

# Security Analytics Configuration Guide for Gen13 Dell Hardware and J5300 40T Direct-Attached Storage

15 Mar 2019



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## About This Document

This document contains instructions to install Security Analytics software on a Dell® PowerEdge® R730xd or R630 Rack Server as a standalone appliance, a Central Manager, or a head unit that is connected to Symantec J5300 40T Direct-Attached Storage or Dell PowerVault® MD1400 Direct Attached Storage arrays.

For other hardware configurations consult the appropriate installation guide by going to the [Security Analytics documentation page](#) under Installation Guide:

- *Security Analytics Configuration Guide for SA-S500 Series*
- *Security Analytics High-Density Storage Configuration Guide for Dell Hardware*
- *Security Analytics Software Configuration Guide for Gen12 Dell Hardware and Symantec J5300 40T Direct-Attached Storage*

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You cannot combine Dell Gen12 head units (Rx20) with Dell Gen13 storage units (MD1400) or Gen13 (Rx30) head units with Dell Gen12 storage units (MD1200), because the RAID controllers use incompatible SAS specifications. To add storage to an existing Dell Gen13 system, use Symantec J5300 40T Direct-Attached Storage, which can be attached to Gen12 and Gen13 head units and storage modules.

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This document assumes that any of the following are true:

- You purchased a Dell R630, R730xd, or MD1400 directly from Dell and the hardware conforms to the approved bills of material (BoMs) for Dell hardware on Symantec Support. (Go to the [Security Analytics documentation page](#) under Compatibility Lists.)
- You purchased a 10G or 2G head unit plus one or more J5300 storage modules through Symantec.
- You are adding J5300 or MD1400 storage modules to an existing system that has a Gen13 (R630/2G or R730xd/10G) head unit.

For assistance with system installation:

- Symantec Support: [support.symantec.com/en\\_US/contact-support.html](http://support.symantec.com/en_US/contact-support.html)
- Security Analytics Documentation: [support.symantec.com/content/unifiedweb/en\\_US/Documentation.1145515.html](http://support.symantec.com/content/unifiedweb/en_US/Documentation.1145515.html)

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## Updates to This Document

Date	Page	Update
15 Mar 2019	—	Update documentation links
31 Jul 2017	8	Clarify which modules are cabled to which RAID controller
24 Jul 2017	—	Symantec rebranding
10 May 2017	23	Revise the useable space column, capture drive size for R730xd/10G Standalone
17 Mar 2017	—	Revise procedure so that Controller 1 is in Slot 0x03 and Controller 2 is in Slot 0x02
14 Mar 2017	24–24	Increase R630 drive sizes to 2TB
25 Aug 2016	24–27	Increase R730xd drive sizes to 2TB; remove Indexing from external arrays
17 Aug 2016	—	Add J5300 Direct Attached Storage Arrays

## 1. Requirements

This installation requires the following:

- Dell PowerEdge R630/2G or R730xd/10G Rack Server: Consult the approved bills of material (BoMs) for Dell servers on Symantec Support by going to the [Security Analytics documentation page](#) and selecting Hardware Guide as the document type.
- Optional—For attached-storage configurations:

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Adding storage modules is a **destructive** process, because all of the capture and indexing drive arrays must be reconfigured. Do not begin to add new storage to an existing system until after you have backed up all capture, indexing, and system data. (Consult the Reference section of the Help Files for instructions on backing up system data using [scm migrator](#) or [solera-backup.sh](#) and [solera-restore.sh](#).)

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- J5300s or MD1400s—Two SFF-8644 to SFF-8644 SAS cables for each array
- R630/2G only
  - 1 RAID controller  
and
    - 1 Symantec J5300 40T Direct Attached Storage Array  
or
    - 1 Dell PowerVault MD1400 Direct Attached Storage array
- R720xd/10G only
  - 2 RAID controllers  
and
    - 1–6 Symantec J5300 40T Direct Attached Storage arrays  
or
    - 1–6 Dell PowerVault MD1400 Direct Attached Storage arrays
- Security Analytics [ISO](#) image and Symantec-provided license key
- Serial or VGA monitor, USB keyboard, VGA cable, Cat5 cable
- Workstation with Ethernet port

# Requirements

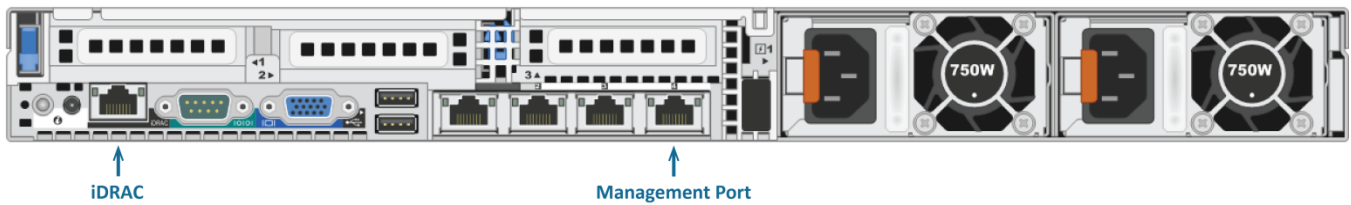
## 1.1. Terminology

The following usage appears in this document:

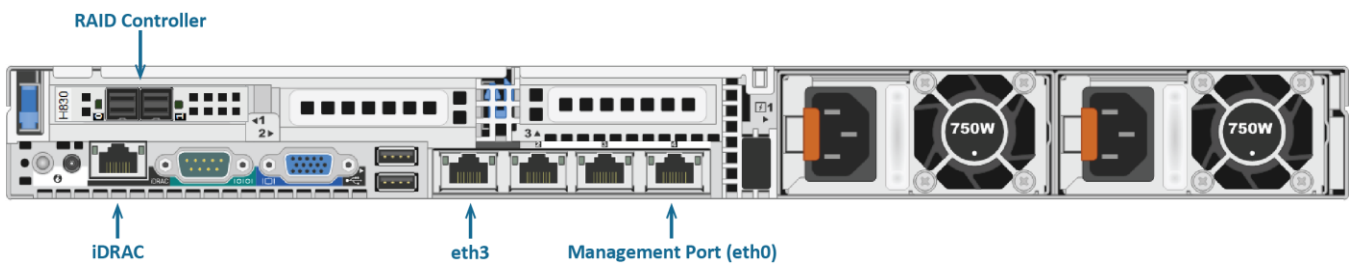
- Head Unit — An R630/2G or R730xd/10G that has one or more connected storage modules
- Server — An R630/2G or R730xd/10G rack server, either a head unit or a standalone unit
- Storage Module — A J5300 Attached Storage or MD1400 Direct Attached Storage module
- Array — A logical set of virtual disk groups; Security Analytics requires three arrays: system, indexing, and capture.

## 1.2. Server I/O Configuration

The location of the management port in the figures below is valid only after Security Analytics software has been installed.

