



# Virtual Tape Library

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## VTL Value Hardware Installation Guide

Sun Microsystems, Inc.  
[www.sun.com](http://www.sun.com)

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# Revision History

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Short Name	Part Number	Dash	Date	Comments
VTL Value Hardware Installation Guide	316196101	A	August 2007	

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# Contents

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<b>About this book</b>	<b>ix</b>
Using this book	ix
Taking advantage of this book's hypertext features	x
Understanding the conventions used in this book	x
Using the Sun StorageTek Customer Resource Center (CRC) to obtain the latest information and supporting resources	xi
Commenting on this book	xi
<b>1. Installing VTL Value hardware</b>	<b>1</b>
Installing the VTL Value appliance in an equipment rack	1
Preparing for the job	1
▼ Obtaining required tools, personnel, and materials	2
Installing slide-rail assemblies	3
▼ Preparing the slide-rail assemblies for installation	3
▼ Attaching the inner rails to the server chassis	4
▼ Positioning the outer/middle rail assembly in the rack	5
▼ Attaching the outer/middle rail assembly to the rack	8
▼ Adjusting and securing middle/outer slide rails	11
Mounting the appliance in the rack	13
Cabling	16

Installing the cable management arm	16
▼ Attaching the Outer Rail Extension	17
Routing and connecting cables	20
▼ Installing data and power cables	20
Starting the VTL appliance	22
▼ Powering up	22
▼ Powering down	24
<b>2. Setting up the VTL Value ILOM service processor</b>	<b>25</b>
Understanding the ILOM	25
Changing the IP address of the ILOM SP	26
▼ Attaching a laptop to the ILOM via the VTL private network	26
▼ Changing the IP address of the ILOM	28
Changing the ILOM password	29
▼ Resetting the default ILOM password	29
Checking the health of the internal storage systems	30
▼ Accessing the Solaris desk top via the ILOM	31
▼ Running basic storage diagnostics	33
Changing the Solaris root password	35
▼ Changing the default Solaris root password	36
Logging out	36
▼ Logging out of the operating system and ILOM	36
<b>A. The back and front panels of the VTL Value server</b>	<b>39</b>
<b>B. VTL private network addresses</b>	<b>41</b>
<b>C. Connecting to ILOM via a serial port</b>	<b>43</b>
<b>D. ILOM command reference</b>	<b>45</b>

<b>E. Removing VTL Value hardware</b>	<b>49</b>
Shutting off system power	49
▼ Powering down	49
Removing the cable management arm	50
Removing the VTL appliance from a rack	51
▼ Preparing to remove the appliance	51
▼ Removing the appliance from the rack	51





# About this book

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This book describes the installation and initial configuration processes specific to the Sun StorageTek VTL Value appliance. In VTL Value deployments, it supersedes the *Sun Fire™ X4500 Server Installation Guide* (819-4358-11) that ships with the X4500 platform. While the VTL Value appliance hardware is almost identical to the X4500, it has been specially preconfigured to host Virtual Tape Library software on the Solaris operating system.

## Using this book

This book leads you through the process of setting up the VTL Value equipment from beginning to end, with all the needed information immediately to hand and the alternatives clearly indicated. Each chapter and section begins with a list of the tasks it contains. Tasks are presented in order, and the steps in each process are numbered, in the sequence in which they are to be performed. Conditional steps (steps that you perform only in specified circumstances) begin with the condition (“If A ...”) and end with the corresponding action (“... do B”); if the condition does not apply, you simply skip the step. Each task ends with a reference to the next task in the sequence:

**Next task:** “Installing slide-rail assemblies” on page 3.

When the setup process branches, the tasks ends with conditional alternatives:

**Next task:**

- If the customer does not plan to run the management console from a host on the local area network (LAN), press `Skip`, and go to the next task.
- Otherwise, carry out the procedure “Configuring the Ethernet management interface” on page 57.

To minimize the time you spend switching between publications or major sections of the document, we have made an effort to avoid cross references to external information wherever possible. If you need to have a figure, a table, or a procedure, it should always be, at worst, on a neighboring page.

The chapters are organized to reflect top-level tasks. The first chapter details the physical installation of the appliance hardware, including rack mounting, cabling, and power up procedures. The second chapter explains the initial configuration of the operating system software and network and some basic checks that should be run on a newly installed system.

Appendices provide additional information that, while not essential to a normal installation, may prove useful in special circumstances. These list the private network addresses used when installing the VTL Value appliance, provide instructions for serially connecting to the VTL Value Integrated Lights Out Manager (iLOM) service processor, and summarize commands that can be entered at the iLOM commandline interface (CLI).

