



Remote PC Guide Series - Volume 2a

Dell R710 BIOS and RAID Configuration

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This guide provides hardware model-specific guidance in server configuration, with BIOS and RAID configuration instructions for the **Dell R710**.

This guide is part of a multi-volume series, designed to provide you with the guidance needed to implement remote PCs on your NETLAB+ system. [Learn more about the Remote PC Guide Series.](#) See the [Documentation Library](#) for a list of all NETLAB+ guides.

This guide should be followed in conjunction with [Remote PC Guide Series - Volume 2, Installation.](#)

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1 Background

This guide is designed to assist an administrator with setting up and configuring the NDG Supported **Dell R710**.

If you are using a Dell R720, please see the [Remote PC Guide Series - Volume 2b - Dell R720 BIOS and RAID Configuration](#).

If you are using a Dell R630, please see the [Remote PC Guide Series - Volume 2c - Dell R630 BIOS and RAID Configuration](#).

Before proceeding with the setup and configuration process described in this guide, please review the current recommended specifications for ESXi host servers used to host virtual machines in NETLAB+ pods. The latest information is available on the NDG Website:

http://www.netdevgroup.com/support/remote_pc.html#vm_host_server_specifications

Server Specifications for Hosting NETLAB+ Pod Virtual Machines

The following table shows the current recommended specifications for ESXi host servers used to host virtual machines in NETLAB+ pods.

Please check the [VMware Compatibility Guide](#) to verify that all server hardware components are compatible with the version of VMware ESXi that you wish to use.

Specification Last Updated: December 7, 2012

⚠ Please note that the Dell PERC H200 RAID controller for the Dell R710 is no longer recommended due to poor performance under load. Currently, we recommend using Dell PERC H700 controllers for the Dell R710.

Component	Recommended Minimum / Features (Del: R710)	Recommended Minimum / Features (Del: R720)
Server Model	Dell R710	Dell R720
Operating System	Specify i40 operating system on order.	Specify i40 operating system on order.
Hypervisor (installed by you)	VMware ESX 4.1 U2	VMware ESX 4.1 U2
Physical CPU	Two (2) x Intel Xeon E5500 Dual Core @ 2.40GHz	Two (2) x Intel Xeon E5-2600 Six Core @ 2.93GHz
Hardware Assisted Virtualization Support	Intel VT	Intel VT and Intel-PT
Total CPU Cores	4	12
Total Storage	10TB	10TB
Management Server	ESXi or higher recommended. Dell TechAlert only. BMC2 or higher recommended.	Management Server: ESXi or higher recommended. Dell TechAlert only. BMC2 or higher recommended.
Cache	2GB	8 or 3.5GB
Storage Configuration Options	3.5TB Internal Direct Attached Storage Option <ul style="list-style-type: none"> • H700 RAID Controller, 2GB Cache • RAID 5 • 3 X 1TB, 3.5 SATA, 7200 RPM 3.0GB/s • Western Digital R4 WD1003FYY Recommended • 1 VMware VMDK Database 3.5TB Internal Direct Attached Storage Option <ul style="list-style-type: none"> • H700 RAID Controller, 2GB Cache • RAID 5 • 3 X 3TB, 3.5 SATA, 7200RPM, 3.0GB/s • Western Digital R4 WD1003FYY Recommended • 2 VMware VMDK Databases Please review the RAID controller section for important performance information. Dell PERC H700 Controllers with 2GB cache are recommended. Dell PERC H200 Controllers are NOT recommended.	3.5TB Internal Direct Attached Storage Option <ul style="list-style-type: none"> • H700P RAID Controller, 1GB Cache • RAID 10 • 4 X 1TB, 3.5 SATA, 7200 RPM 3.0GB/s • Western Digital R4 WD1003FYY Recommended • 1 VMware VMDK Database 3.5TB Internal Direct Attached Storage Option <ul style="list-style-type: none"> • H700P RAID Controller, 1GB Cache • RAID 10 • 4 X 3TB, 3.5 SATA, 7200RPM, 3.0GB/s • Western Digital R4 WD1003FYY Recommended • 2 VMware VMDK Databases
NIC	Dual Two-Port Embedded Broadcom NetXtreme II 5719 Gigabit Ethernet	Broadcom 5720 GP 1Gb Network Daughter Card
Rear Port	Rear with 2 FC0e xE4 2 FC0e xE8 Set	Rear with 8 FC0e xE4 4 1 FC0e xE8 Set
BIOS Setting	Performance BIOS Setting	Performance BIOS Setting
Power Supply	High Output Power Supply, Redundant, 870W	Dual Hot-Swap, Redundant Power Supply (1+1), 1800W
Embedded Management	DRAC Express	DRAC Express
Optical Drive	DVD ROM, SATA, Internal	DVD ROM, SATA, Internal

To see the latest specs, click the URL above.