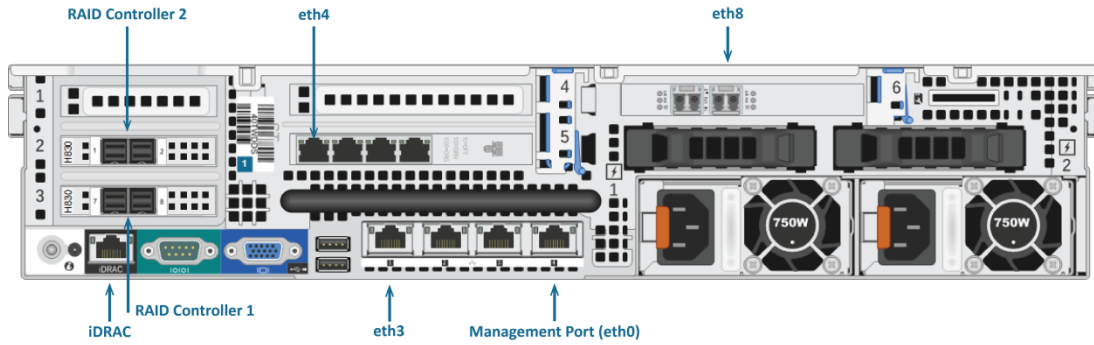


*Dell PowerEdge R630/CM Rack Server—Central Manager Console Rear View*



*Dell PowerEdge R630/2G Rack Server Rear View — Location of I/O cards may vary*

# Requirements

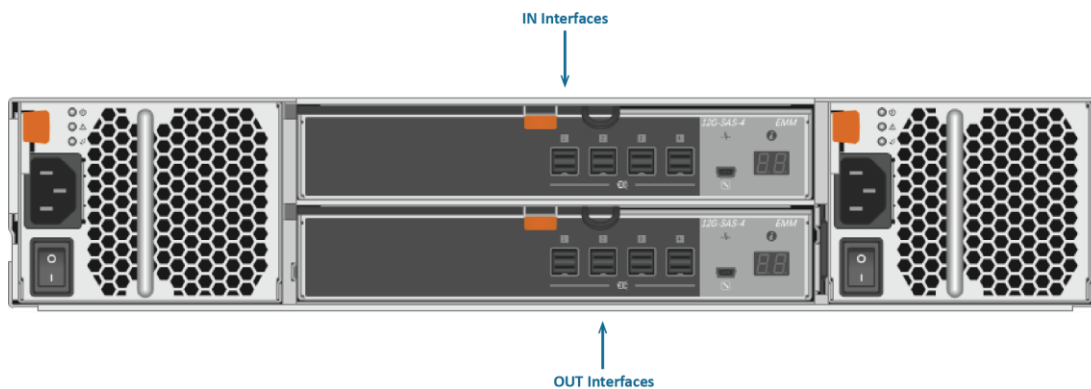


Dell PowerEdge R730xd/10G Rack Server Rear View — Location of I/O cards may vary

## 1.3. Storage Module I/O Configuration



Symantec J5300 Direct Attached Storage Array—Rear View



Dell PowerVault MD1400 Attached Storage—Rear View

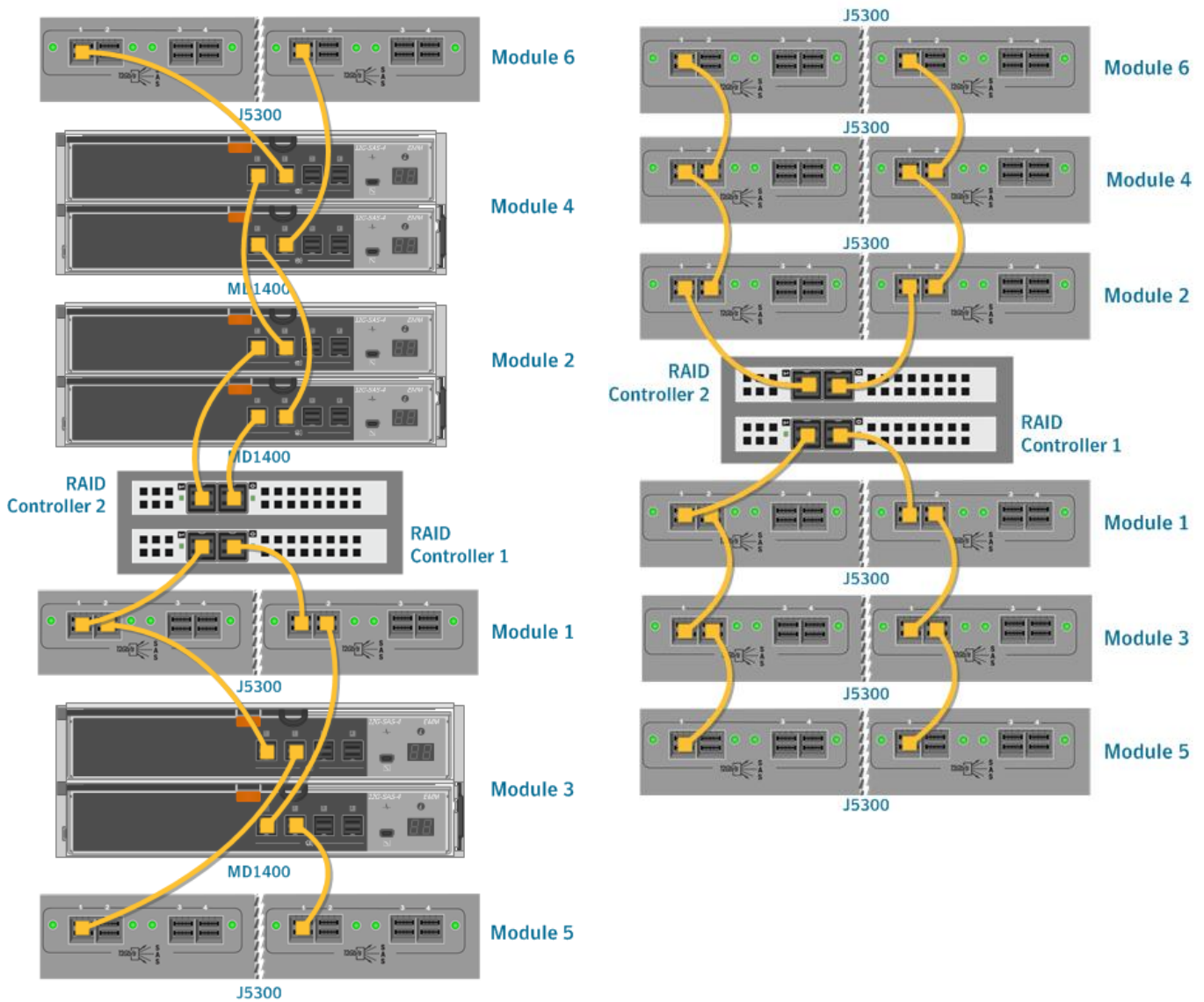
The rightmost two SAS ports (3, 4) on each I/O controller module are used only in a two-node failover or dual-homed configuration, which Symantec does not support for Security Analytics.

## 2. Cable the Attached Storage Modules

If you will be attaching storage modules, cable all of the units together as shown.

You must connect the storage modules to the head unit **BEFORE** continuing to the next step.