## Taking advantage of this book's hypertext features

If you choose to view this book online, rather than in printed form, you can jump quickly to any part of the book by clicking on the corresponding entry under the **Bookmarks** tab on the left side of the Adobe Acrobat interface. In addition, clicking on entries in the table of contents, cross references, or references to subsequent tasks will take you directly to the indicated part of the document. You can then use the back arrow on the Adobe Acrobat Reader to return, if desired, to the point you left. In addition, clicking on most Uniform Resource Locators (URLs) and on most references to online resources will open your default web browser to the corresponding web page, so that you can, if necessary, obtain a required download immediately (be aware, however, the URL to specific pages change frequently and may not always be accurate).

## Understanding the conventions used in this book

The table below illustrates the conventions that represent literal and variable values, commands, and property names in this book.

Convention	Meaning	Examples
AaBbCc123	Fixed-width text is used for literal values, including names of commands, files, directories, literal computer inputs/outputs, and Uniform Resource Locators (URLs)	Edit your <code>.login</code> file. Use <code>ls -a</code> to list files. <code>% You have mail.</code>
<i>AaBbCc123</i>	Oblique text is used for variables that stand for real names or values and for book titles.	To delete a file, type: <code>rm filename.</code>
<b>ABCD</b>	Bold, san-serif text indicates callouts in illustrations.	Click <b>Submit</b> ( <b>A</b> below).
<b>1.</b>	Numbered paragraphs indicate steps in a process that should be executed in sequential order.	
■	Bulleted paragraphs indicate lists of alternatives or components.	

## Using the Sun StorageTek Customer Resource Center (CRC) to obtain the latest information and supporting resources

The Sun StorageTek Customer Resource Center <[www.support.storagetek.com](http://www.support.storagetek.com)> stores the latest documentation, software updates, and licensing resources for VTL Value solutions. Always check the CRC for updates to this document before proceeding. Documents distributed on CDROM may not reflect the latest changes to VTL hardware, software, and services.

You must have an account to use the CRC. If you do not currently have access, click the [Request a CRC Password](#) link at the URL shown above.

## Commenting on this book

Sun welcomes your comments and suggestions for improving this book. Contact us at [glfs@sun.com](mailto:glfs@sun.com). Please include the title, part number, issue date, and revision: *VTL Value Hardware Installation Guide*, part number 316196101 (Aug 2007 revision A).



## Installing VTL Value hardware

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This chapter describes the process of physically installing the VTL Value appliance and applying power. The tasks break down as follows:

This chapter contains procedures for:

- “Installing the VTL Value appliance in an equipment rack” on page 1 (if a rack is used)
- “Cabling” on page 16
- “Starting the VTL appliance” on page 22.

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## Installing the VTL Value appliance in an equipment rack

To safely install the VTL Value appliance in an equipment rack, you need to carry out the following tasks:

- “Preparing for the job” on page 1
- “Installing slide-rail assemblies” on page 3
- “Mounting the appliance in the rack” on page 13

## Preparing for the job

Before you start the assembly and installation process, you must assess the compatibility of the selected rack and gather the necessary personnel, tools, and materials. Proceed as follows.

## ▼ Obtaining required tools, personnel, and materials

### 1. Make sure that the selected rack meets the following specifications:

- The rack has four posts, with a mounting at both front and rear (two-post racks are not compatible with the VTL Value slide-rails).
- The horizontal opening and unit vertical pitch of the rack conform to ANSI/EIA 310-D-1992 or IEC 60927 standards.
- The rack's front and rear rack-mounting planes are 23-34 inches (58-87 cm) apart.
- The minimum depth from the rack's front cabinet door to the front rack-mounting plane is 1.85 inches (4.7 cm).
- The minimum depth from the rear cabinet door to the front rack-mounting plane is 38 inches (96.5 cm) with the cable-management arm installed (recommended) or 31.5 inches (80.0 cm) without the cable management arm.
- The minimum width between obstructions (such as structural supports and cable troughs) is 18 inches (45.6 mm) at all points between the front and rear mounting planes.

### 2. Make sure that the available power meets the requirements listed in the table below:

Location	Voltage	Amperage	Plug type	Receptacle type
US/North America:	250 VAC	30 A	NEMA L6 30P	NEMA L6-30R
EMEA:	230 VAC	32 A	IEC-309P	IEC-309R

### 3. Have the orderable slide-rail assemblies at hand.

### 4. Have the following tools at hand:

- one 10-inch #2 Phillips screwdriver, preferably with a magnetic tip
- a carpenter's spirit level
- a mechanical lift (highly recommended).




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**Caution** – The VTL Value appliance weighs 160 pounds (72.7 kg) when fully loaded with components. To prevent injury to personnel or damage to the equipment, Sun strongly recommends using a mechanical lift when installing the server in a rack.

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### 5. If a mechanical lift is not available, make sure that at least four trained people are available to remove the server or reduce the weight of the server by removing components:

- Remove both power supplies.
- Remove the system controller.

- Label the hard disk drives in slots 2 to 46 and then remove them (you will reinstall the drives in their original slots using the labels as a guide).

Do not uninstall the fan trays or the bootable drives in slots 0 and 1.