2 DELL R710 BIOS System changes

Please verify that your system has the latest BIOS installed. You may obtain the latest [drivers and downloads](#) for the Dell R710 from Dell's website.

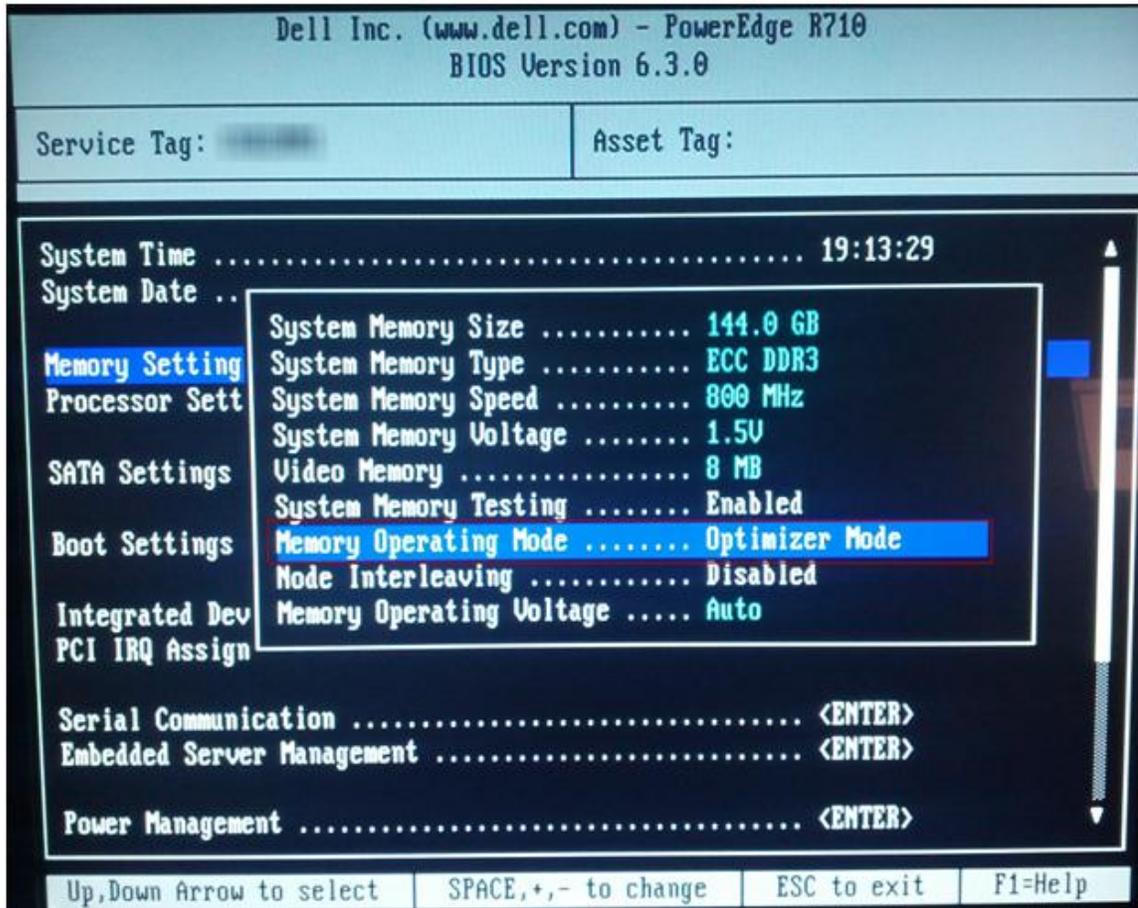
Instructions for changing BIOS settings:

1. Turn on or restart your system.
2. Press <F2> to enter System Startup at the BIOS startup screen.



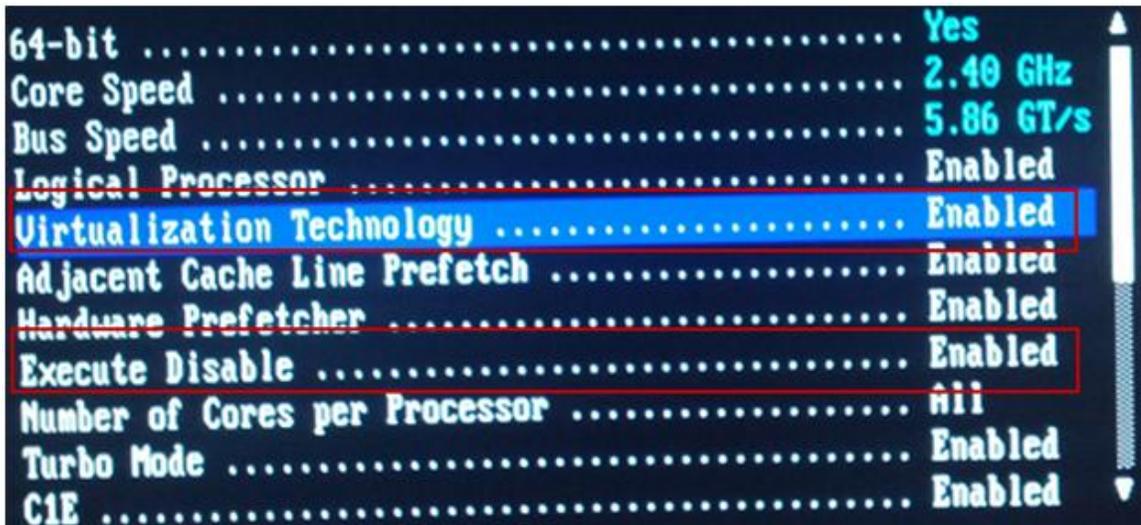
Note: BIOS Revision at the time of this document was 6.3.0.

- Use the arrow keys to select **Memory Settings > Memory Operating Mode** and make sure it is set to **Optimizer Mode**.



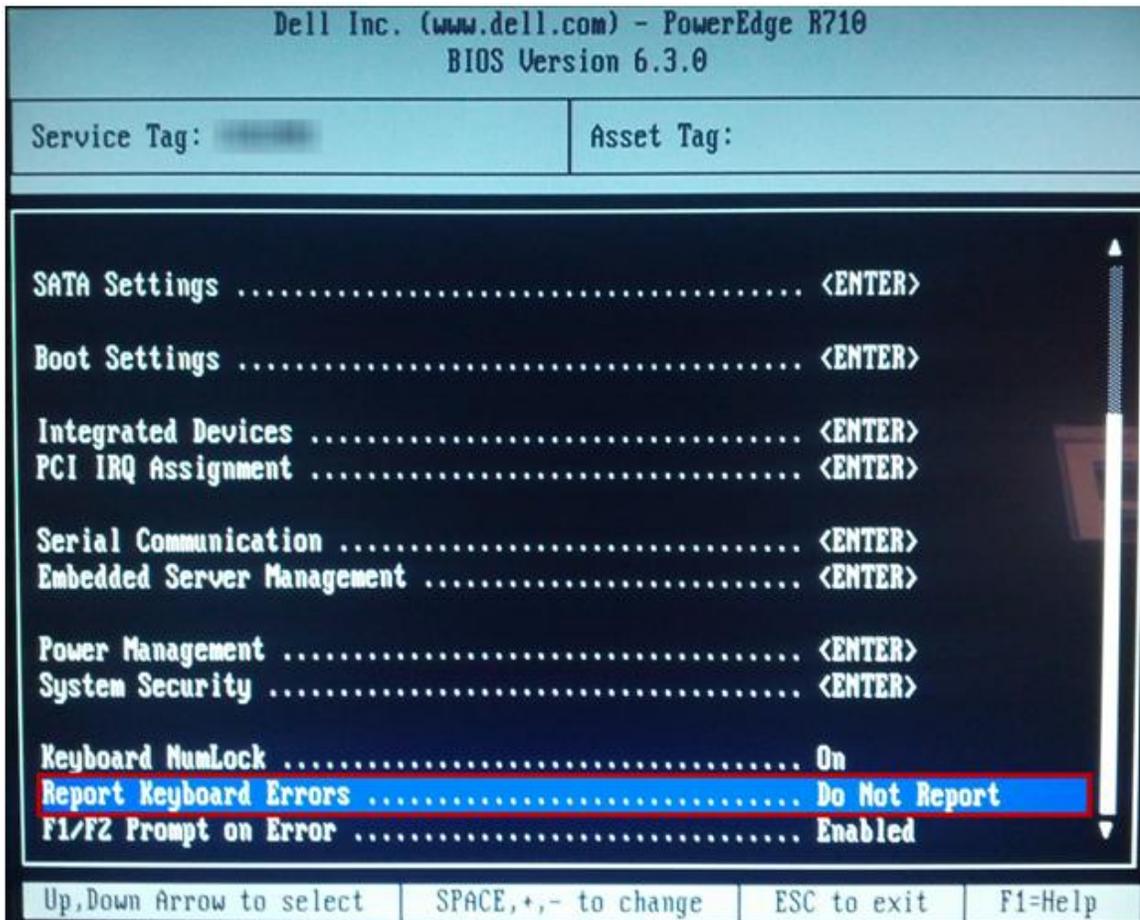
- Press **ESC** to return to the main menu.