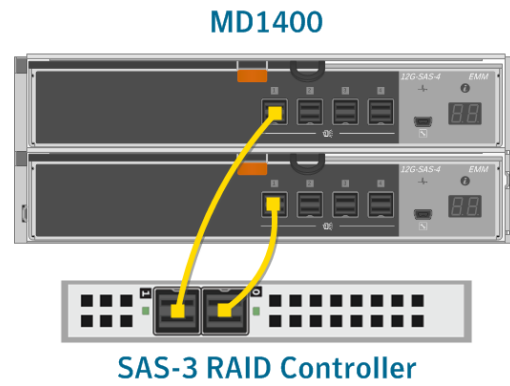
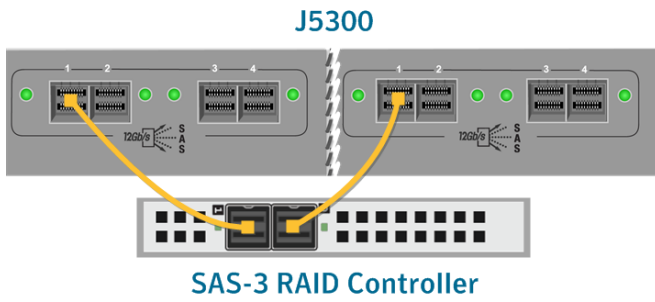
Two-RAID-Controller Setups





# Cable the Attached Storage Modules

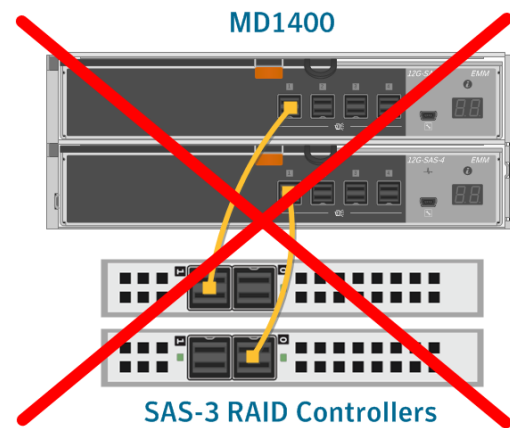
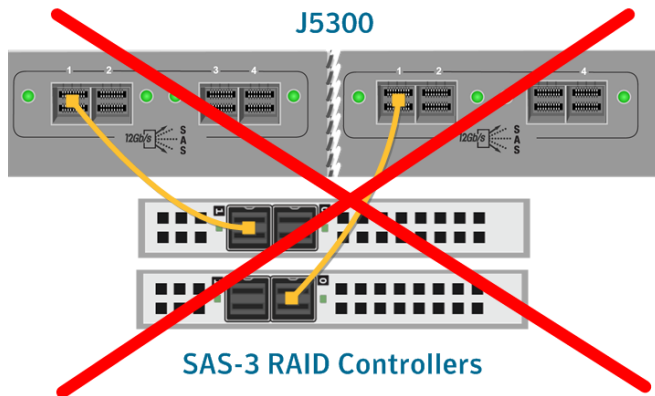
## One-RAID-Controller Setups



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If you are connecting only one storage module to a unit that has two RAID controllers, **DO NOT** connect the module to both RAID controllers.

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## 3. Initial Configuration

### 3.1. Establish a Connection to the Server

- 3.1.1. With the VGA cable, connect your monitor to the server.
- 3.1.2. Plug in the USB keyboard to the server.
- 3.1.3. Power on the storage modules first, then power on the head unit.

### 3.2. Optional—Configure the iDRAC Interface

The **Integrated Dell Remote Access Control (iDRAC)** interface is Dell's version of the Intelligent Platform Management Interface (IPMI).

- 3.2.1. While the head unit boots, watch for the following menu items:

F2 = System Setup
F10 = Lifecycle Controller
F11 = BIOS Boot Manager
F12 = PXE Boot

- 3.2.2. When these 8-bit menu items are displayed, press F2 to enter the system setup.
- 3.2.3. From the *System Setup Main Menu*, select iDRAC Settings and configure the settings:

Page	Attribute	Value
Network Settings	Enable NIC	Enabled
	NIC Selection	Dedicated
	Failover Network	None
	Enable DHCP	[as desired]
	IP Address	[as desired]
	Gateway	[as desired]
User Configuration	User Name	[as desired]
	Change Password	[as desired]
Lifecycle Controller	Collect System Inventory on Restart	Disabled

---

If you choose to enable DHCP, it is recommended that you use the DHCP reservation feature of your DHCP server to statically map the MAC address of the iDRAC interface to an IP address.

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- 3.2.4. Click Finish at the lower-right of the screen and follow the prompts to save and exit.

## 3.3. Delete Existing RAID Configurations

Any existing RAID arrays and disk groups must be deleted.

- A head unit that was purchased directly from Dell has no RAID configuration.
- A head unit that was purchased through Symantec is configured as [a standalone appliance](#) with Security Analytics installed.
- An existing system that has already been operating has RAID arrays configured.

3.3.1. Boot or reboot the server by pressing the power button or by pressing Ctrl+Alt+Delete.

```
F2 = System Setup
F10 = Lifecycle Controller
F11 = BIOS Boot Manager
F12 = PXE Boot

Initializing Intel(R) Boot Agent GE v.1.5.56
PXE 2.1 Build 092 (WfM 2.0)

PowerEdge Expandable RAID Controller BIOS
Copyright (c) 2014 LSI Corporation
Press <Ctrl><R> to Run Configuration Utility
HA -0 (Bus 2 Dev 0) PERC H730P Mini
FW package: 25.2.2-0004
```

3.3.2. When you see the **Press <Ctrl><R>** line on the screen, press Ctrl+R to enter the RAID configuration utility.

3.3.3. Do you have external RAID controllers?

Yes—A menu of RAID controllers is displayed. Continue the procedure.	No—The <i>Virtual Disk Management</i> screen is displayed. Go to Step 3.3.5.
--	--

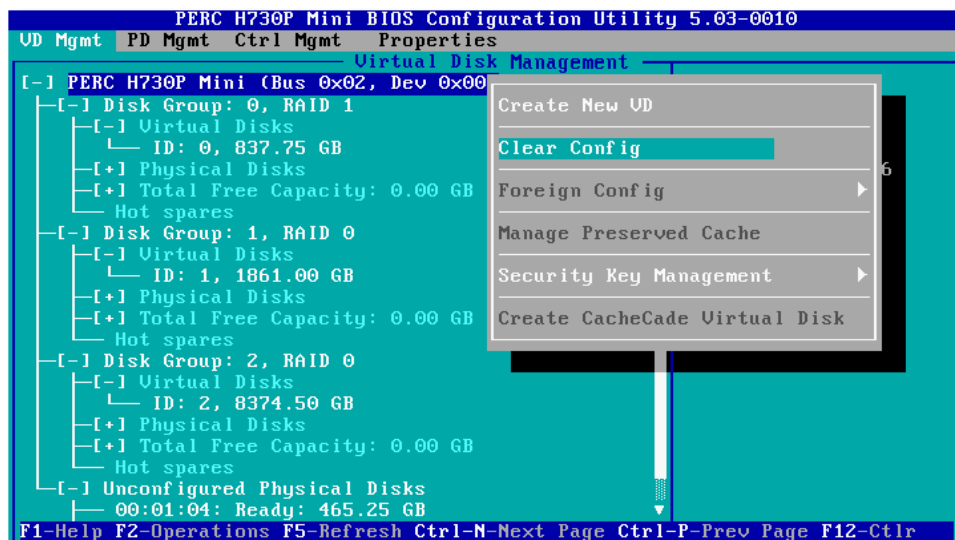
```
PERC BIOS Configuration Utility 5.03-0010

Controller 0:PERC H730P Mini      Bus 0x02 Dev 0x00 Fn 0x00 Slot 0x00
Controller 1:PERC H830 Adapter   Bus 0x84 Dev 0x00 Fn 0x00 Slot 0x03
Controller 2:PERC H830 Adapter   Bus 0x83 Dev 0x00 Fn 0x00 Slot 0x02
```

3.3.4. Select Controller 0 and press Enter. The *Virtual Disk Management* screen is displayed.

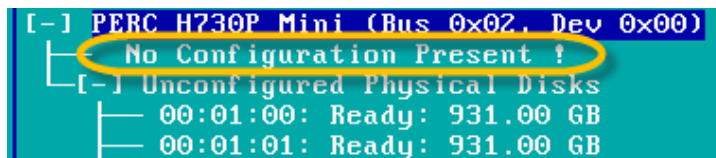
# Initial Configuration

## 3.3.5. Are disk groups already configured?



Yes— Select PERC H730P Mini, press F2, select Clear Config, and press Enter. Continue the procedure.