**6. If a mechanical lift is available, make sure that at least three people are on hand to install the server in the rack.**

It takes two people to operate the lift and install the server and one additional person to insure that the rails are engaged correctly.

**Next task:** “Installing slide-rail assemblies” on page 3.

## Installing slide-rail assemblies

The VTL Value slide-rail system use three-part rails. Each rail assembly consists of an outer rail that is fixed to the equipment rack, an inner rail that is fixed to the chassis of the VTL Value appliance, and a middle rail that slides on the inner and outer rails. To install the rail assemblies, carry out the following tasks:

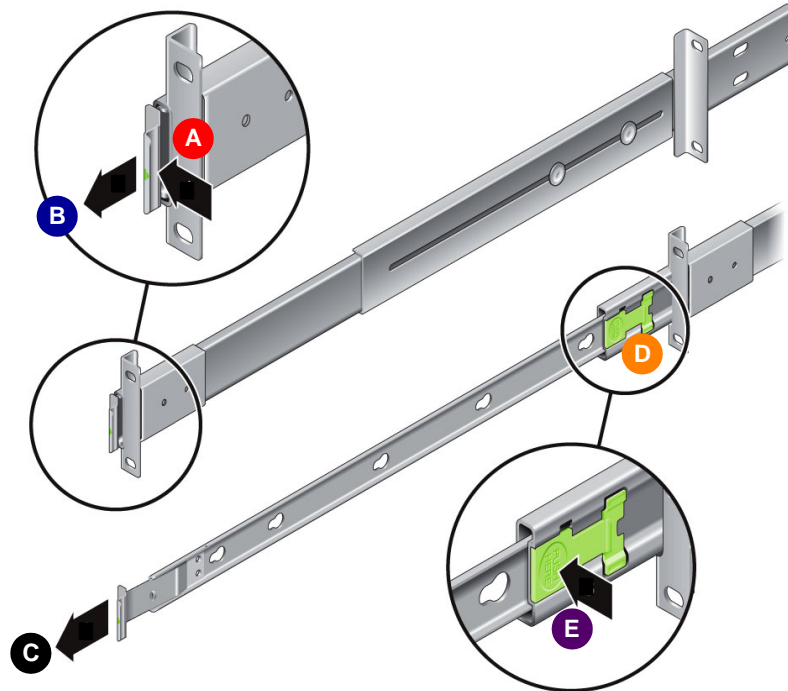
- “Preparing the slide-rail assemblies for installation” on page 3
- “Attaching the inner rails to the server chassis” on page 4
- “Positioning the outer/middle rail assembly in the rack” on page 5.
- “Attaching the outer/middle rail assembly to the rack” on page 8.
- “Adjusting and securing middle/outer slide rails” on page 11.

### ▼ Preparing the slide-rail assemblies for installation

The slide-rail assemblies are shipped assembled, so you have to take them apart before you proceed further. Prepare each rail assembly as described below.

- 1. Unpack the slide-rail assembly.**
- 2. Place the assembly on a flat surface.**

3. Push the slide-rail lock (A below) to release the inner rail, and start to pull the inner rail out of the middle rail (B).



4. Continue to pull the inner rail out of the middle rail (C above) until it contacts the internal stop (D).
5. Press the **Push Here** button on the green mounting-bracket release (E above), and pull the mounting bracket free of the middle/outer rail assembly.
6. Repeat for the remaining slide-rail assembly.

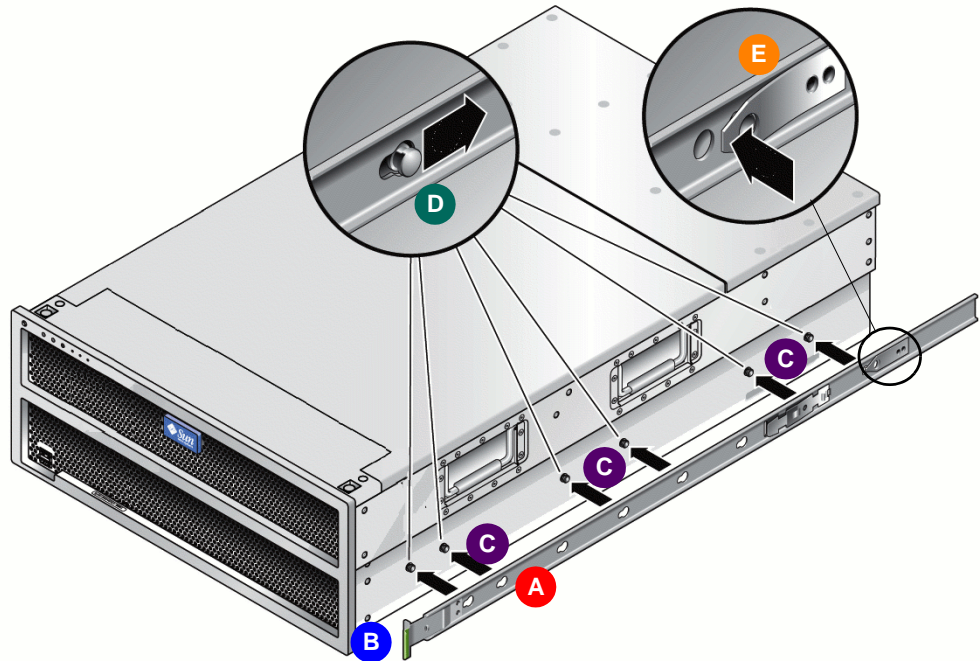
**Next task:** "Attaching the inner rails to the server chassis" on page 4.