5. Use the arrow keys to select **Processor Settings > Virtualization Technology** and make sure it is set to **Enabled**. Also, check that **Execute Disable** is set to **Enabled**.

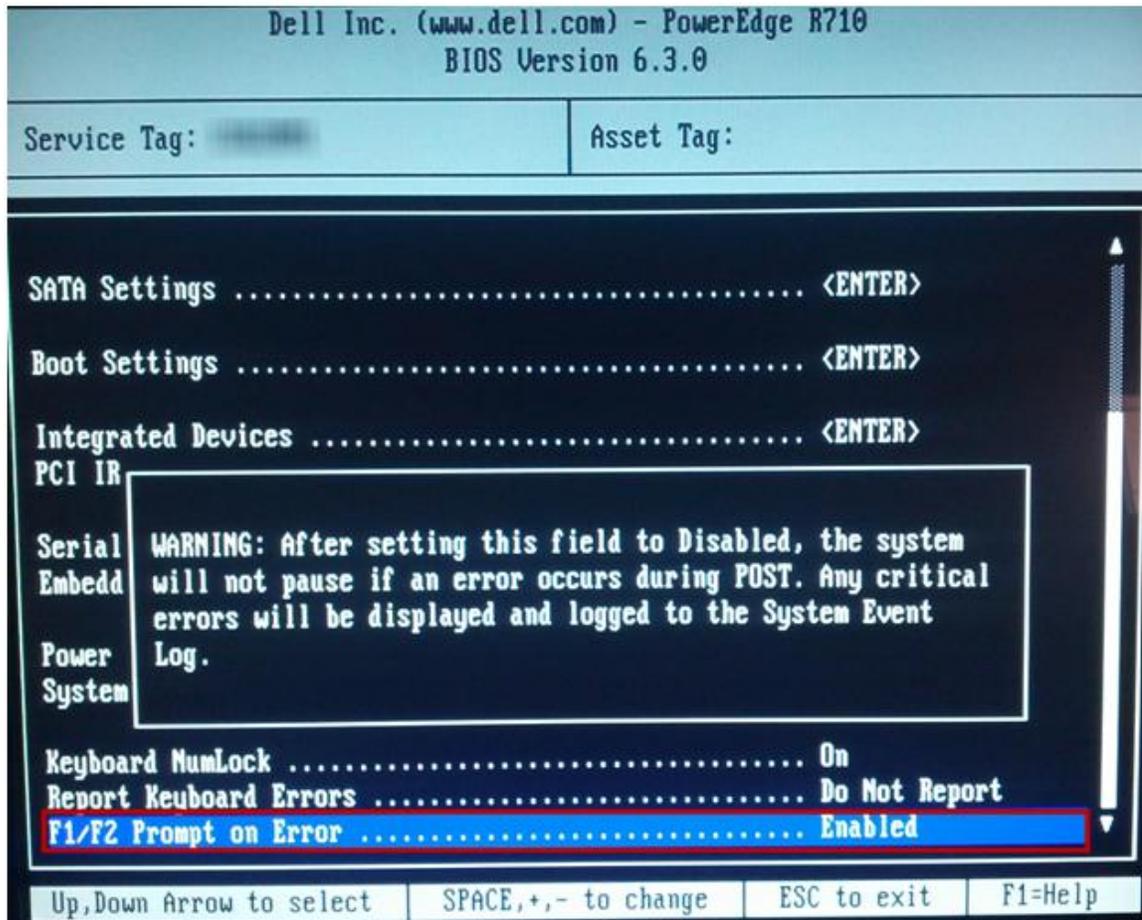


6. Press **ESC** to return to the main menu.

7. Use the arrow keys to select **Report Keyboard Errors** and make sure it is set to **Do Not Report**.



8. Use the arrow keys to select **F1/F2 Prompt on Error** and make sure it is set to **Disabled**.



9. Press **ESC** and select **Save Changes and Exit**.

3 DELL R710 RAID Configuration

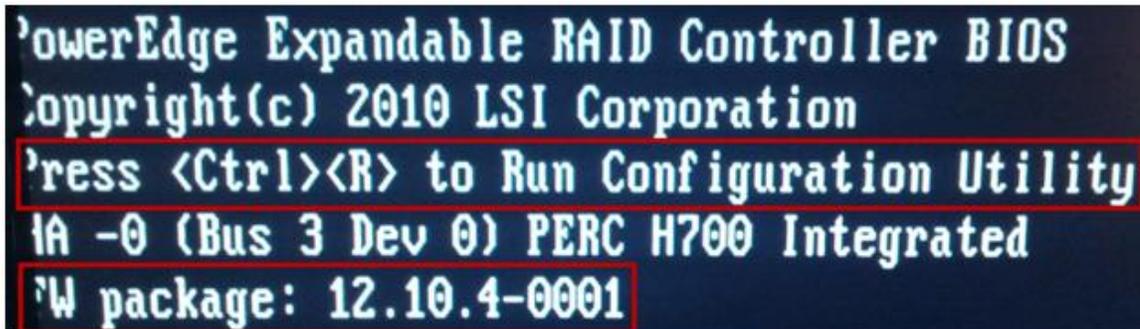
Redundant Array of Independent Disks (RAID) is designed to give the server redundancy and increased performance depending on the RAID type selected. The recommended and tested configuration is a RAID 5. The H700 RAID controller with 512MB cache is recommended and supported. **The H200 is NOT supported.** The H200 has exhibited poor performance and does not support RAID 5.

RAID 5 distributes error-correcting bits (parity) along with the data and requires all drives but one to be present to operate; the array is not destroyed by a single drive failure. Upon drive failure, any subsequent reads can be calculated from the distributed parity such that the drive failure is masked from the end user. However, a single drive failure results in reduced performance of the entire array until the failed drive has been replaced and the associated data rebuilt.

RAID 5 arrays may take several hours to initialize as the controller creates parity on the drives. The 3x2TB drive configuration will take approximately **4** hours.

Please verify that your system has the latest H700 RAID Controller Firmware installed. You may obtain the [latest drivers and downloads](#) for the Dell R710 from Dell's website.

1. Turn on or restart your system.
2. During the boot process, you will be prompted to, **Press <Ctrl><R> to Run Configuration Utility.**



Note: The H700 FW package at the time of this document was 12.10.4-0001.