No—Skip to 3.4: *Enable Disk Encryption.*



3.3.6. When the message No Configuration Present! is displayed, press F12 to return to the RAID controller menu.

3.3.7. Repeat Steps 3.3.5 and 3.3.6 for each controller.

## 3.4. Enable Disk Encryption

When disk encryption is enabled, a hard drive that is physically removed from a head unit or storage module cannot be read unless the encryption key is provided.

- Enabling disk encryption is optional but highly recommended.
- Not enabling disk encryption does **NOT** improve performance.
- It is also possible to enable encryption on a virtual disk **after** it has been created.

3.4.1. Boot or reboot the server by pressing the power button or by pressing Ctrl+Alt+Delete.

```
F2 = System Setup
F10 = Lifecycle Controller
F11 = BIOS Boot Manager
F12 = PXE Boot

Initializing Intel(R) Boot Agent GE v.1.5.56
PXE 2.1 Build 092 (WfM 2.0)

PowerEdge Expandable RAID Controller BIOS
Copyright (c) 2014 LSI Corporation
Press <Ctrl><R> to Run Configuration Utility
HA -0 (Bus 2 Dev 0) PERC H730P Mini
FW package: 25.2.2-0004
```

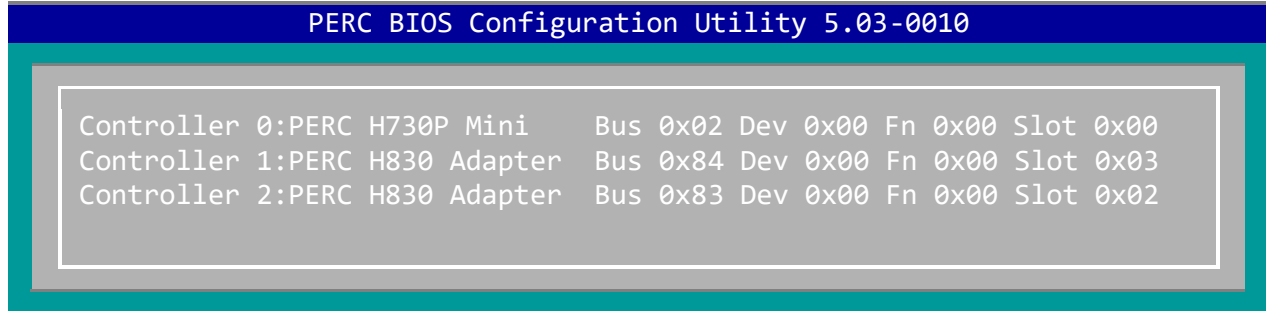
3.4.2. When you see the **Press <Ctrl><R>** line on the screen, press Ctrl+R to enter the RAID configuration utility.

## Initial Configuration

3.4.3. Do you have external RAID controllers?

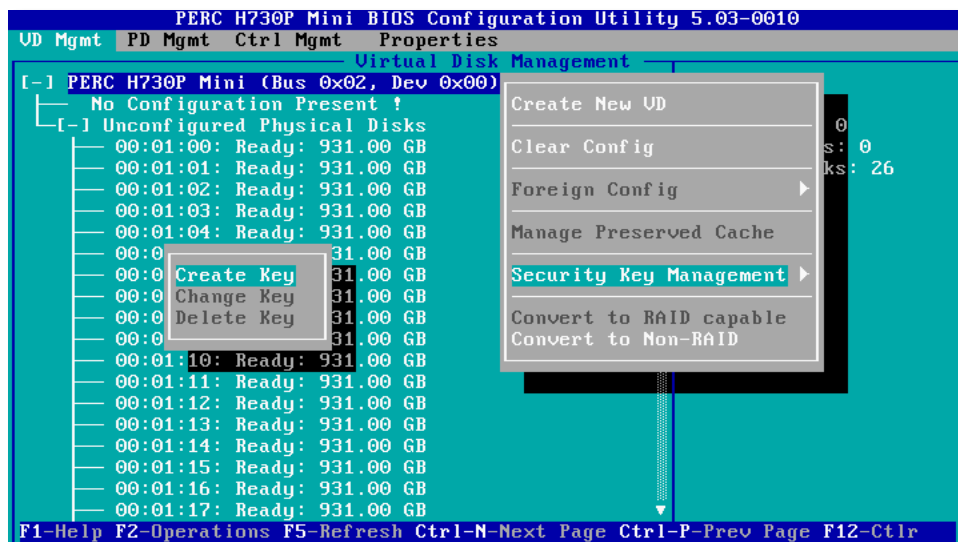
Yes—A menu of RAID controllers is displayed.

No—Go to Step 3.4.5.



3.4.4. Select Controller 0 and press Enter. The *Virtual Disk Management* screen is displayed.

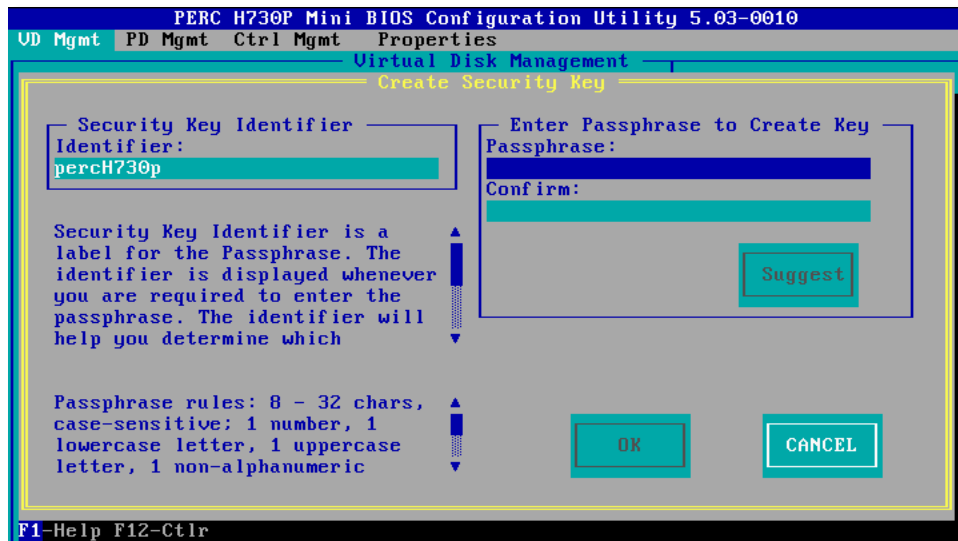
3.4.5. Select PERC H730P Mini and press F2.