### ▼ Attaching the inner rails to the server chassis

This procedure explains how to attach the inner rails to the server chassis. For each rail, proceed as described below.



1. Position the inner rail (A below) against the chassis with the slide-rail lock (B) at the front.



2. Align the three pairs of keyed openings on the inner rail with the three pairs of locating pins on the side of the chassis (C above).
3. While pressing the rear of the rail against the side of the chassis, push the rail toward the rear of the chassis (D above) until the rail clip (E) locks into place with an audible click.
4. Make sure that all six locating pins are locked into the keyed openings.

**Next task:** Once both inner rails have been attached, go to “Positioning the outer/middle rail assembly in the rack” on page 5.

### ▼ Positioning the outer/middle rail assembly in the rack

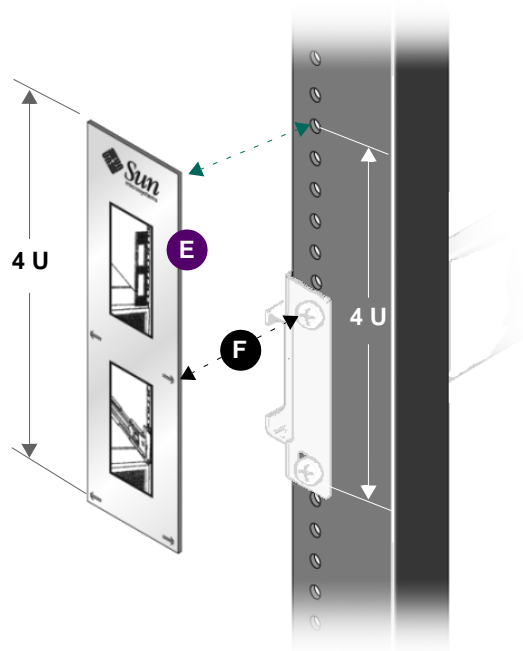
The VTL Value appliance is four rack-units (4U) high and quite heavy, due to the number of internal storage disks installed. You must therefore position the appliance in the rack carefully. The chosen location must allow enough space for a 4U appliance while presenting the smallest possible tipping hazard. Proceed as follows.

1. Before you start, select the lowest possible position in the rack, and deploy the rack's anti-tilt bar.

A top-heavy system tips over easily. So always load equipment into a rack from the bottom up and always place the heaviest equipment as low as possible. Always use the anti-tilt bar to keep the rack from tipping during installation. See the service label on the VTL Value appliance cover and/or the label on the rack.

2. Place the paper, rack-mount template (E below) in the selected position.

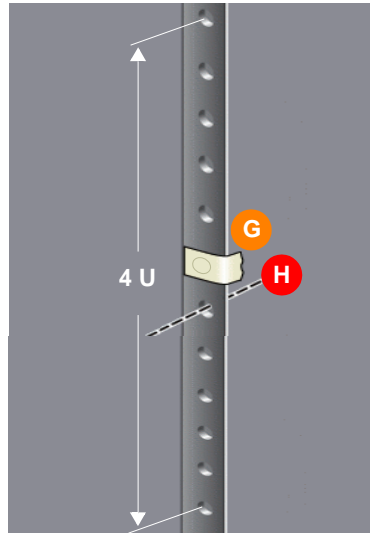
The rack-mount template ships with the slide-rail assemblies. It is the same height as the appliance (four rack-units—4U) and is marked with four arrows that show the location of the rail mounting screws. In a rack with 3 mounting holes per rack unit (as in the illustration), the template covers 12 holes.



3. Use the arrows on the template to select the rack mounting hole that will take the top slide-rail mounting screw (F above).

In the illustration above, the installed position of the slide rail is shown in pale gray.

4. At the rear of the rack, use tape (G below) or a pin to temporarily mark the mounting hole (H) that corresponds to the mounting hole that you selected on the front.

