only:

1. Check for LED status on the interface ports

2. When the CGW starts it’s POST procedure, enter the system BIOS setup by pressing <DELETE> within the first 10 seconds and while the “enter BIOS” option is displayed on

the screen. When in the BIOS confirm the following elements below, save the BIOS settings and reboot.

Advanced -> Console Redirection:

- Console Type is set to **VT100, 8 bit**
- Baud rate is set to **9600**
- Flow Control is set to **XON/XOFF**

Default Values:

- Advanced -> Advanced Chipset Control -> SERR Signal Condition: is set to "**Uncorrectable"**
- Advanced -> Advance Chipset Control -> Max Payload Size: **128B**

3. After rebooting, check the firmware version of the SAS controller. This will appear after the BIOS and first LSI adapter POST screens.

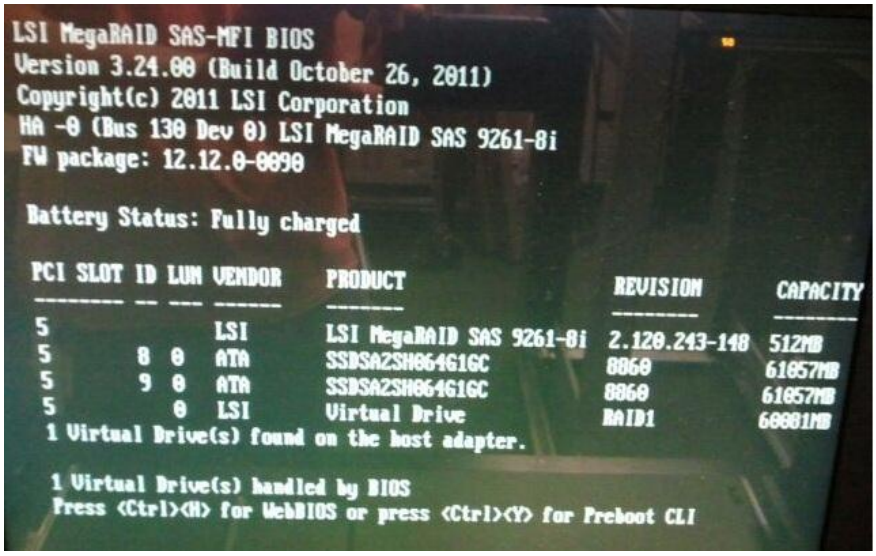


Figure 34: MegaRAID controller card correct initialization and Firmware

4. The "FW package:" string should be displayed as 12.12.0-0090. If it is not 12.12.0-0090, reboot the box and follow the BIOS upgrade procedure in Appendix A.

5. Perform a file system health check prior to the card replacement. This step is to be performed in single user mode.

   a. Bootup the server

   b. During bootup, when list of Linux versions appears on the screen, select CD TV Linux version and hit 'e' for edit.

   c. Hit 'e' again on 2nd line as shown below

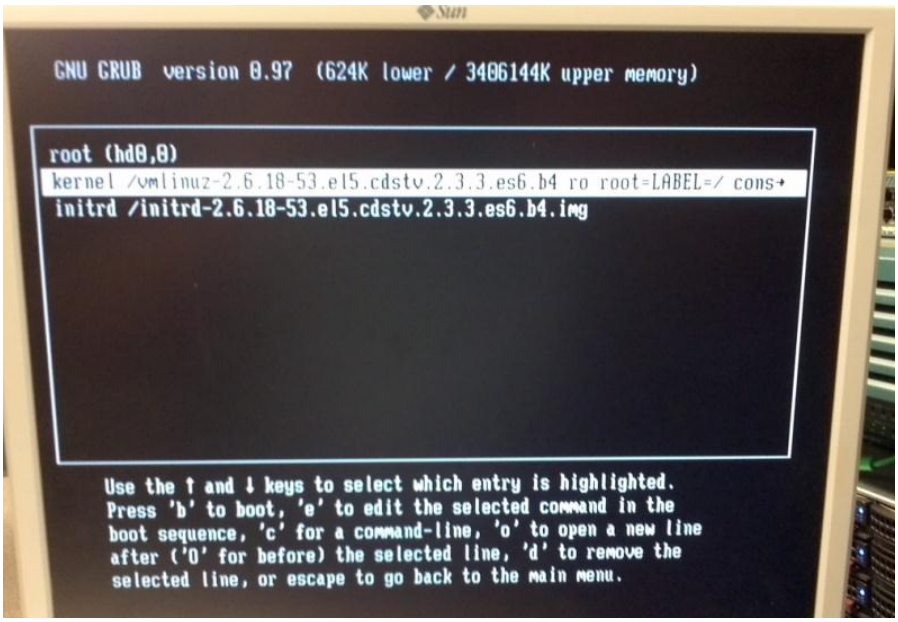


Figure 35: GRUB

d. At the end of that line backspace to ‘LABEL=/’ , hit spacebar and type in 'single'

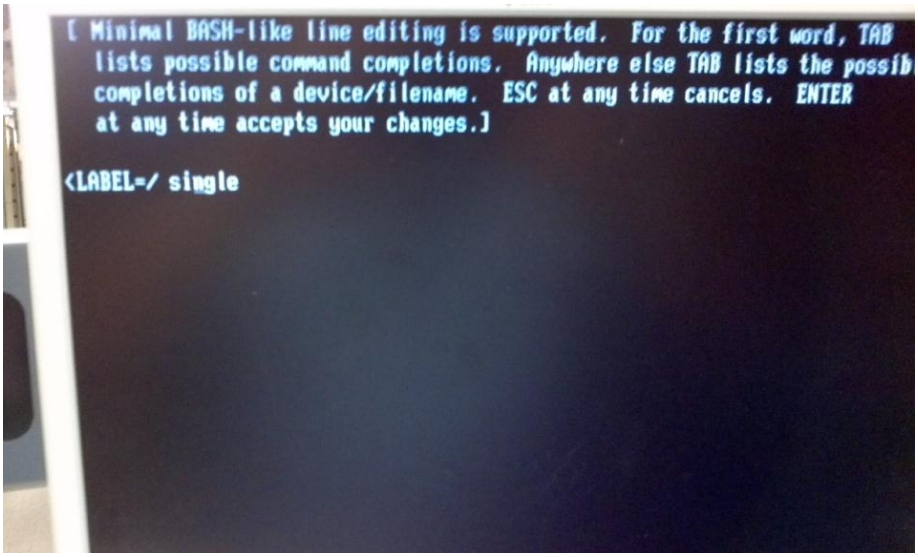


Figure 36: Bash

e. hit RETURN
f. Type in 'b' for boot
g. Wait for bootup to complete into single mode prompt where the system would perform a file system health check upon reboot. Note the ‘clean’ status for each partition.

```
boot up messages.
Checking filesystems
Checking all file systems.
[/sbin/fsck.ext3 (1) -- /] fsck.ext3 -a /dev/hda2
/1: ]clean, 23750/1937280 files, 346328/1935832 blocks
[/sbin/fsck.ext3 (1) -- /var] fsck.ext3 -a /dev/sda3
```

```
[/sbin/fsck.ext3 (2) -- /boot] fsck.ext3 -a /dev/hda1
/boot: clean, 52/64256 files, 45271/257008 blocks
/var1: clean, 182/2560864 files, 122093/2560359 blocks
[/sbin/fsck.ext3 (1) -- /home] fsck.ext3 -a /dev/sda2
/home1: clean, 380/7685440 files, 336081/7679070 blocks
[/sbin/fsck.ext3 (1) -- /arroyo] fsck.ext3 -a /dev/sda6
/arroyo1: clean, 1219/217808896 files, 8531636/217785164 blocks
[/sbin/fsck.ext3 (1) -- /arroyo/db] fsck.ext3 -a /dev/sda1
/arroyo/db: clean, 359/12812288 files, 470311/12799780 blocks
 [  OK  ]
Remounting root filesystem in read-write mode:  [  OK  ]
Mounting local filesystems:  [  OK ]
```

h. Reboot the server at the single mode prompt 'sh-3.1' by running the command:
sh-3.1# **shutdown -rF now**

6. After the file system check is complete and clean, reboot and verify that the Streamer shows up Green in the CDSM/VVIM and remove the offload status at the following menu:

Maintain/Server/Server Offload Online/Disable

7. On site engineer login using username "root", password "rootroot". Use " /home/stats/ifstats" command to see if there are any errors
Example:

```
 ifstat: Thu Oct 28 05:33:01 2010
============================================================
Int    R-Mbps    X-Mbps    R-Bytes       X-Bytes
eth0:    0.58    0.39    1088543703    862586838
eth1:    0.00    0.00    20100765118    396150330
eth2:    22.36    178.26    76769268012    302026793912
eth3:    0.00    173.48    4814784    303403606668
eth4:    21.66    172.64    76761475384    302042111800
eth5:    22.29    178.29    76747790924    302079733868
eth6:    0.00    179.09    4821376    302082805164
eth7:    22.42    179.00    76777223880    302028469464
eth8:    21.59    173.11    76767383634    302081217352
eth9:    22.37    178.85    76766286360    302091012368
```