3. You should start with a clean configuration. If not, you will need to clear any existing configuration.

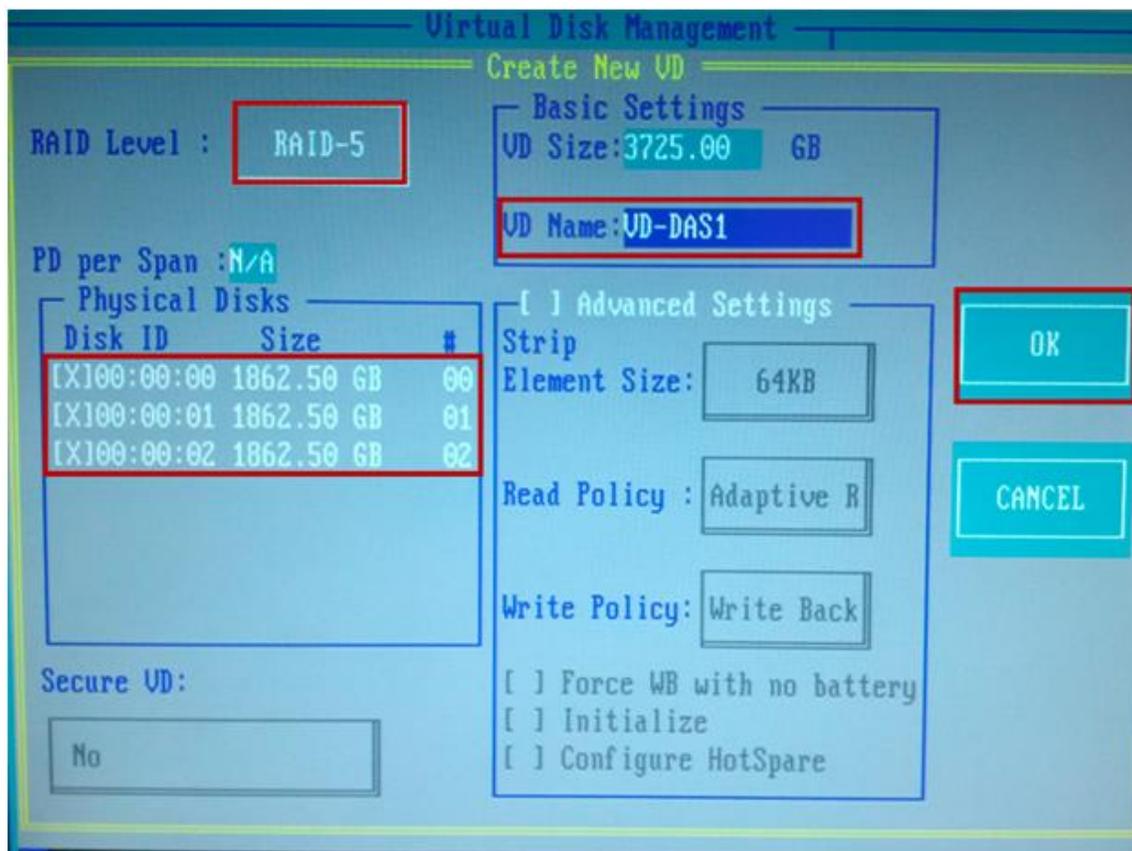
3.1 Dell R710 3x2TB HDD Configuration

This section is for the 3x2TB HDD Configuration for RAID 5.

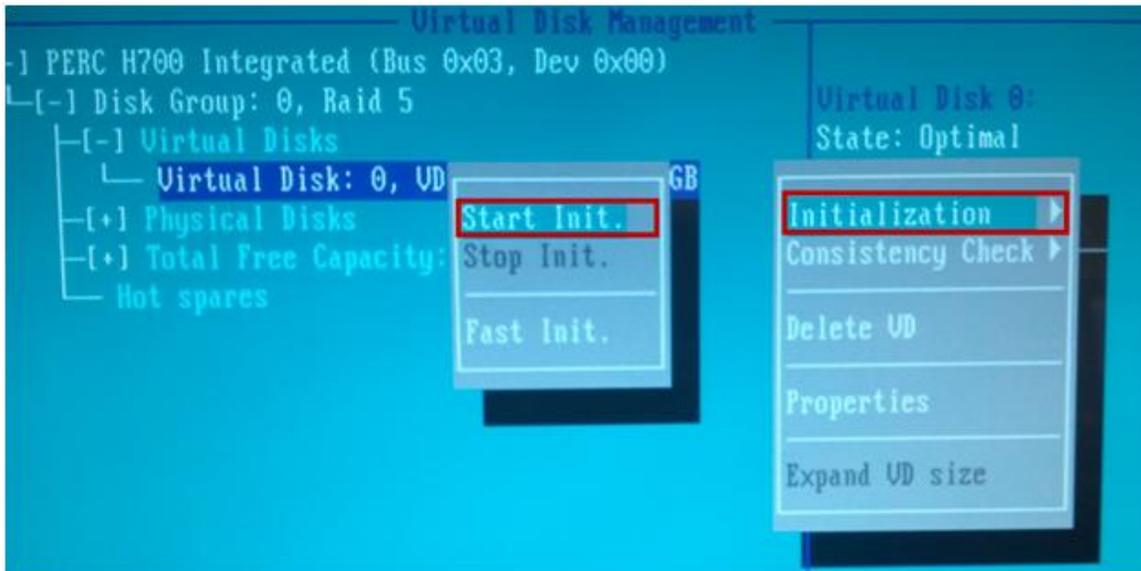
1. Use the arrow keys to select the PERC H700 controller and press enter.