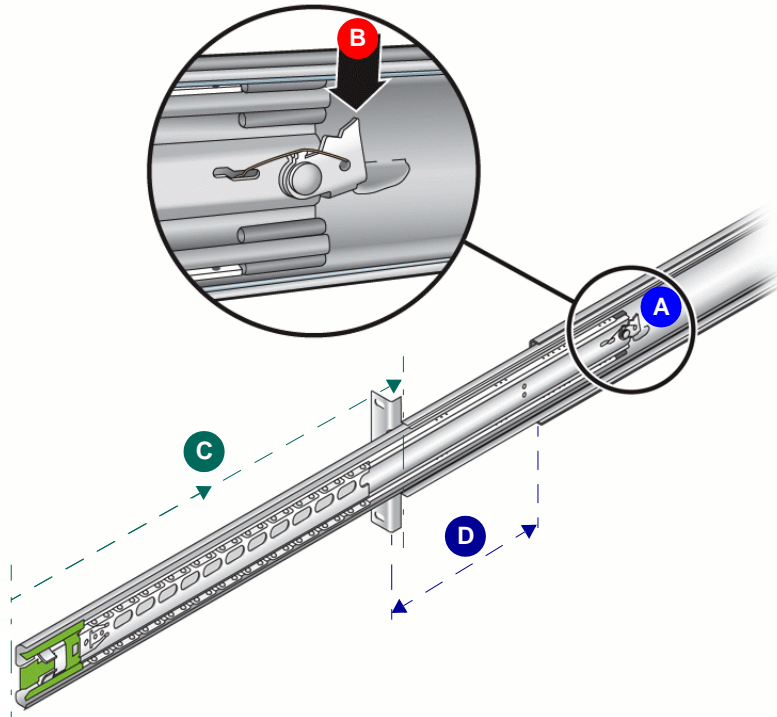


5. Repeat steps 2-4 for the remaining middle/outer rail.

**Next task:** "Attaching the outer/middle rail assembly to the rack" on page 8.

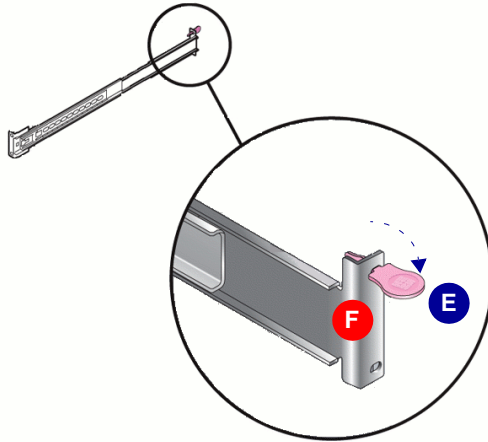
▼ Attaching the outer/middle rail assembly to the rack

1. Before you begin, push the middle rail into the corresponding outer rail so that the ends are more or less flush. To do this, release the spring-activated slide-rail lock (A below) by pushing *twice* in the direction shown (B), then telescope the middle rail into the outer rail (C):



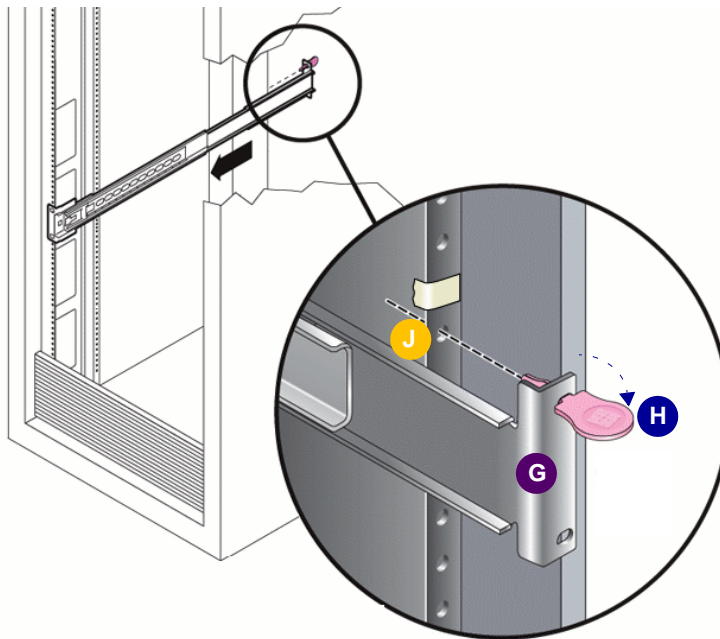
2. Adjust the length of the middle/outer slide-rail assemblies to the distance between the front and rear posts of the rack (D above).

3. Insert the oval-shaped neck of a temporary installation pin (E below) into the oval-shaped hole in rear mounting bracket of the outer slide-rail (F), and turn the pin clockwise 90 degrees, so that the pin locks into place in the 3 o'clock position.



Temporary installation pins are packed in a plastic bag, with the slide-rail hardware.

4. Standing at the front of the rack, position the rail and bracket (G below) so that you can draw the temporary installation pin (H) into the mounting hole in the rear rack post (J).