8. Check protocoltiming logs for transmission errors

9. Proceed to Step 1 to start the next Caching Gateway.

Detailed Procedure for Persistent Stores

Pre-Upgrade Procedure for Content Libraries

1. Start first with the non-master Persistent Stores in the cluster.

2. Make sure there are no active ingests before upgrading This can be done by offloading the device in the manager prior to the upgrade,

3. Perform a file system health check prior to the card replacement. This step is to be performed in single user mode.

    a. Bootup the server

    b. Druing bootup, when list of Linux versions appears on the screen, select CDS TV Linux version and hit 'e' for edit.

    c. Hit 'e' again on 2nd line as shown below

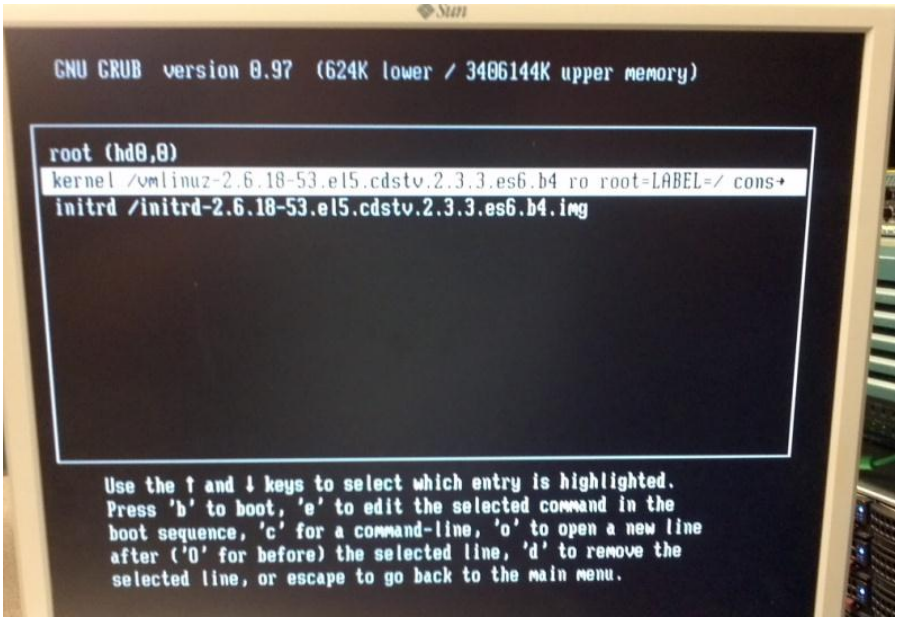


Figure 37: GRUB

    d. At the end of that line backspace to ‘LABEL=/’ , hit spacebar and type in 'single'

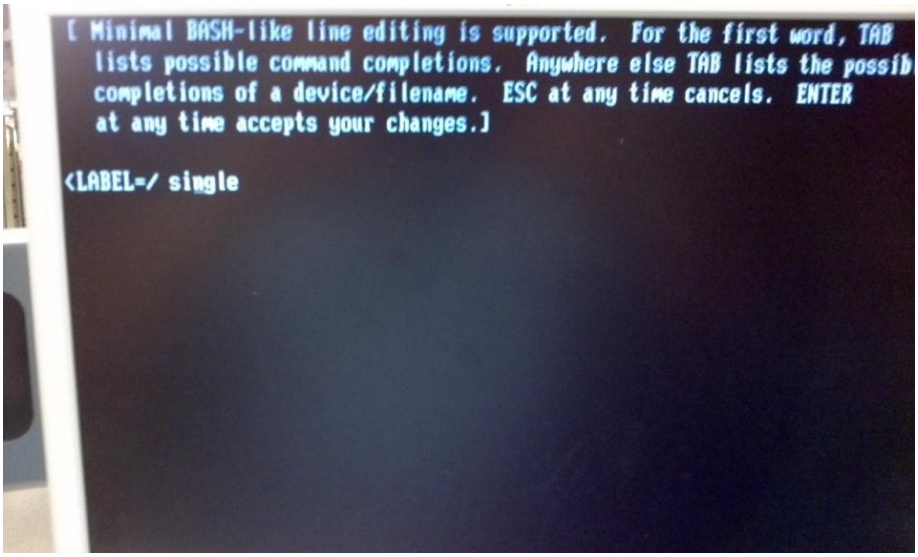


Figure 38: Bash

    e. hit RETURN

f. Type in 'b' for boot

g. Wait for bootup to complete into single mode prompt where the system would perform a file system health check upon reboot. Note the 'clean' status for each partition.

```
boot up messages.
Checking filesystems
Checking all file systems.
[/sbin/fsck.ext3 (1) -- /] fsck.ext3 -a /dev/hda2
/1: ]clean, 23750/1937280 files, 346328/1935832 blocks
[/sbin/fsck.ext3 (1) -- /var] fsck.ext3 -a /dev/sda3
[/sbin/fsck.ext3 (2) -- /boot] fsck.ext3 -a /dev/hda1
/boot: clean, 52/64256 files, 45271/257008 blocks
/var1: clean, 182/2560864 files, 122093/2560359 blocks
[/sbin/fsck.ext3 (1) -- /home] fsck.ext3 -a /dev/sda2
/home1: clean, 380/7685440 files, 336081/7679070 blocks
[/sbin/fsck.ext3 (1) -- /arroyo] fsck.ext3 -a /dev/sda6
/arroyo1: clean, 1219/217808896 files, 8531636/217785164 blocks
[/sbin/fsck.ext3 (1) -- /arroyo/db] fsck.ext3 -a /dev/sda1
/arroyo/db: clean, 359/12812288 files, 470311/12799780 blocks
 [  OK  ]
Remounting root filesystem in read-write mode:  [  OK  ]
Mounting local filesystems:  [  OK ]
```

h. Reboot the server at the single mode prompt 'sh-3.1' by running the command:

```
sh-3.1# shutdown -rF now
```

Upgrade Procedure for Content Libraries:

1. Installing the new SAS driver

Note: if the server is running with CDS-TV 2.5.3 or later version, skip this step as the new SAS driver is already included in the 2.5.3 image.

1. Install the new SAS driver before shutting down the server and replacing the MegarRAID card.

2. To install the new SAS driver:
   - SSH as root to the device that is targeted for an upgrade.
   - Copy over the initrd.img installer (cdstv_CSCtw94200.bin) to /root on the server
   - Execute the installer as below to install the new initrd.img file with the new SAS driver.

```
# sh /root/cdstv_CSCtw94200.bin
running install.sh ...
Update of initrd required.
Backing up /boot/initrd-2.6.18-53.el5.cdstv.2.5.2.b222.img to /boot/initrd-2.6.18-53.el5.cdstv.2.5.2.b222.img_bkup..
Updating /boot/initrd-2.6.18-53.el5.cdstv.2.5.2.b222.img.
Update Successful !!!
```

2. Verifying the new initrd.img

1. After executing the command above, the original initrd.img file will be renamed with the prefix of "_bkup" in /boot directory and the new initrd.img file will be placed into /boot to replace the old one.

   For example, on a server running with 2.5.2 release image, the following two lines in /boot are expected after executing the installer:

   ```
   -rw-r--r-- 1 root root 2544113 Jan 31 10:22 initrd-2.6.18-53.el5.cdstv.25x.r222.img
   -rw-r--r-- 1 root root 2511703 Jan 31 10:20 initrd-2.6.18-53.el5.cdstv.25x.r222.img_bkup
   ```

2. Verify the size and MD5 checksum of initrd<XX>.img

   For example, for initrd-2.6.18-53.el5.cdstv.2.5.2.b222.img for 2.5.2 above, size is is 2544113 bytes. And its MD5 checksum is 459d14e40b0967fa0db5ee1ee24270cf

   ```
   # md5sum initrd-2.6.18-53.el5.cdstv.25x.r222.img
   459d14e40b0967fa0db5ee1ee24270cf  initrd-2.6.18-53.el5.cdstv.25x.r222.img
   ```

3. Physically Replacing the MegaRAID controller

1. SSH as root to the device that is targeted for an upgrade. Stop database by issuing the following commands:
   a. as root, issue " db_shutdown"
   b. make sure avsdb process shuts down, " pgrep avsdb" and "netstat –an |grep 9999" should return nothing
2. Inspect the Persistent Store chassis and ensure all connecting cables are labeled, if fibers are in use for streaming, ensure that TX/RX are marked by color or label. If any cables/fibers are missing label, use temporary label to show near end interface.
3. Power off the server, disconnect the power cords from the power supplies, remove the power supplies and disconnect all the cables on the rear panel.
4. Place the chassis on a workstation and remove the top cover.
5. Note: Make sure you have an ESD strap on and you are properly grounded before doing the following steps:
6. Unscrew the bracket of card at slots 3. Disconnect the SATA cables attached to the card which connect to the internally mounted drives.
7. Pull out card mentioned above.
8. The new MegaRAID controller comes with the following two parts (see Figure 39)
   i. The card itself (LSI MegaRAID 9261-8i)
   j. The BBU for the card
9. Before installing the new MegaRAID controller, make sure that the BBU is installed onto the card properly. Figure 39 (below) shows the new MegaRAID card with the BBU installed. If the BBU is not installed onto the card, but instead provided in the box, follow the instructions in Appendix B to install it.