3.4.6. Select Security Key Management and press Enter.

3.4.7. Select Create Key and press Enter to open the *Create Security Key* dialog.

## Initial Configuration



3.4.8. For the Security Key Identifier, specify a unique name for the security key.

3.4.9. Enter the passphrase twice. The passphrase will be legible in both fields.

- 
- There is no backup option when you create a security key. If you lose the passphrase you will lose all encrypted data.
  - Follow best key-maintenance practices by manually recording the identifier and passphrase, and by keeping a copy of that information in a secure location that is separate from the appliance.
  - See KB article SLN164101 on Dell.com for more information.

3.4.10. Select OK and press Enter to return to the *Virtual Disk Management* screen.

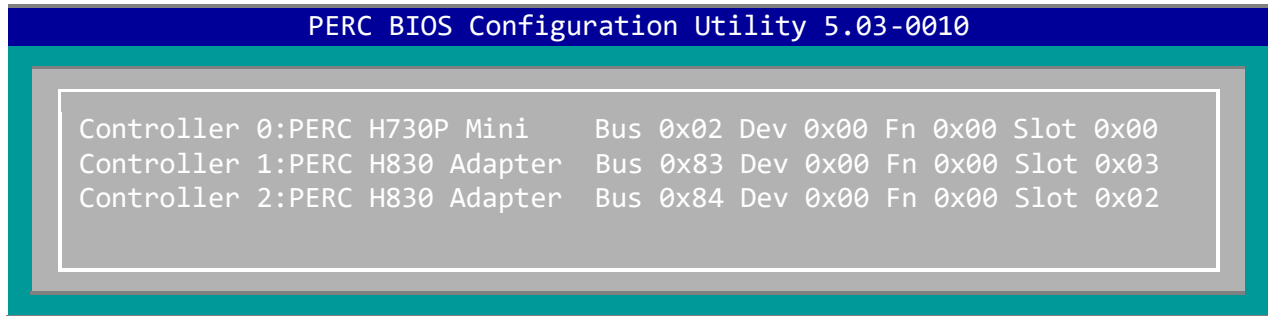
3.4.11. Press F12 to return to the main configuration utility screen.

3.4.12. Repeat Steps 3.4.5 through 3.4.10 for each controller.

## 4. Set Up the RAID Arrays

Follow these steps to configure the RAID arrays.

4.1.1. Press F12 to open the main configuration utility screen.



- **Controller 0** always refers to the internal RAID controller. All other RAID controllers are connected to the external storage modules.
  - Use the PERC H730P Mini BIOS Configuration Utility to configure the internal RAID arrays.
  - Use the PERC H830 Adapter BIOS Configuration Utility to configure the external RAID arrays.
- **R730xd Only**—The tables in [Appendix A: RAID Array Configurations](#) require that Controller 1 be in Slot 0x03 and Controller 2 be in Slot 0x02 so that processor resources are properly distributed. If your R730xd numbers the controllers differently, ignore the controller designations and use the slot numbers.

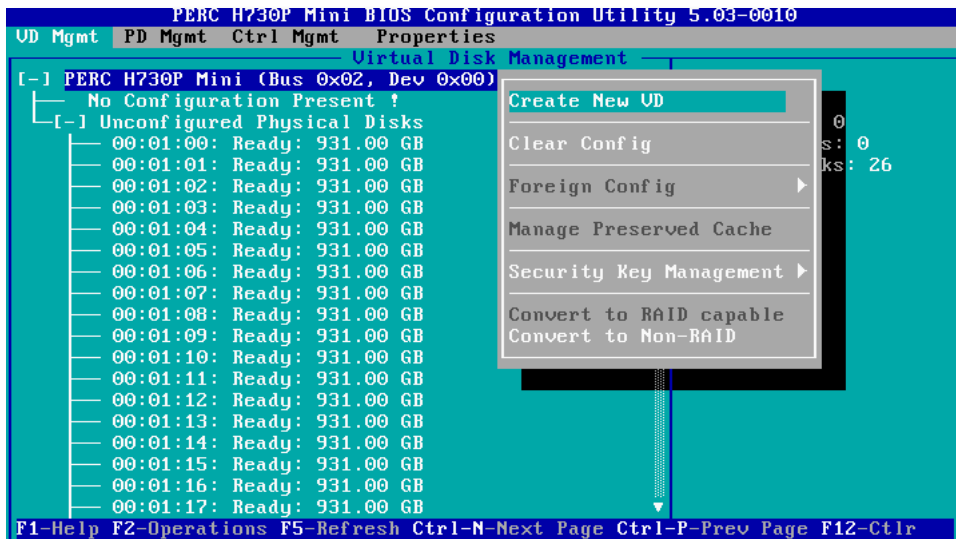


# Set Up the RAID Arrays

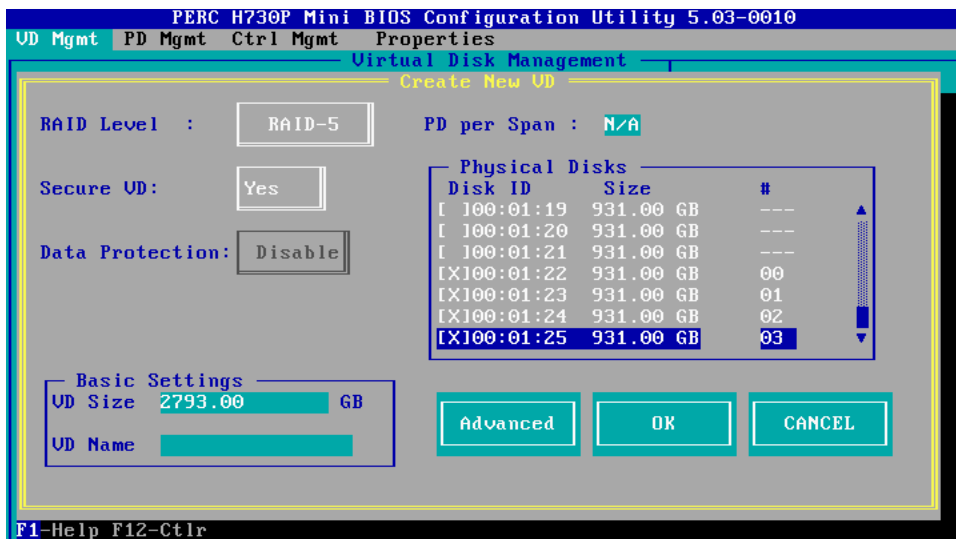
## 4.2. Configure the System Array

Virtual Disk Group 0 on RAID Controller 0 must be configured as the system array or the software installation will fail.

- 4.2.1. Select Controller 0 and press Enter. The *Virtual Disk Management* screen is displayed.
- 4.2.2. Select PERC H730P Mini and press F2.



- 4.2.3. Select Create New VD and press Enter to open the *Create New VD* dialog.