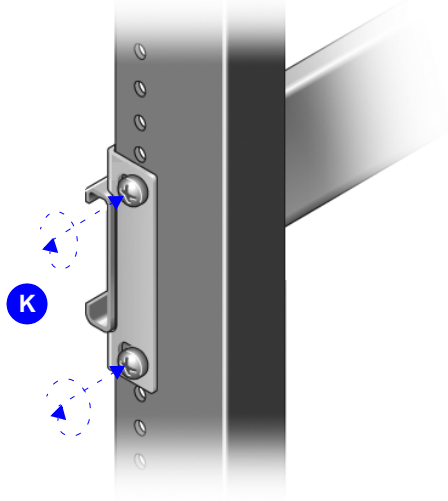
5. If the rack has threaded mounting holes in the rack posts, insert the correct, metric or standard mounting screws through the slide-rail brackets and into the threaded holes.

The Sun™ Rack 1000 hardware uses metric screws.

6. If your rack does not have threaded mounting holes, insert the mounting screws through both the slide-rail brackets and rack posts, and then secure them with caged nuts.

7. Hand-tighten the screws in the front bracket holes (K below).

You will use a slide-rail spacing tool later to make final adjustments.

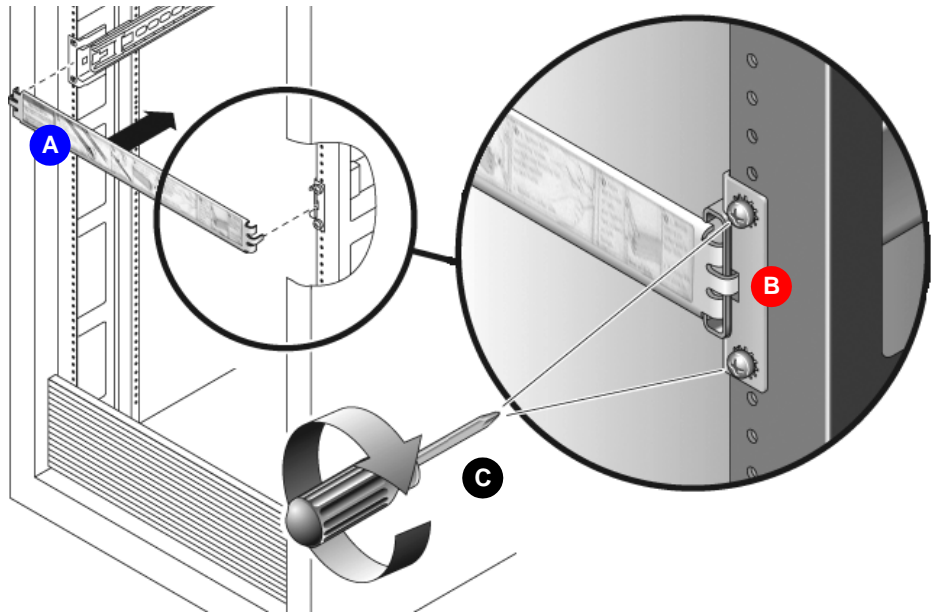


8. Repeat this procedure with the remaining, unsecured middle/outer rail.

**Next task:** "Adjusting and securing middle/outer slide rails" on page 11.

## ▼ Adjusting and securing middle/outer slide rails

1. Once both slide rails are loosely fastened at the front, insert the slide-rail spacing tool/rack installation aid (A below) into the outer rail brackets at the front of the rack (B).

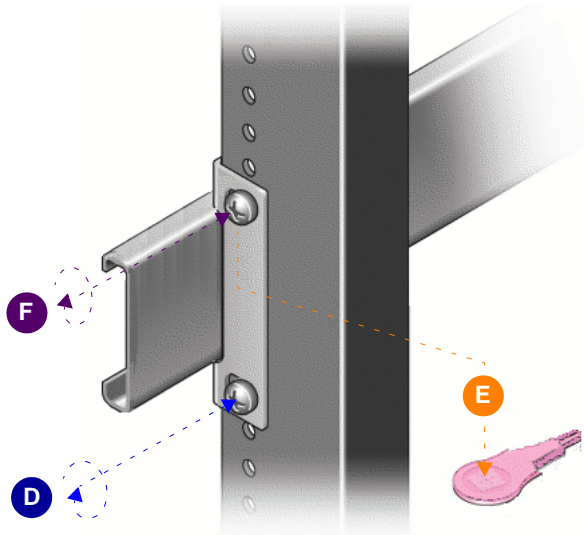


2. Hold the slide-rail spacing tool in place as you tighten all four front screws with a #2 Phillips screwdriver (C above).

The spacing tool should be a snug fit and might require pressure to ensure that it is fully engaged with the left and right slide rails.