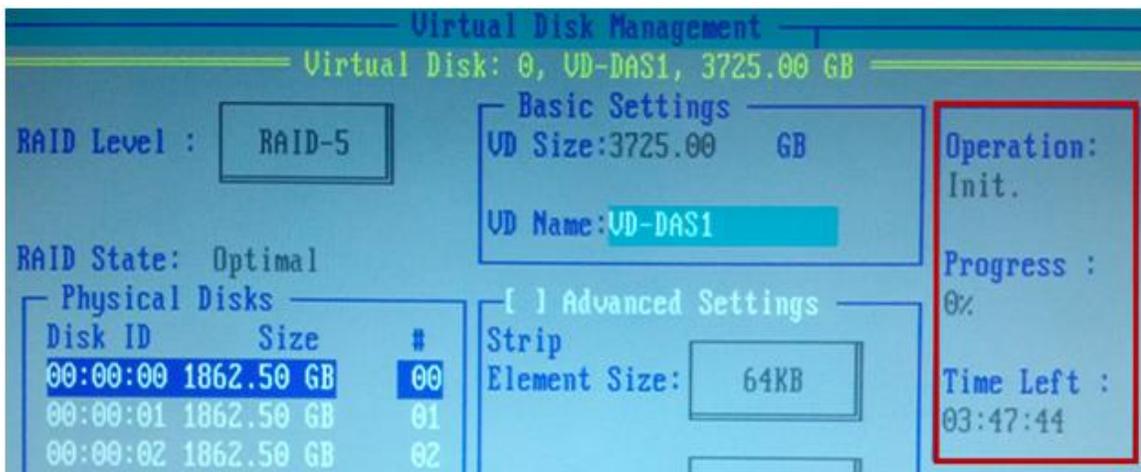
2. Select RAID Level 5, **RAID-5**.
3. Select all your physical disks on the left.
4. Edit the VD Name to **VD-DAS1**.



5. Select **OK** on the right. Note the message indicating we need to initialize the Virtual Disk after it has been configured.
6. Use your arrow keys to highlight Virtual Disk 0. Press **F2** and select **Initialization > Start Init.** Select **Yes** to confirm Initialization of the HDDs. This process can take several hours.



7. You can press **Enter** on the Virtual Disk to see the estimated time remaining.



8. When initialization is completed, select **OK** to confirm.
9. Press **ESC** to close out of the RAID Configuration Utility. Select **OK** to confirm exiting. You will be prompted to reboot your system.

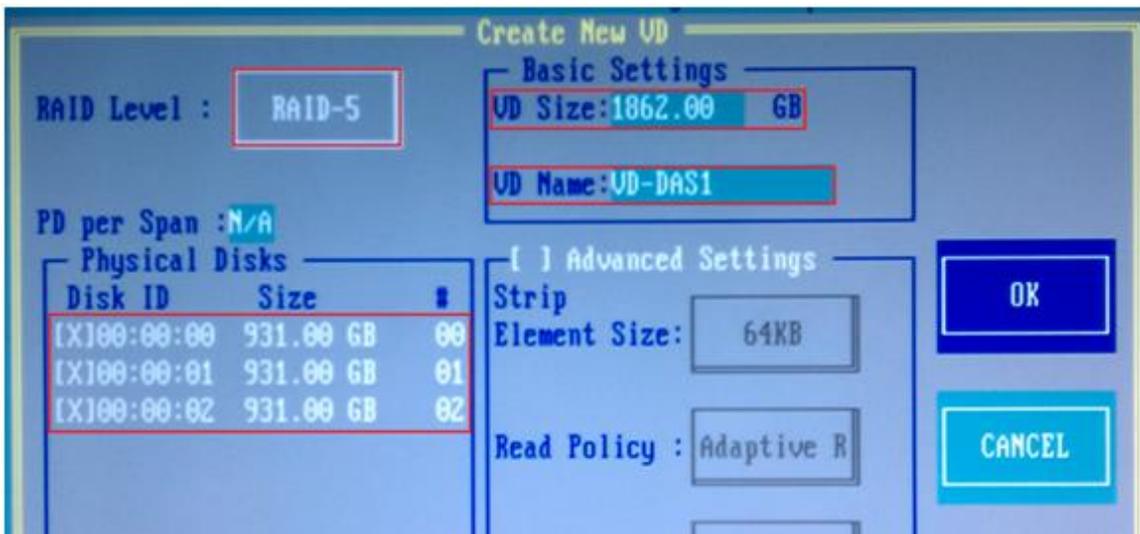
3.2 Dell R710 3x1TB HDD Configuration

This section is for the 3x1TB HDD Configuration for RAID 5.