## Set Up the RAID Arrays

4.2.4. For RAID Level select one of the following:

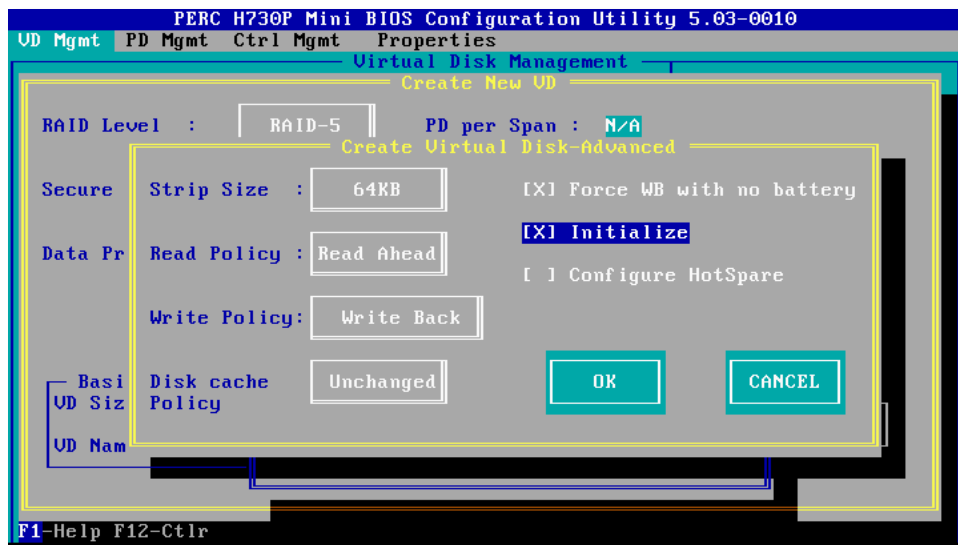
- R630 or R730xd Standalone—RAID-1
- CMC or Head Unit—RAID-5

4.2.5. Under Physical Disks use the arrow keys to highlight each Disk ID and press Enter to select.

- Physical disk 0 is designated 00:01:00; disk N is designated 00:01:N.
- Consult [Appendix A: RAID Array Configurations](#) for your configuration type to see which physical disks to assign to the system array.

4.2.6. Optional—Under *Basic Settings*, specify a VD Name.

4.2.7. Select Advanced and press Enter to open the *Create Virtual Disk—Advanced* dialog.



4.2.8. Select the Force WB with no battery and Initialize options, and then select OK.

4.2.9. Select OK again. Are you configuring a Central Manager Console (CMC)?

Yes—Go to *Section 5: Configure BIOS* on page 21.

No—Continue the procedure.

# Set Up the RAID Arrays

## 4.3. Configure the Indexing Array

- 4.3.1. Follow the prompts to return to the *Virtual Disk Management* screen.
- 4.3.2. Select PERC H730P Mini and press F2.
- 4.3.3. Select Create New VD and press Enter to open the *Create New VD* dialog.
- 4.3.4. For RAID Level select RAID-5.
- 4.3.5. Under Physical Disks use the arrow keys to highlight each Disk ID and press Enter. Consult [Appendix A: RAID Array Configurations](#) for your configuration type to see which disks to assign to the indexing array.
- 4.3.6. Optional—Under *Basic Settings*, specify a VD Name.
- 4.3.7. Select Advanced and press Enter.
- 4.3.8. Select the Force WB with no battery and Initialize options, and then select OK.

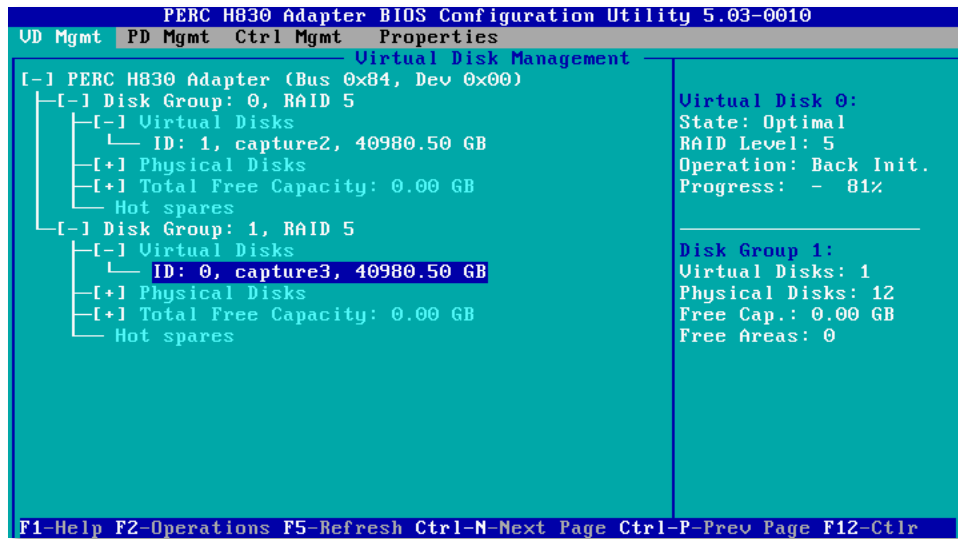
## 4.4. Configure the Capture Array

- 4.4.1. Are you configuring a standalone R630 or a standalone R730xd?

Yes—Select PERC H730P Mini and press F2.	No—Press F12 to exit the PERC H730P Mini utility. Launch the PERC H830 utility for Controller 2 in Slot 0x02. Select <b>PERC H830 Adapter</b> and press <b>F2</b> .
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- 4.4.2. Select Create New VD and press Enter to open the *Create New VD* dialog.
- 4.4.3. Follow Steps 4.2.1 through 4.2.8 for each capture array. Consult [Appendix A: RAID Array Configurations](#) for your configuration type to see which virtual disk groups to configure for each RAID controller.
- 4.4.4. Select the PERC H830 utility for Controller 1 in slot 0x03 and configure accordingly.
- 4.4.5. When finished configuring the arrays, return to the *Virtual Disk Management* screen.

## Set Up the RAID Arrays



4.4.6. The initialization progress is displayed in the upper-right quadrant of the screen.

Before disk initialization is complete, you can perform the rest of the configuration tasks; however, it is not recommended that you begin capture until after initialization is complete, because write performance will be degraded, and you risk having a high rate of dropped packets. In most cases, initialization time for all disks will be in the 6–8 hour range.

4.4.7. Press ESC to save the settings and exit the RAID configuration utility.

## 5. Configure BIOS

5.1.1. Reboot the head unit by pressing the power button or by pressing Ctrl+Alt+Delete.

F2 = System Setup F10 = Lifecycle Controller F11 = BIOS Boot Manager F12 = PXE Boot
--

5.1.2. When these 8-bit menu items are displayed, press F2 to enter the system setup.

5.1.3. Click System BIOS and verify that these settings are configured as follows:

Page	Attribute	Value
Memory Settings	Memory Operating Mode	Optimizer Mode
Processor Settings	Virtualization Technology	Disabled
System Profile Settings	System Profile	Performance
Serial Communication	Serial Port Address	Serial Device1=COM1,Serial Device 2=COM2

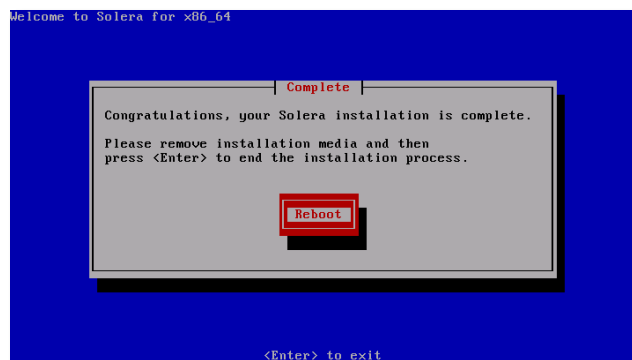
5.1.4. Return to the main *System BIOS* page but do not exit. Continue the procedure.