3. Pull the slide-rail spacing tool straight out from the slide rails, taking care not to deform its alignment tabs.

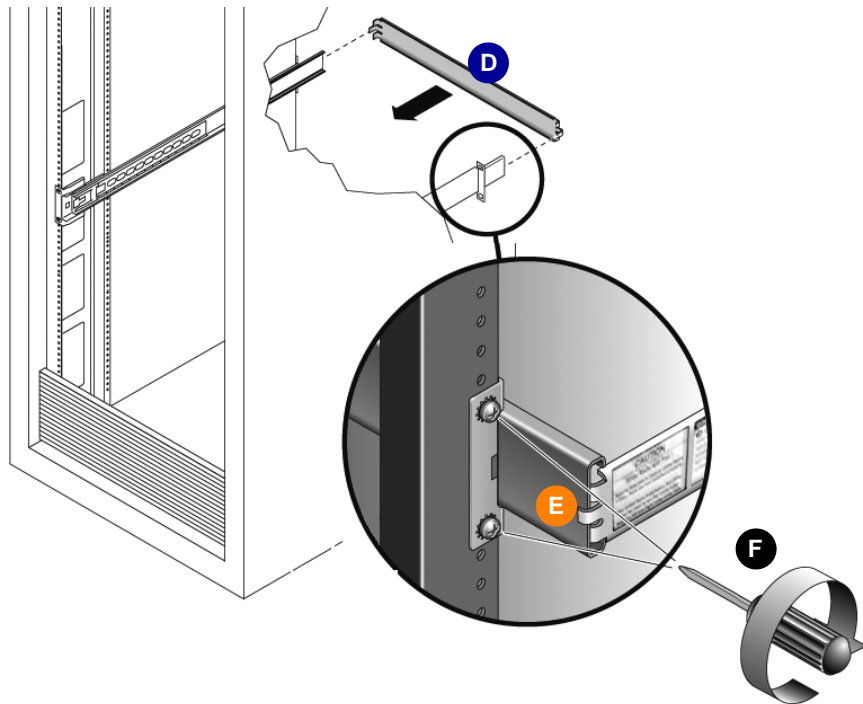
4. At the rear of the rack, hand-tighten a screw in each of the bottom holes on the outer rail brackets (D below).



5. Once the bottom screw is started, replace the installation pins at the top (E above) with hand-tightened screws (F).



6. Once both slide rails are loosely fastened at the rear, insert the slide-rail spacing tool into the outer rail brackets (D below).



7. Hold the spacing tool in place (E above) as you tighten all four rear screws with a #2 Phillips screwdriver (F).

The spacing tool should be a snug fit and might require pressure to ensure that it is fully engaged with the left and right slide rails.

8. Pull the slide-rail spacing tool straight out from the slide rails, taking care not to deform its alignment tabs.

**Next task:** "Mounting the appliance in the rack" on page 13.

## Mounting the appliance in the rack

Once the inner rails are attached to the appliance chassis and the outer/middle rail assemblies are attached to the rack, you are ready to install the appliance in the rack. Proceed as follows.

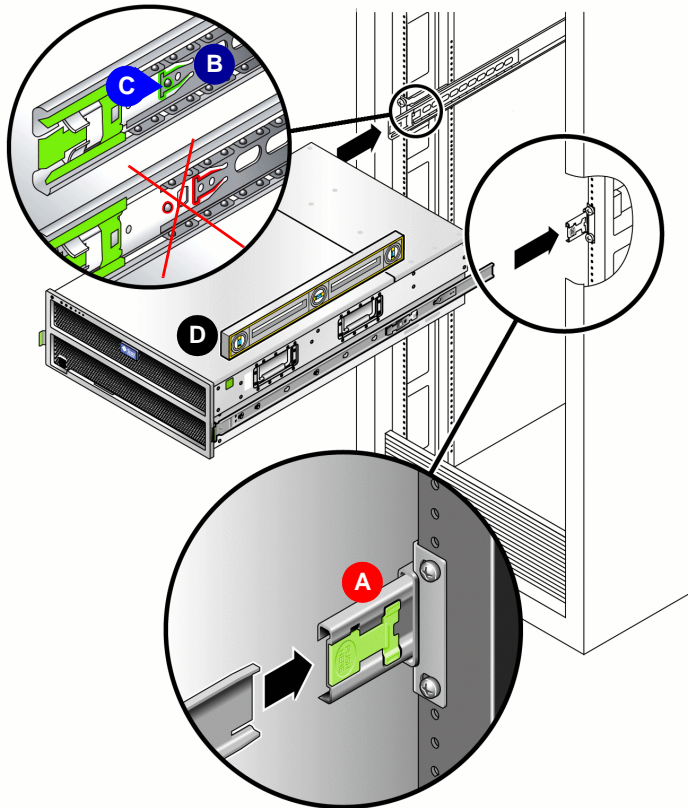


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**Caution** – To reduce the risk of serious personal injury or equipment damage, use a mechanical lift when mounting the server in the rack. If a lift is not available, remove components as described in the section “Obtaining required tools, personnel, and materials” on page 2 and following.