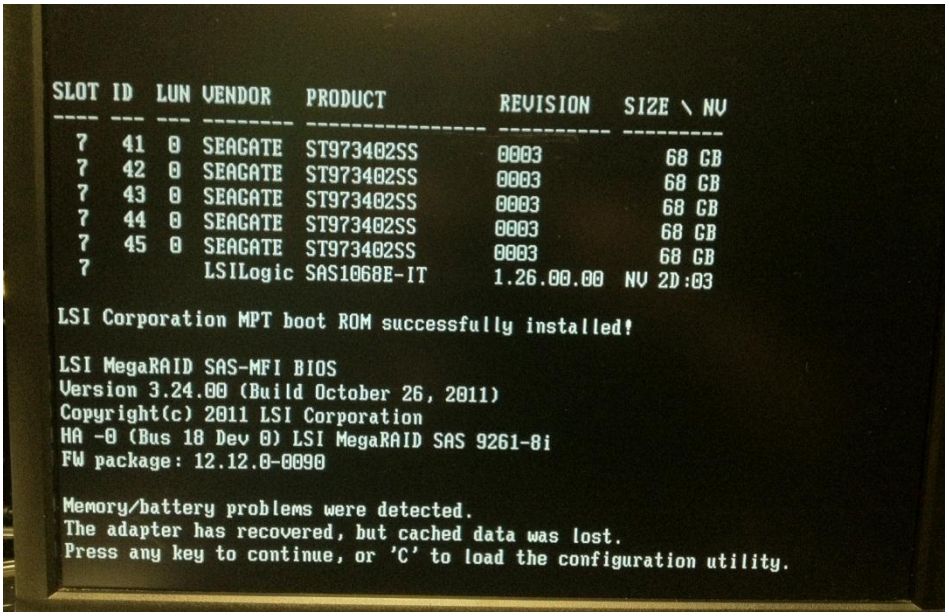
Figure 39: New MegaRAID controller

10. Install the new MegaRAID controller card into slot 3 – ensuring it is fully seated into the PCIe slot;
11. Re-attach slot screw to firmly attach new SAS controller into slot 3, and check that all slots screws are tightened.
12. Replace the top cover and put the chassis back.
13. Replace the power supplies and reconnect all cables, make sure you verify labels after all cables and fiber/copper are connected to interface.

4. Importing the Logical Drive Configuration

After replacing the MegaRAID controller physically, the existing logical drive configuration on this server is no longer on the new MegaRAID controller but it still exists on the physical internal drives. So, we need to import the configuration from the internal drive to the new MegaRAID controller. This can be done when initializing the new MegaRAID controller during the first booting up after replacing the controller if prompted.

1. Power up the server. During the first time after replacing the MegaRAID controller, if the following messages ” Memory/battery problems were detected” and “The adapter has recovered, but cached data was lost” are seen as in the below figure, then press any key to continue. Other messages could be displayed on the local RGB monitor shown in Figure 40. The console will then pause waiting for operator input:



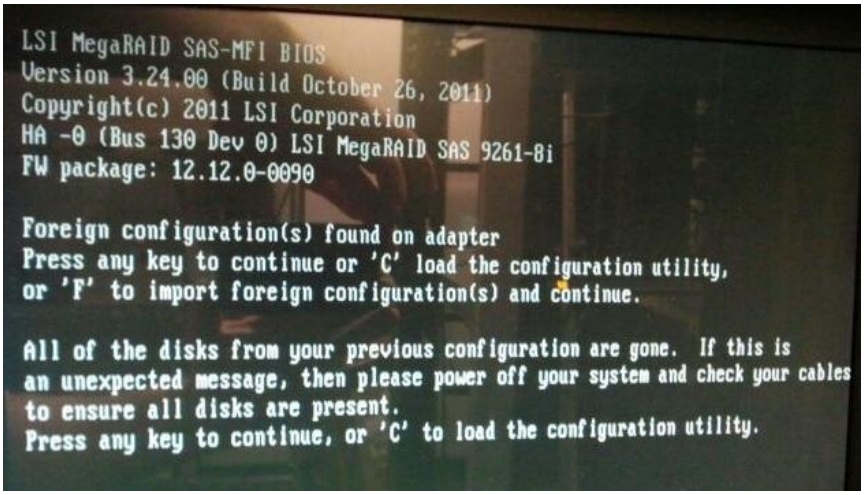


Figure 40: Messages displayed on the screen

Note: If the prompt to import the “Foreign configuration” was not seen as above, go to #10.

2. When these messages are shown up, type ‘F’ to import logical drive configuration from the internal physical drive to the new MegaRAID controller, and then continue.

3. After typing ‘F’, more messages will be shown. Please refer to Figure 41 below.

4. Press ‘C’ to load the configuration utility and verify the configuration. A few more messages are displayed.

5. Press ‘Y’ to continue loading the utility and wait to get into the MegaRAID WebBIOS Configuration Utility.

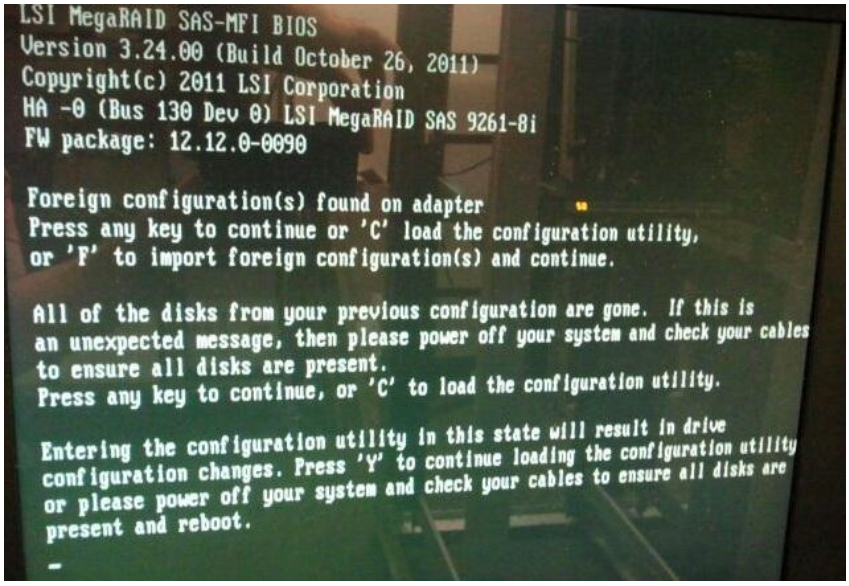


Figure 41: Messages displayed on the screen after typing 'F' and 'C'

6. After loading the WebBIOS configuration utility, the following screen will be displayed:

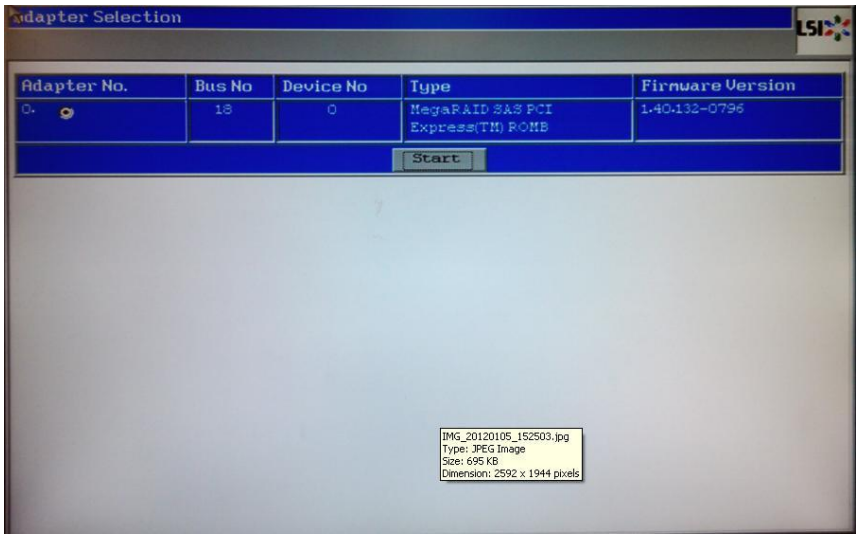


Figure 42: Getting into MegaRAID WebBIOS Configuration Utility

Note: If Foreign Configuration cannot be imported, please refer to Appendix D to clear the existing configuration on the MegaRAID SAS controller card, card have been previously used or tested and retains cache. If you see following screen indicating offline Virtual drives (Figure 43), please refer to Appendix D:

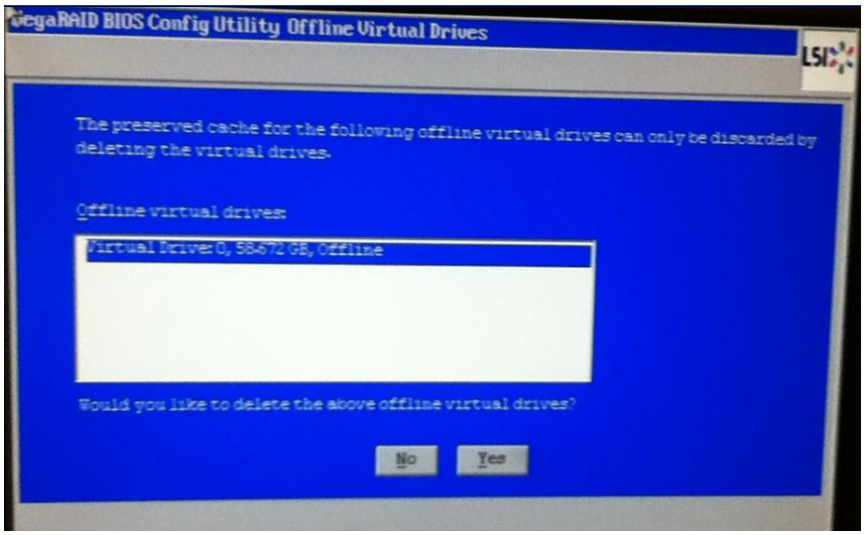


Figure 43: WebBIOS found existing offline Virtual Drives

7. Click on “Start” button to get the current controller configuration. In case you see the screen below “ **Foreign Configuration Found, Want to Import?**” Click on “**Preview**” to go to the next screen “ **Foreign Configuration As Imported. Click IMPORT to Import and merge this configuration**”. After that verify that you can see the logical drive (Virtual drive) and the two physical drives:

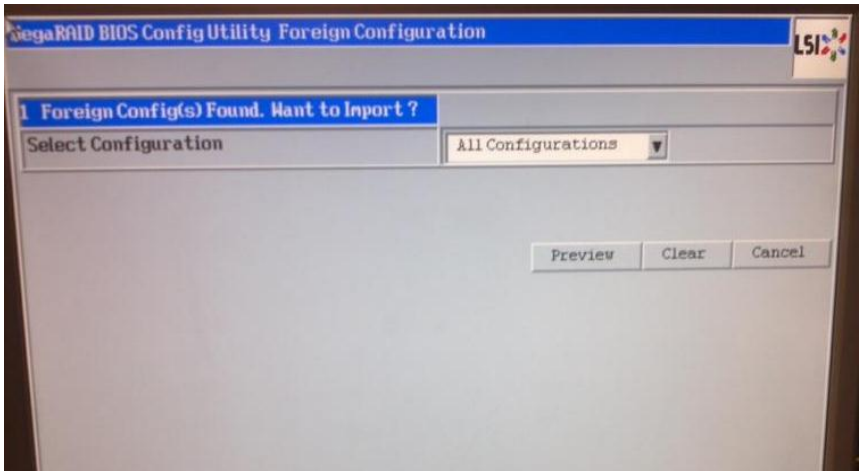


Figure 44: WebBIOS Import Foreign Configuration

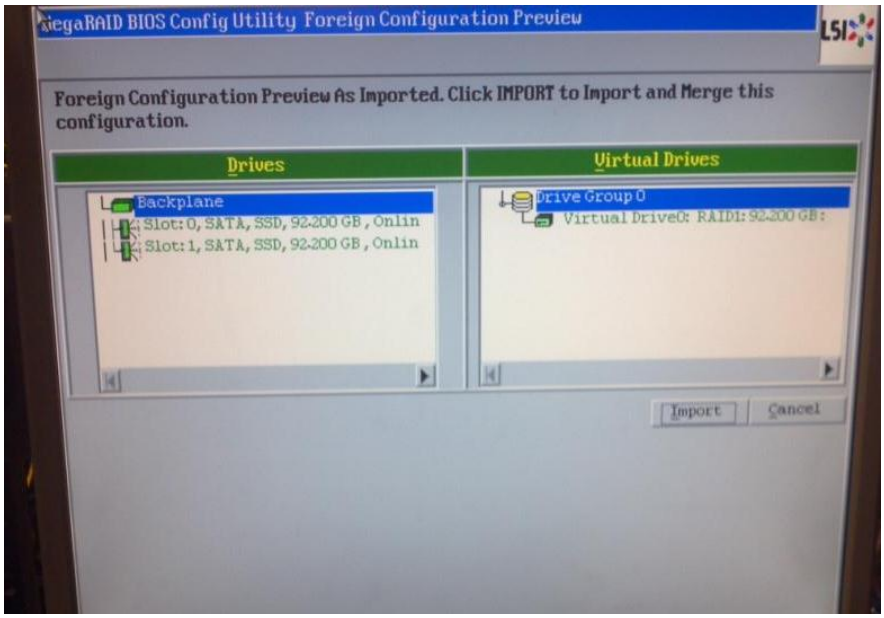


Figure 45: Foreign Configuration Preview

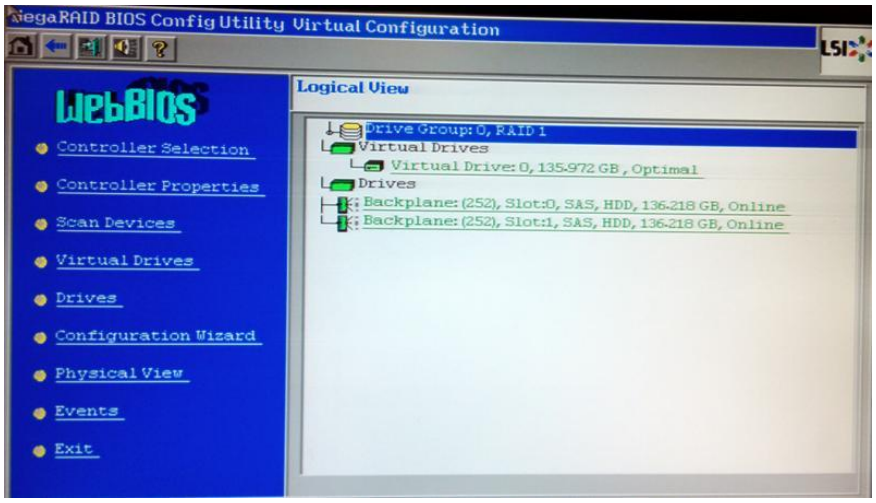


Figure 46: Correct Logical Drive Information

8. If the information in Figure 46 is not shown on your screen, the MegaRAID configuration may not be imported correctly. In this case, please Exit the utility without saving the configuration, then power cycle it to import the configuration again by repeating this step.

9. If the information in Figure 46 is shown on the screen, the configuration is correctly imported.

10. Select exit >yes >reboot the server by turning on and off the power button. Please see Figure 47 below

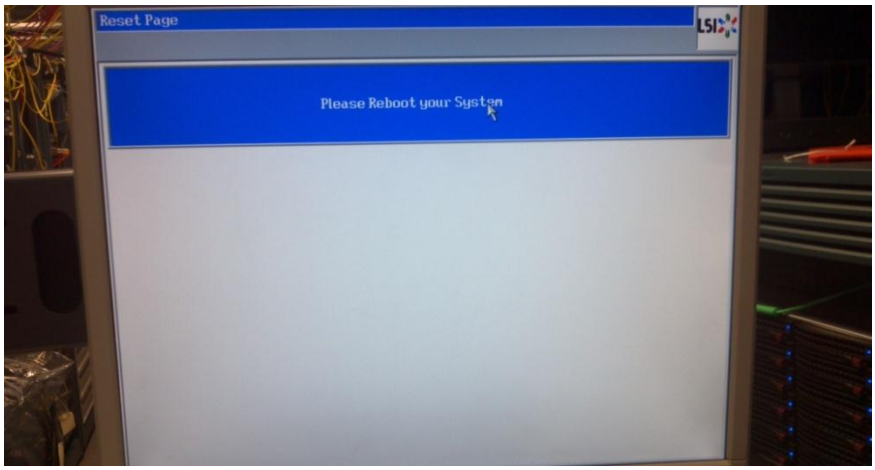


Figure 47: LSI Reboot prompt

11. If the prompt to import the “Foreign configuration” was not seen, verify the configuration by loading the WebBIOS when prompted by entering “<CNTL>-H”. Follow the same procedure as mentioned after Figure 42 (Figure 42 through 47).