## 6. Install the Image

- 6.1.1. Attach the Security Analytics ISO to the server (USB key or DVD drive).
- 6.1.2. On the main *System BIOS Settings* page click *Boot Settings > BIOS Boot Settings > Hard-Disk Drive Sequence*.
- 6.1.3. On the *Change Order* dialog, move the device that contains the ISO to the top of the boot-sequence list and click OK.
- 6.1.4. Press ESC until you return to the main *System BIOS Settings* page. Click Finish.
- 6.1.5. On the main *System Settings* page, click Finish to save and exit. The system reboots.
- 6.1.6. At the *Welcome* screen, select Install Security Analytics and press Enter. The installation begins.



- 6.1.7. When the *Complete* screen is displayed, remove the drive (optional) and press Enter to reboot. Now that the Security Analytics software has been installed on your server, it will now be called "Security Analytics appliance" or "appliance" in this document.



## 6.2. Configure Initial Settings

By default, the management interface (`eth0`) is set to `192.168.20.20`. Do one of the following:

- Launch a web browser, navigate to `192.168.20.20`, and go to Step 6.3.1.
- Follow Steps 6.2.1 through 6.2.3 to assign a temporary IP address.

6.2.1. Log in to the CLI via SSH using the following credentials: `admin` | `Solera`

6.2.2. Use `ifconfig` to temporarily assign an IP address to the management interface (`eth0`) that is accessible by your management workstation. This IP address will be valid until the appliance reboots:

```
sudo ifconfig eth0 <ip_address> netmask <subnet_mask>
sudo route add default gw <default_gateway_ip>
```

6.2.3. Launch a web browser and navigate to the IP address for `eth0`.

## 6.3. Access the Web Interface

6.3.1. At the *Login* page, type the default username and password, both of which are case-sensitive: `admin` | `Solera`

6.3.2. Click Log In.

6.3.3. Consult the *Initial Settings* page of the Help Files for instructions on initial appliance configuration. Which version of Security Analytics did you install?

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7.2.x or higher—Locate the latest <i>Security Analytics WebGuide</i> on <a href="#">Symantec Support</a> , click View, and then click Initial Settings.	7.1.x—In the web UI, select Settings > Help > English and then Initial Settings.
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- If you are installing version 7.2.x or later, setting the `root` and `admin` passwords on the Initial Settings page is **required**. When you click **Save**, the default passwords for those accounts are destroyed.
  - Symantec Support does not have a master password for `root` or `admin` access, and there is no backup mechanism for your new passwords.
  - Follow best key-maintenance practices by manually recording your passwords and by keeping a copy in a secure location that is separate from the appliance.
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### 6.4. Next Steps

After your Security Analytics appliance is set up, use the web interface to configure the appliance to start capturing network traffic. For instructions, select Settings > Help > English and then select Data Capture in the left pane of the Help Files.

For assistance with your appliance, contact:

- Symantec Support: [support.symantec.com/en\\_US/contact-support.html](https://support.symantec.com/en_US/contact-support.html)
- Security Analytics Documentation: [support.symantec.com/content/unifiedweb/en\\_US/Documentation.1145515.html](https://support.symantec.com/content/unifiedweb/en_US/Documentation.1145515.html)



## Appendix A: RAID Array Configurations

### Standalone Setups

Consult these tables to configure Central Manager Consoles and R630/2G or R730xd/10G servers that do not have attached storage.

#### Central Manager Console

RAID Cont.	Disk Gp.	Disk ID	RAID	Purpose	Device	Model	Disks @ Size	Useable Space
0	0	0-3	5	System	Central Manager	R630	4 @ 2TB	6

#### R630/2G Standalone

RAID Cont.	Disk Gp.	Disk ID	RAID	Purpose	Device	Model	Disks @ Size	Useable Space
0	0	0-1	1	System	Appliance	R630	2 @ 2TB	2
0	1	2-3	1	Index	Appliance	R630	2 @ 2TB	2
0	2	4-9	5	Capture	Appliance	R630	6 @ 2TB	10
<b>Total Index</b>								<b>2</b>
<b>Total Capture</b>								<b>10</b>
<b>Index-to-Capture Ratio</b>								<b>0.2</b>

#### R730xd/10G Standalone

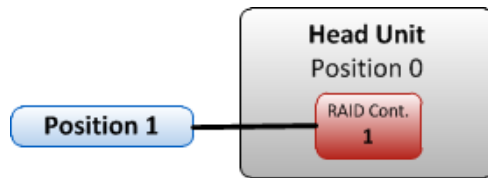
RAID Cont.	Disk Gp.	Disk ID	RAID	Purpose	Device	Model	Disks @ Size	Useable Space
0	0	24-25	1	System	Appliance	R730xd	2 @ 2TB	2
0	1	0-4	5	Index	Appliance	R730xd	5 @ 2TB	8
0	2	5-23	5	Capture	Appliance	R730xd	19 @ 2TB	36
<b>Total Index</b>								<b>8</b>
<b>Total Capture</b>								<b>36</b>
<b>Index-to-Capture Ratio</b>								<b>0.22</b>

## R630/2G Setups with J5300s or MD1400s

Adding storage modules is a **destructive** process, because all of the capture and indexing drive arrays must be reconfigured. Do not begin to add new storage to an existing system until after you have backed up all capture, indexing, and system data. (Consult the Reference section of the Help Files for instructions on backing up system data using [scm migrator](#) or [solera-backup.sh](#) or [solera-restore.sh](#).)

The following setup is valid for an R630/2G with one J5300 or one MD1400 that contains 4TB drives.

Symantec does not support MD1400s with 2TB drives.



R630/2G plus 1 J5300 or MD1400

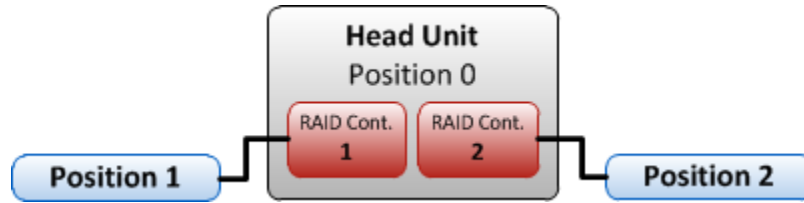
RAID Cont.	Disk Gp.	Disk ID	RAID	Purpose	Device	Model	Position	Disks @ Size	Useable Space
0	0	0-1	1	System	Head Unit	R630	0	2 @ 2TB	2
0	1	2-9	5	Index	Head Unit	R630	0	8 @ 2TB	14
2	0	0-11	5	Capture	Storage Module	J5300, MD1400	1	12 @ 4TB	40
<b>Total Index</b>									<b>14</b>
<b>Total Capture</b>									<b>40</b>
<b>Index-to-Capture Ratio</b>									<b>0.35</b>

## R730xd/10G Setups with J5300s or MD1400s

The following setups are valid for J5300s or MD1400s that contain twelve 4TB drives.

Symantec does not support MD1400s with 2TB drives.

# RAID Array Configurations



R730xd/10G plus 1 J5300 or MD1400

RAID Cont.	Disk Gp.	Disk ID	RAID	Purpose	Device	Model	Position	Disks @ Size	Useable Space
0	0	22-25	1	System	Head Unit	R730xd	0	4 @ 2TB	6
0	1	0-19*	5	Index	Head Unit	R730xd	0	20 @ 2TB	40
2	0	0-11	5	Capture	Storage Module	J5300, MD1400	1	12 @ 4TB	40
<b>Total Index</b>									<b>40</b>
<b>Total Capture</b>									<b>40</b>
<b>Index-to-Capture Ratio</b>									<b>1.00</b>

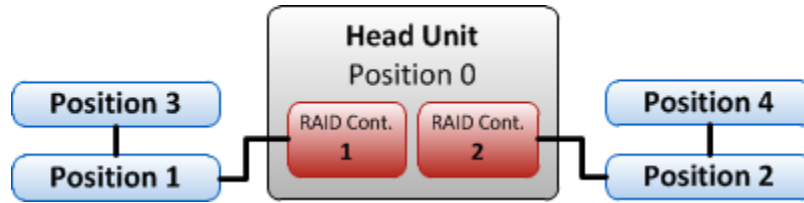
\* The R730xd will have two extra hard drives.