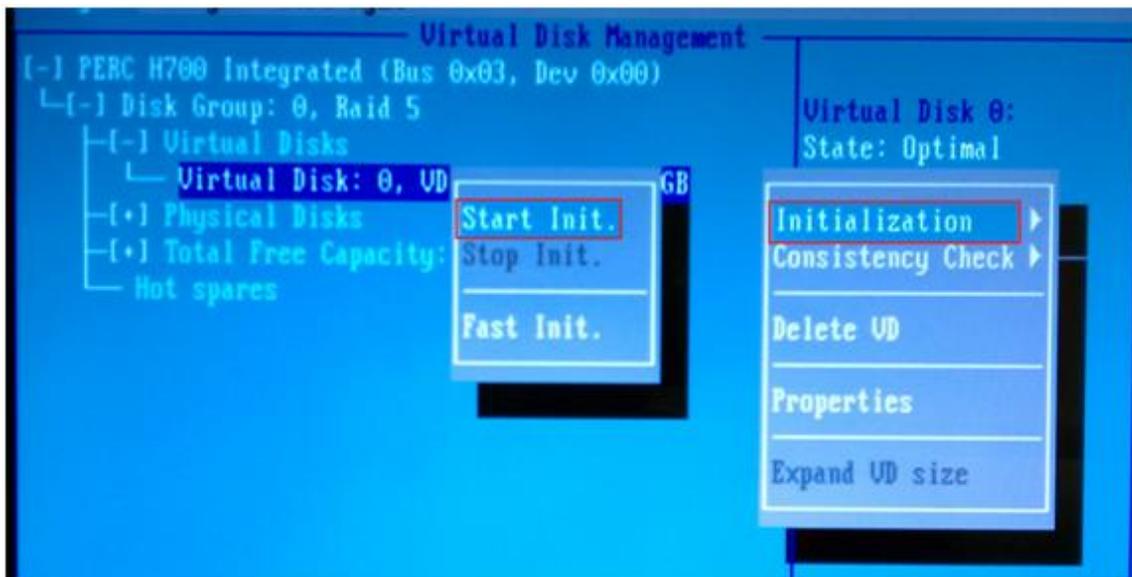
1. Use the arrow keys to select the PERC H700 controller and press enter.



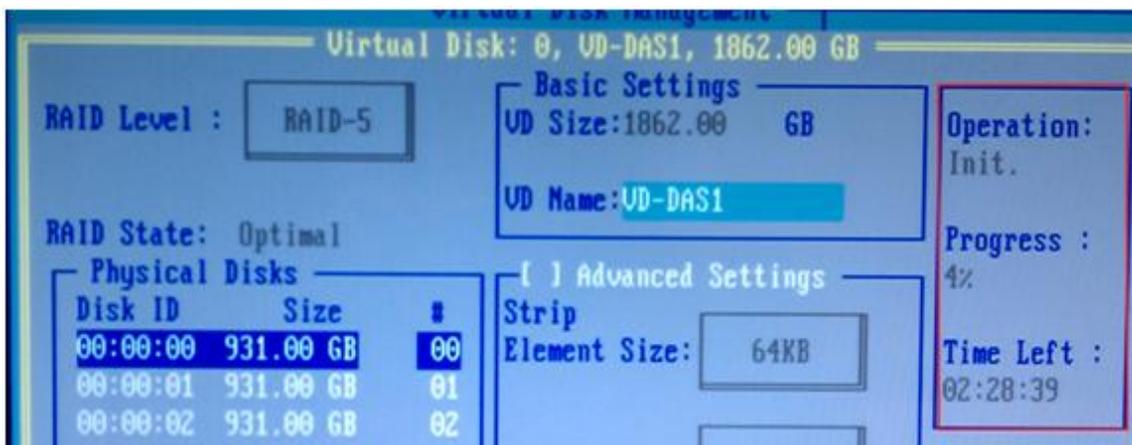
2. Select RAID Level 5, **RAID-5**.
3. Select all your physical disks on the left.
4. Edit the VD Name to **VD-DAS1**.



5. Select **OK** on the right. Note the message indicating we need to initialize the Virtual Disk after it has been configured. We will do that in a later step.
6. Use your arrow keys to highlight Virtual Disk 0. Press **F2** and select **Initialization > Start Init.** Select **Yes** to confirm Initialization of the HDDs. This process can take several hours.



7. You can press **Enter** on the Virtual Disk to see the estimated time remaining.



8. When initialization is completed, select **OK** to confirm.
9. Press **ESC** to close out of the RAID Configuration Utility. Select **OK** to confirm exiting. You will be prompted to reboot your system.