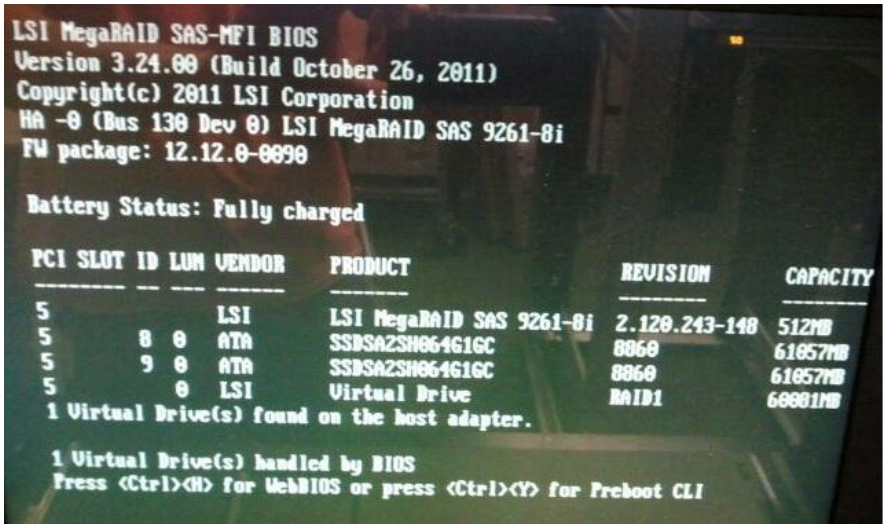


Figure 48: MegaRAID controller card correct initialization and Firmware

Post-Upgrade Procedure for Persistent Stores:

1. Check for LED status on the interface ports

2. When the Library starts it’s POST procedure, enter the system BIOS setup by pressing <DELETE> within the first 10 seconds and while the “enter BIOS” option is displayed on the screen. When in the BIOS confirm the following elements below, save the BIOS settings and reboot.

   Advanced -> Console Redirection:
   - Console Type is set to **VT100**

- Baud rate is set to **9600**
- Flow Control is set to **XON/XOFF**

Default Values:

- Advanced -> Advanced Chipset Control -> SERR Signal Condition: is set to "**Uncorrectable"**
- Advanced -> Advance Chipset Control -> Max Payload Size: **128B**

3. After rebooting, check the firmware version of the SAS controller. This will appear after the BIOS and first LSI adapter POST screens.

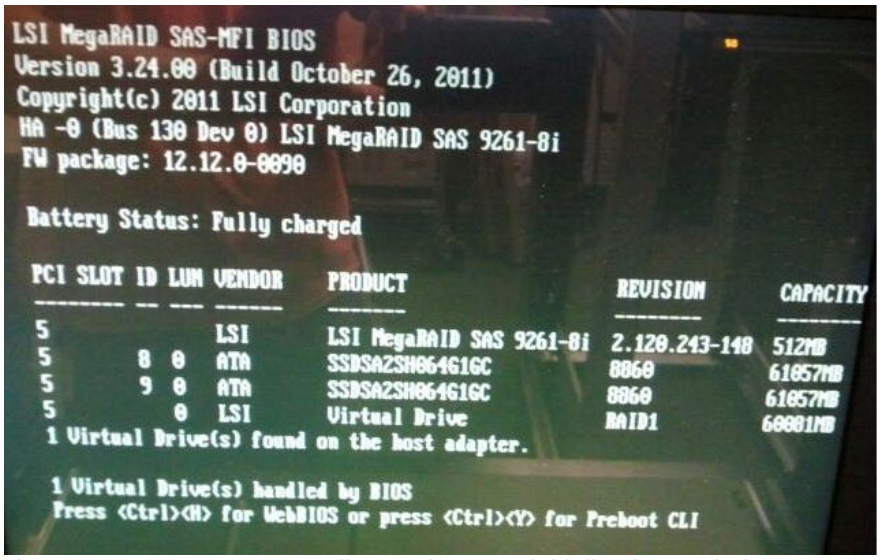


Figure 49: MegaRAID controller card correct initialization and Firmware

4. The "FW package:" string should be displayed as 12.12.0-0090. If it is not 12.12.0-0090, reboot the box and follow the BIOS upgrade procedure in Appendix A.

5. Perform a file system health check prior to the card replacement. This step is to be performed in single user mode.

   a. Bootup the server

   b. During bootup, when list of Linux versions appears on the screen, select CDS TV Linux version and hit 'e' for edit.

   c. Hit 'e' again on 2nd line as shown below

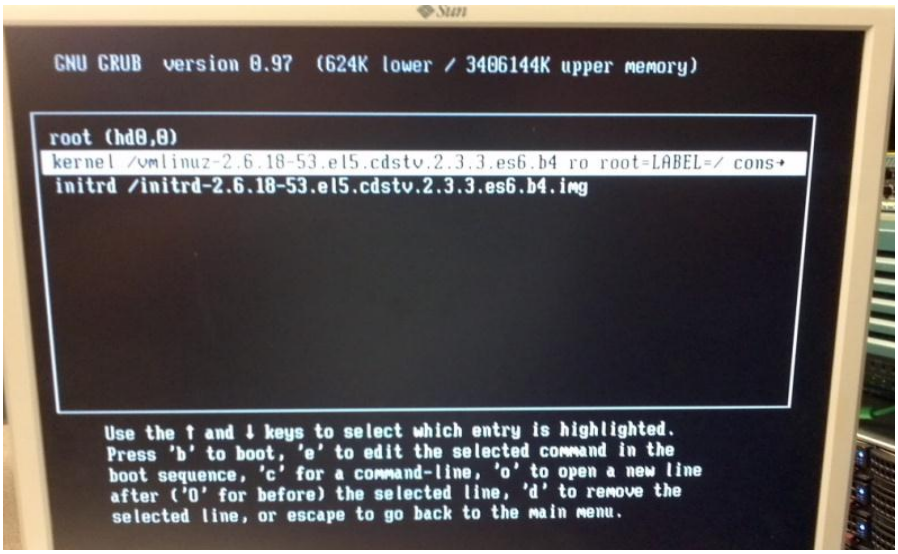


Figure 50: GRUB

d. At the end of that line backspace to ‘LABEL=/’ , hit spacebar and type in 'single'

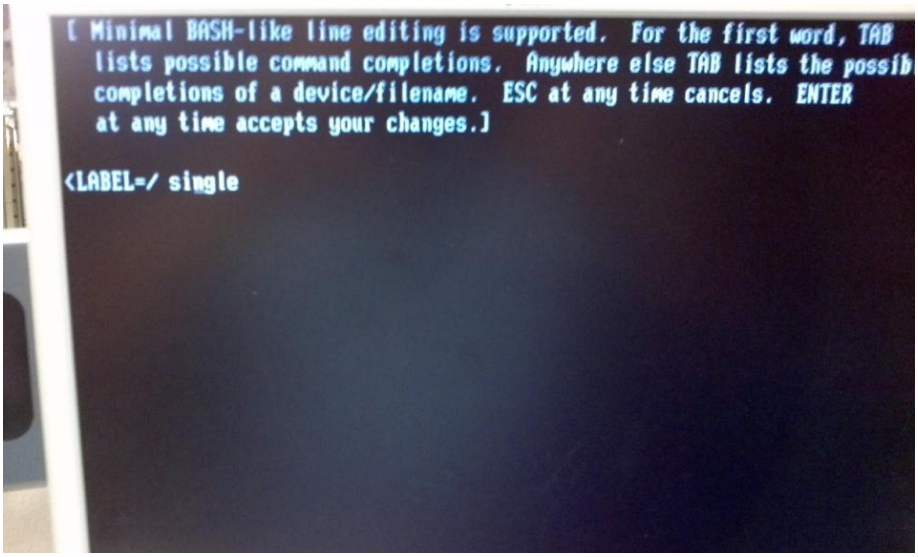


Figure 51: Bash

e. hit RETURN

f. Type in 'b' for boot

g. Wait for bootup to complete into single mode prompt where the system would perform a file system health check upon reboot. Note the ‘clean’ status for each partition

```
boot up messages.
Checking filesystems
Checking all file systems.
[/sbin/fsck.ext3 (1) -- /] fsck.ext3 -a /dev/hda2
/1: ]clean, 23750/1937280 files, 346328/1935832 blocks
```

```
[/sbin/fsck.ext3 (1) -- /var] fsck.ext3 -a /dev/sda3
[/sbin/fsck.ext3 (2) -- /boot] fsck.ext3 -a /dev/hda1
/boot: clean, 52/64256 files, 45271/257008 blocks
/var1: clean, 182/2560864 files, 122093/2560359 blocks
[/sbin/fsck.ext3 (1) -- /home] fsck.ext3 -a /dev/sda2
/home1: clean, 380/7685440 files, 336081/7679070 blocks
[/sbin/fsck.ext3 (1) -- /arroyo] fsck.ext3 -a /dev/sda6
/arroyo1: clean, 1219/217808896 files, 8531636/217785164 blocks
[/sbin/fsck.ext3 (1) -- /arroyo/db] fsck.ext3 -a /dev/sda1
/arroyo/db: clean, 359/12812288 files, 470311/12799780 blocks
 [  OK  ]
Remounting root filesystem in read-write mode:  [  OK  ]
Mounting local filesystems:  [  OK ]
```

h. Reboot the server at the single mode prompt 'sh-3.1' by running the command:

```
sh-3.1# shutdown -rF now
```