R730xd/10G plus 2 J5300s or MD1400s

RAID Cont.	Disk Gp.	Disk ID	RAID	Purpose	Device	Model	Position	Disks @ Size	Useable Space
0	0	22-25	1	System	Head Unit	R730xd	0	4 @ 2TB	6
0	1	0-19*	5	Index	Head Unit	R730xd	0	20 @ 2TB	40
2	0	0-11	5	Capture	Storage Module	J5300, MD1400	1	12 @ 4TB	40
1	0	0-11	5	Capture	Storage Module	J5300, MD1400	2	12 @ 4TB	40
<b>Total Index</b>									<b>40</b>
<b>Total Capture</b>									<b>80</b>
<b>Index-to-Capture Ratio</b>									<b>0.5</b>

\* The R730xd will have two extra hard drives.

# RAID Array Configurations



R730xd/10G plus 3 J5300s or MD1400s

RAID Cont.	Disk Gp.	Disk ID	RAID	Purpose	Device	Model	Position	Disks @ Size	Useable Space
0	0	22-25	5	System	Head Unit	R730xd	0	4 @ 2TB	6
0	1	0-19*	5	Index	Head Unit	R730xd	0	20 @ 2TB	40
2	0	0-11	5	Capture	Storage Module	J5300, MD1400	1	12 @ 4TB	40
2	1	0-11	5	Capture	Storage Module	J5300, MD1400	3	12 @ 4TB	40
1	0	0-11	5	Capture	Storage Module	J5300, MD1400	2	12 @ 4TB	40
<b>Total Index</b>									<b>40</b>
<b>Total Capture</b>									<b>120</b>
<b>Index-to-Capture Ratio</b>									<b>0.33</b>

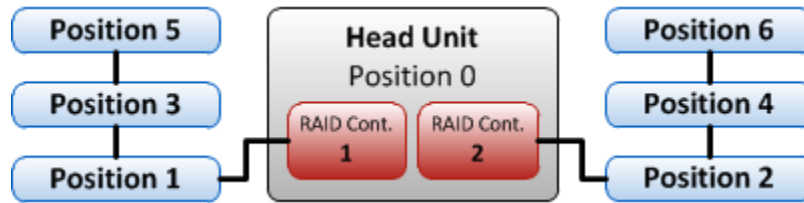
\* The R730xd will have two extra hard drives.

R730xd/10G plus 4 J5300s or MD1400s

RAID Cont.	Disk Gp.	Disk ID	RAID	Purpose	Device	Model	Position	Disks @ Size	Useable Space
0	0	22-25	5	System	Head Unit	R730xd	0	4 @ 2TB	6
0	1	0-19*	5	Index	Head Unit	R730xd	0	20 @ 2TB	40
2	0	0-11	5	Capture	Storage Module	J5300, MD1400	1	12 @ 4TB	40
2	1	0-11	5	Capture	Storage Module	J5300, MD1400	3	12 @ 4TB	40
1	0	0-11	5	Capture	Storage Module	J5300, MD1400	2	12 @ 4TB	40
1	1	0-11	5	Capture	Storage Module	J5300, MD1400	4	12 @ 4TB	40
<b>Total Index</b>									<b>40</b>
<b>Total Capture</b>									<b>160</b>
<b>Index-to-Capture Ratio</b>									<b>0.25</b>

\* The R730xd will have two extra hard drives.

# RAID Array Configurations



R730xd/10G plus 5 J5300s or MD1400s

RAID Cont.	Disk Gp.	Disk ID	RAID	Purpose	Device	Model	Position	Disks @ Size	Useable Space
0	0	22-25	5	System	Head Unit	R730xd	0	4 @ 2TB	6
0	1	0-19*	5	Index	Head Unit	R730xd	0	20 @ 2TB	40
2	0	0-11	5	Capture	Storage Module	J5300, MD1400	1	12 @ 4TB	40
2	1	0-11	5	Capture	Storage Module	J5300, MD1400	3	12 @ 4TB	40
2	2	0-11	5	Capture	Storage Module	J5300, MD1400	5	12 @ 4TB	40
1	0	0-11	5	Capture	Storage Module	J5300, MD1400	2	12 @ 4TB	40
1	1	0-11	5	Capture	Storage Module	J5300, MD1400	4	12 @ 4TB	40
<b>Total Index</b>									<b>40</b>
<b>Total Capture</b>									<b>200</b>
<b>Index-to-Capture Ratio</b>									<b>0.2</b>

\* The R730xd will have two extra hard drives.

# RAID Array Configurations

R730xd/10G plus 6 J5300s or MD1400s

RAID Cont.	Disk Gp.	Disk ID	RAID	Purpose	Device	Model	Position	Disks @ Size	Useable Space
0	0	22-25	5	System	Head Unit	R730xd	0	4 @ 2TB	6
0	1	0-19*	5	Index	Head Unit	R730xd	0	20 @ 2TB	40
2	0	0-11	5	Capture	Storage Module	J5300, MD1400	1	12 @ 4TB	40
2	1	0-11	5	Capture	Storage Module	J5300, MD1400	3	12 @ 4TB	40
2	2	0-11	5	Capture	Storage Module	J5300, MD1400	5	12 @ 4TB	40
1	0	0-11	5	Capture	Storage Module	J5300, MD1400	2	12 @ 4TB	40
1	1	0-11	5	Capture	Storage Module	J5300, MD1400	4	12 @ 4TB	40
1	2	0-11	5	Capture	Storage Module	J5300, MD1400	6	12 @ 4TB	40
<b>Total Index</b>									<b>40</b>
<b>Total Capture</b>									<b>240</b>
<b>Index-to-Capture Ratio</b>									<b>0.18</b>

\* The R730xd will have two extra hard drives.

## Appendix B: Power, Thermal, and Acoustic Summary

Configuration totals for 110V AC at 25°C. (Dell hardware only)

	Central Manager		2 GB Appliance		10 GB Appliance		40 TB Storage	
Kilowatt Hour Cost		\$0.14 kWh		\$0.14 kWh		\$0.14 kWh		\$0.14 kWh
Solution BTU/h, Watts	1239.3 BTU/h	372 W	1061.9 BTU/h	320 W	2204.2 BTU/h	646 W	1262.5 BTU/h	370 W
Sound Power		6.9 bels		6.9 bels		6.9 bels		6.8 bels
Current		3.4 amps		2.9 amps		5.9 amps		3.4 amps
Air Flow	13.5 l/s	28.75 CFM	11.4 l/s	24.2 CFM	15.4 l/s	32.6 CFM	3.1 l/s	6.5 CFM
Total Weight	18.4 kg	40.6 lbs	16.9 kg	37.3 lbs	29.5 kg	65 lbs	28.6 kg	63.1 lbs
Air Temperature Rise	23.4° C	42° F	23.8° C	42.9° F	37.5° C	62.4° F	102.5° C	184.4° F