6. After the file system check is complete and clean, reboot and verify that the persistent store shows up Green in the VVIM and remove the offload status:

   Maintain/Server/Server Offload Online/Disable

7. On site engineer login using username "root", password "rootroot". Use " /home/stats/ifstats" command to see if there are any errors

   Example

```
ifstat: Thu Oct 28 05:33:01 2010
============================================================
Int    R-Mbps    X-Mbps    R-Bytes       X-Bytes
eth0:    0.58    0.39    1088543703    862586838
eth1:    0.00    0.00    20100765118    396150330
eth2:    22.36    178.26    76769268012    302026793912
eth3:    0.00    173.48    4814784    303403606668
eth4:    21.66    172.64    76761475384    302042111800
eth5:    22.29    178.29    76747790924    302079733868
eth6:    0.00    179.09    4821376    302082805164
eth7:    22.42    179.00    76777223880    302028469464
eth8:    21.59    173.11    76767383634    302081217352
eth9:    22.37    178.85    76766286360    302091012368
```

8. Check protocoltiming logs for transmission errors

9. Proceed to the next Content Library.

Replacing the Old SAS card:

The basic steps to replace back the Old SAS card:

1. Offload the server
2. Stop database
3. Power off the server, remove the Power cords and remove the Power supplies
4. Open the server chassis and replace back the old MegaRAID card
5. Boot up the server

6. Import the Logical Drive Configuration (for details, see section 4 of the new MegaRAID replacement MOP)
7. Press ‘X’, to continue and press ‘Y’ following the figure 51 below:

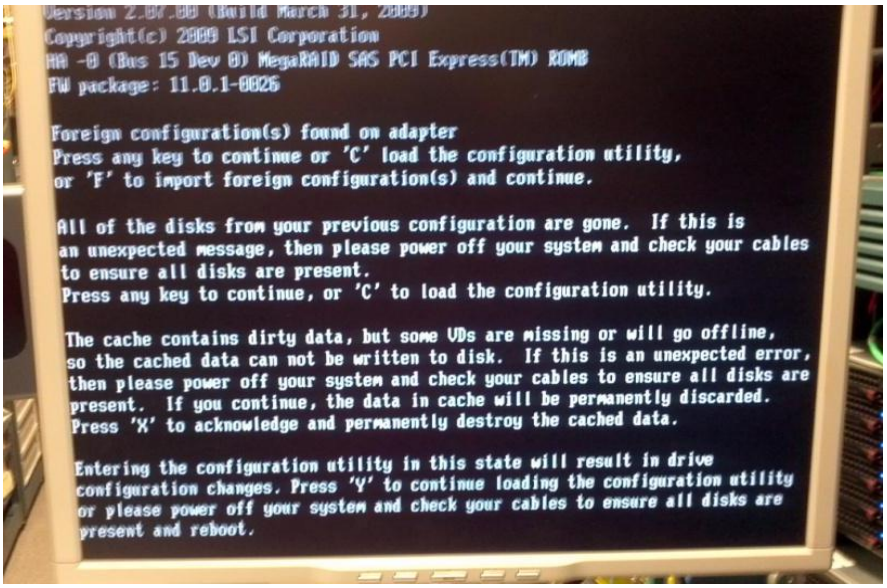


Figure 51: Prompt to enter the WebBIOS configuration Utility

8. Reboot the server to normal state

Appendix A

Procedure for Upgrading firmware revision for the new MegaRaid controller

1. If the new MegaRAID controller FW package is not 12.12.0-0090:
   - Download the FW package "10M09 P24" and MegaCli for DOS at: http://www.lsi.com/Search/Pages/results.aspx?k=12.12.0-0090
   - Once you navigated to this page:
     - Click on 12.12.0-0090_SAS_2108_FW_Image_APP-2.120.243-1482.txt to download and save
     - Click on the "10M09 P24" link to download the "12.12.0-0090_SAS_2108_FW_Image_APP-2.120.243-1482.zip" file
     - Click on http://www.lsi.com/Search/Pages/results.aspx?k=MegaCli.zip and download the MegaCLI - All OS - 5.0 - 11M06 zip file
2. Extract the files from the downloaded "12.12.0-0090_SAS_2108_FW_Image_APP-2.120.243-1482.zip" file and the MegaCli.zip file. Copy the mr2108fw.rom and MegaCli.exe files to a DOS bootable UBS key
3. Insert the USB key to a USB port on the rear panel of the chassis.
4. Power cycle the server. The server will be booted into DOS.
5. At the DOS prompt, type the following command to upgrade the firmware:

   C: >Megacli –adpfwflash –f mr2108fw.rom –a0

Note: If the Megacli.exe utility reports that it cannot load because no extended memory is available, verify that the "device=emm386.exe" line is commented out of the config.sys file on the DOS bootable USB key.

The following Figure 1A shows the process of executing the command:

Figure 1A: Upgrade the firmware for the new controller

6. After the upgrade is done successfully, remove the USB key and power cycle the server again to boot it up normally.

7. During booting up, check the firmware package version by looking at the following message to verify the new firmware installed properly.

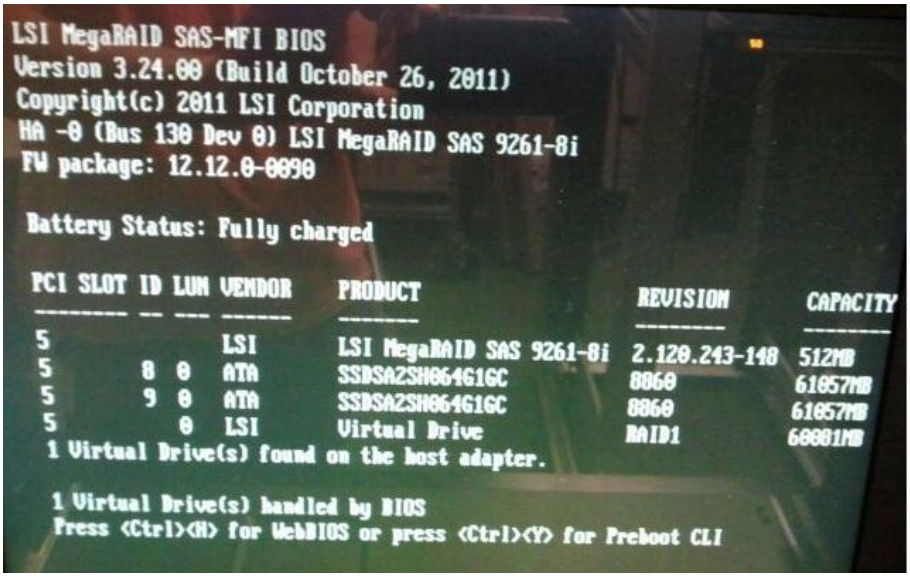


Figure 2A: Initializing the MegaRAID controller after Firmware upgraded

8. The FW package version can also be verified by using one the of the following commands depending on which tools are currently installed on the system:

```
# /opt/MegaRAID/CmdTool2/CmdTool2  -AdpAllInfo -a0
# /opt/MegaRAID/MegaCli/MegaCli64 –AdpAllInfo –a0
```

Appendix B

Procedure to install/ replace the BBU on the Controller Card

1. Unscrew the 3 screws on the rear of the card identified in the below picture.

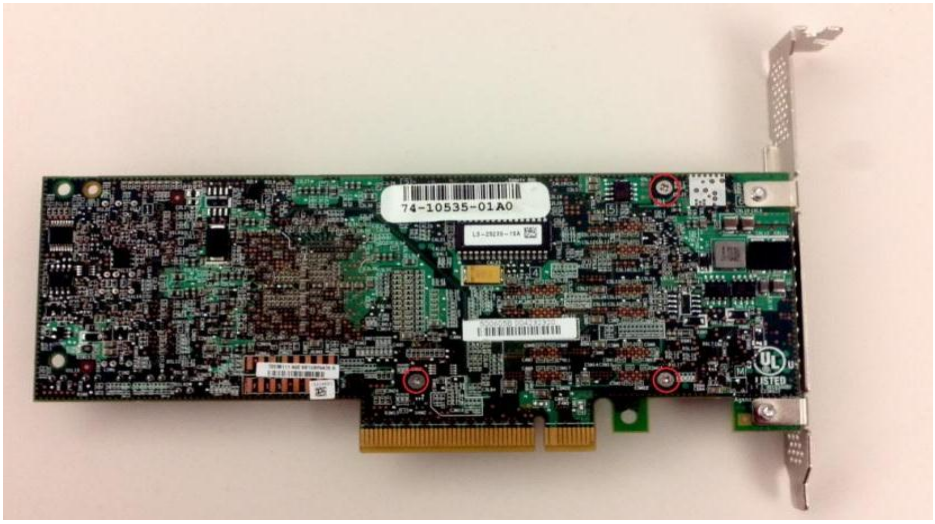


Figure 1B: MegaRAID 9261-8i

2. If the BBU needs replacement, remove the BBU from the card by disconnecting the BBU from the controller connector per below picture

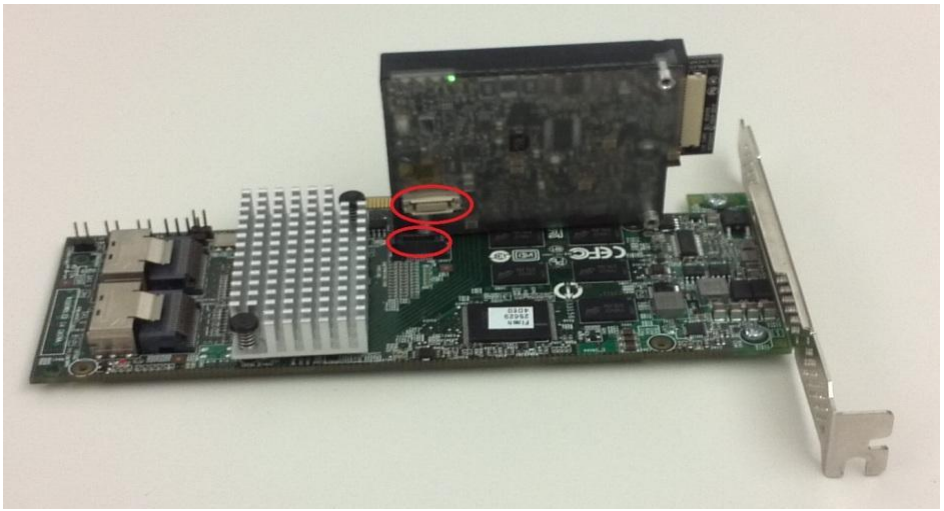


Figure 2B: MegaRAID 9261-8i and BBU

NOTE: On the CDE420 Chassis (Cache Node and Content Library) it is necessary to install the Full-Height PCI bracket that shipped with the controller card. Follow steps 3 and 4 below before installing the controller into the chassis

3. Remove the two PCI bracket screws from the card and remove the Low Profile PCI bracket

4. Replace the Low Profile PCI bracket with the Full Height PCI bracket and reattach two screws removed in step 5-c above
5. Re-install the BBU by connecting the BBU to the controller connector and re-attaching the 3 screws to the rear of the card which were removed in step 1 above

Appendix C

Network Interface diagrams and NIC numbering

Overview

This document will provide detailed chassis layout and interface numbering for the Ethernet controllers in the CCDN hardware servers. Due to a recent SAS controller field replacement, the previous Ethernet controller slots may have changed from earlier documentation. This document will supersede earlier Cisco CDE server documentation.

CDN Affected Hardware:

- CDE-420-4A-C: Content Libraries
- CDE-420-4G-C: Caching Gateways
- CDE-420-4G-F: Caching Gateways
- CDE250-2G3 Caching Gateway
- CDE-220-2C2-C: Streaming Server
- CDE-220-2S3-F: SSD Streaming Server
- CDE250-2S6 Streaming Server

CCDN Content Library (CDE420-4A-C)

The CCDN CDE420-4A-C Content Library servers have (2) On-Board Ethernet NICs and (8) PCI-E Ethernet NIC interfaces. The PCI-E Quad Ethernet controllers are installed in slots 1 and 2, running from left to right when viewing the back of the server.

Figure 1C: Content Library Server - Back View:

Interface Layout:

eth0 – Management Interface

eth1 – Ingest Interface

eth2 thru eth5 – Cache/Fill Interfaces

eth6 thru eth9 – Cache/Fill Interfaces

CCDN Caching Gateway (CDE420-4G-C)

The CCDN CDE420-4G-C Caching Gateway servers have (2) On-Board Ethernet NICs and (12) PCI-E Ethernet NIC interfaces. The PCI-E Quad Ethernet controllers are installed in slots 1,2 and 4 running from left to right when viewing the back of the server.

Note that on CGW01 interface eth13 will be the C2 interface and on CGW02 eth13 will be the C2 Interface.

Figure 2C: Caching Gateway Back View

Interface Layout:

eth0 – Management Interface

eth1 – Not used

eth2 thru eth5 – Cache/Fill Interfaces

eth6 thru eth9 – Cache/Fill Interfaces

eth10 thru eth13 – Cache/Fill Interfaces

** **eth2 (CGW02) and eth13 (CGW01) will be the C2 Interfaces** **

CCDN Caching Gateway (CDE420-4G-F)

The CCDN CDE420-4G-F Caching Gateway servers have (2) On-Board 10/100/100 Ethernet NICs and (12) PCI-E Fiber-based SFP Ethernet NIC interfaces. The PCI-E Quad Fiber Ethernet controllers are installed in slots 1,2 and 4 running from left to right when viewing the back of the server.

Note that on odd numbered CGWs, interface eth13 will be the C2 interface and on even numbered CGWs eth13 will be the C2 Interface.

Figure 3C: Caching Gateway Back View

Interface Layout:

eth0 – Management Interface

eth1 – Not used

eth2 thru eth5 – Cache/Fill Interfaces

eth6 thru eth9 – Cache/Fill Interfaces

eth10 thru eth13 – Cache/Fill Interfaces

**** eth2 (CGW02) and eth13 (CGW01) will be the C2 Interfaces ****

CCDN Stream Server (CDE220-2C2-C)

The CCDN CDE220-2C2-C Streaming servers have (2) On-Board Ethernet NICs and (12) PCI-E Ethernet NIC interfaces. The PCI-E Quad Ethernet controllers are installed in slots 1,2 and 4 running from left to right when viewing the back of the server.

Figure 4C: Stream Server Back View

Interface Layout:

eth0 – Management Interface

eth1 – Not used

eth2 thru eth5 – Stream/Fill Interfaces

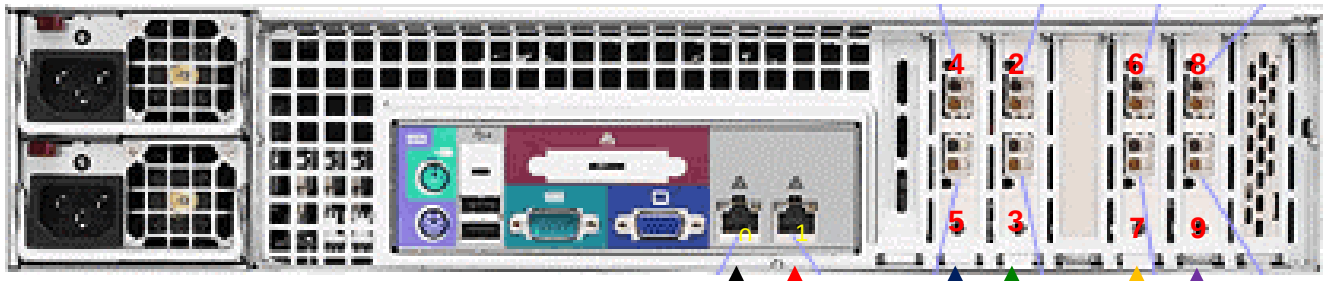
eth6 thru eth9 – Stream/Fill Interfaces

eth10 thru eth13 – Stream/Fill Interfaces

CCDN SSD Stream Server (CDE220-2S3-F)

The CCDN CDE220-2S3-F Streaming servers are flash-disk based and have Fiber interfaces instead of copper. They have (2) On-Board Ethernet NICs and (4) PCI-E Dual-Port Fiber 1000bT Ethernet NIC interfaces. The (2) port fiber NIC controllers are installed in slots 2,3 and 5 running from left to right when viewing the back of the server.

Figure 1C: Content Library Server - Back View:



Interface Layout:

eth0 – Management Interface

eth1 – Not Used

eth2 thru eth3 – Stream/Fill Interfaces

eth4 thru eth5 – Stream/Fill Interfaces

eth6 thru eth7 – Stream/Fill Interfaces

eth8 thru eth9 – Stream/Fill Interfaces

CDE-250-2S6 and CDE250-2G3

The server has 2GbE NIC ports mounted on the baseboard that are accessible from the rear of the device. Copper is the only available option. Additional Ethernet ports are added via PCI-Express slots on the rear of the system.

Figure 1C: Content Library Server - Back View:

Interface Layout:

eth0 – Management Interface

eth2 – Locate port

eth6 thru eth7 – Ten Gig fiber Stream(Cache)/Fill Interfaces

Appendix D

Procedure to clear the existing configuration on a 9261-8i MegaRAID controller card without risking the configuration on internal disk drives

1. Shutdown and power off the system
2. Open the system and remove the SAS cable from the MegaRAID card
3. Boot the server, use Ctrl-H command to enter WebBIOS configuration when prompted at The MegaRAID BIOS prompt

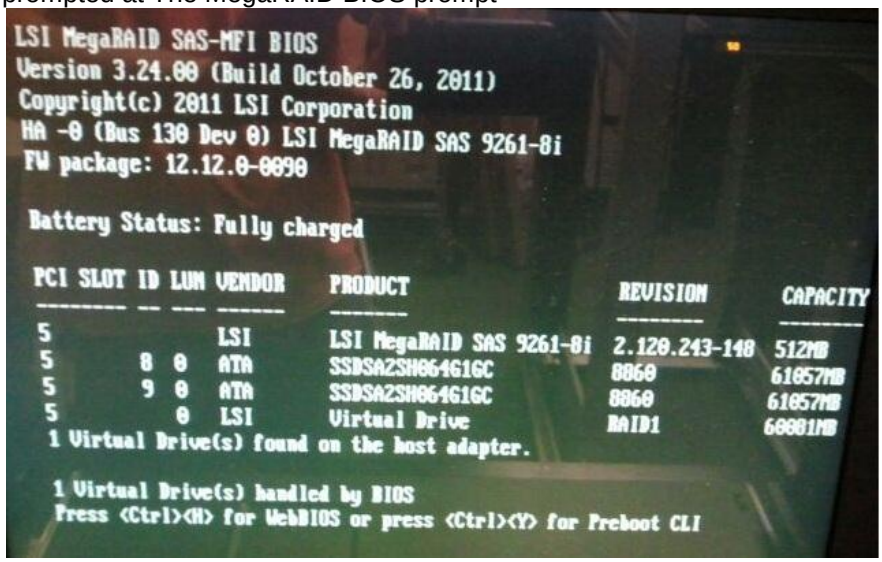


Figure D1- MegaRaid prompt during bootup

4. Select “Start”

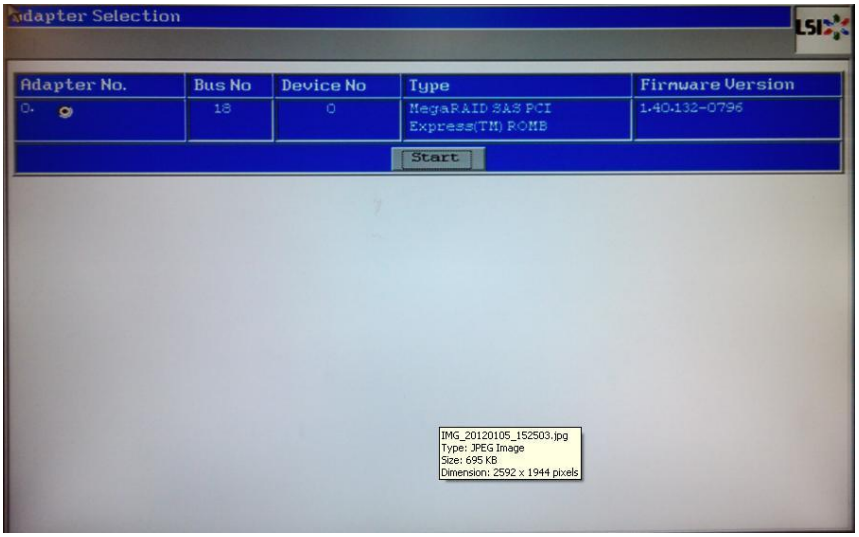


Figure D2: Getting into MegaRAID WebBIOS Configuration Utility

5. Select “Configuration Wizard”

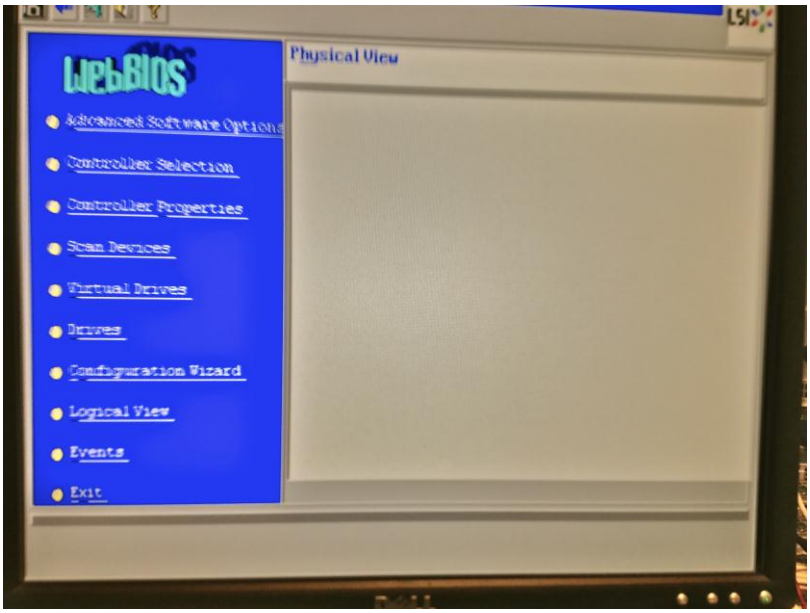


Figure D3: MegaRAID WebBIOS Configuration Options Menu

6. Select “Clear Configuration” and select “Next”

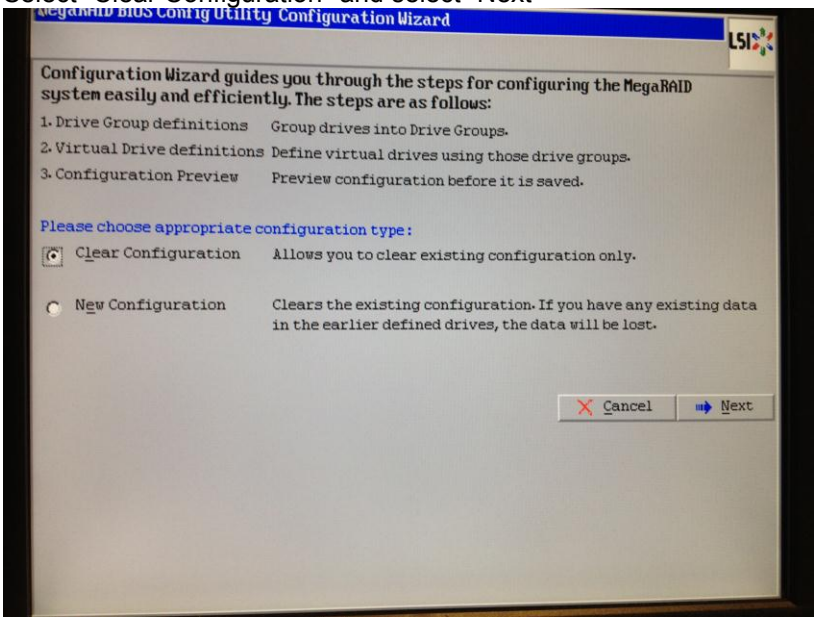


Figure D4: MegaRAID WebBIOS Configuration Wizard Options

7. Answer “Yes” to the “Destructive” message
8. Once the clear completes, “Exit” the WebBIOS utility
9. Power off the system
10. The MegaRAID controller cached configuration will now be cleared just like a new controller
11. Open the system and attach the SAS cable to the MegaRAID controller card
12. Boot the server, and follow the procedure for Foreign Configuration Import if prompted
13. Use Ctrl-H command to enter WebBIOS configuration when prompted at The MegaRAID BIOS prompt

14. Validate virtual and physical drive configuration (see picture below)

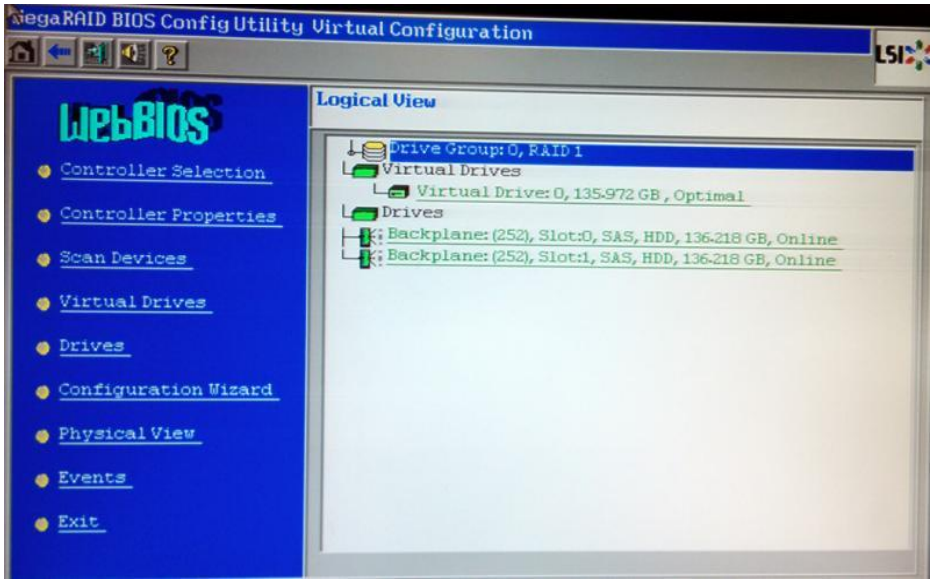


Figure D5: MegaRAID WebBIOS shows correctly added Virtual and Physical Drives

15. If correct, exit WebBIOS utility, reset server and let the server boot to Linux/CDS.