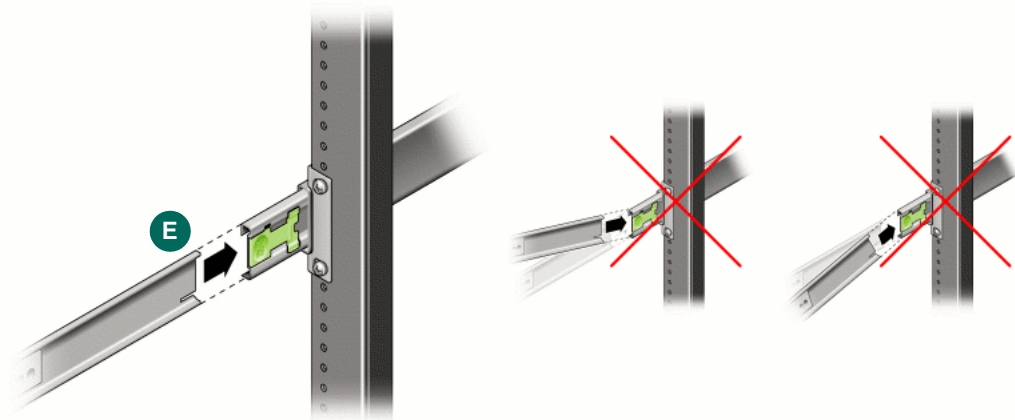
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1. Pull the middle rails out from the outer rails, past the internal stop, so that the middle rails are about 1.5 inches from the front face of the rail mounting bracket (A below).



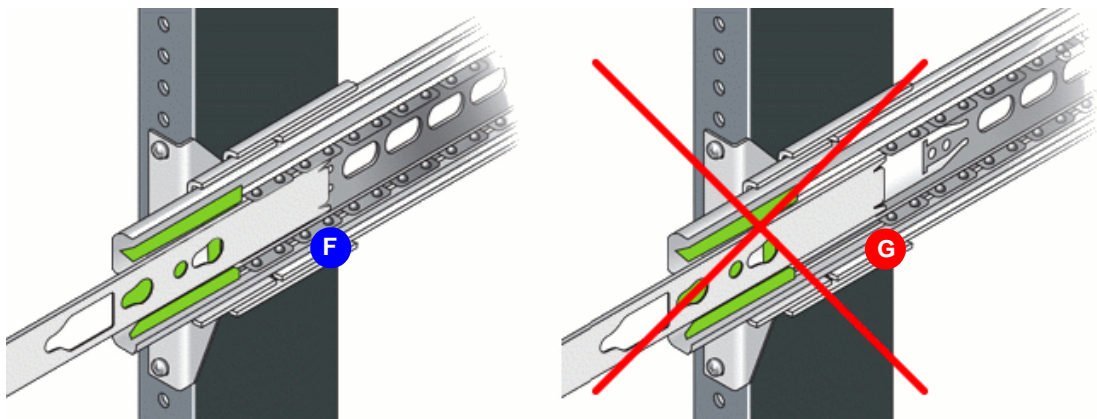
2. Make sure that the outer-rail ball-bearing retainer (B above) is pulled to front of rail.
3. Make sure that the spring tab on the outer rail ball-bearing retainer is securely latched over the dimple on the middle slide rail (C above).

- Using a level (D above), align the server with the rails, and insert the inner rails into the middle rails at the correct angle (E below).



- Have an assistant stand at the rear of the rack.
- As you push the server into the rack, the assistant makes sure that the inner rails are engaged with the ball-bearing retainers (F below) and sliding on the bearings on both slide rails.

The assistant makes sure that the rails are NOT merely pushing the ball-bearing retainers back into the rail assembly (G).



- If there are problems, support the server with the mechanical lift, and realign the chassis-mounted inner rails with the rack-mounted middle rails.
- Once the inner rails are correctly engaged and riding on the bearings, slide the server all the way into the rack to set the rail locks.



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**Caution** – To prevent damage to the server or physical injury, if you are using a lift, keep the lift under the server. If you are manually installing the server, hold handles on each side of the server.

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9. **Test the operation of the slide-rails by slowly pulling the server out of the rack until the slide-rails reach their stops.**
10. **Test the operation of the slide-rails by pushing the server back into the rack until it reaches the internal stops.**
11. **Push the middle rail release button on each slide-rail while you simultaneously push the server past the stops.**
12. **Continue pushing the server fully into the rack until the slide-rail locks engage.**
13. **If you depopulated the server of components, reinstall the components that were removed. Make sure to replace hard disk drives in the same locations from which they were removed.**

**Next task:** “Installing the cable management arm” on page 16.

---

## Cabling

To provide power and network connectivity to the VTL appliance, carry out the following tasks:

- “Installing the cable management arm” on page 16
- “Routing and connecting cables” on page 20.

### Installing the cable management arm

The cable management arm (CMA) is optional, but highly recommended. The CMA protects I/O and power cables from damage that might otherwise occur when you slide the server in and out of the rack. The CMA kit includes the following components:

- an outer rail extension that, when viewed from the rear of the server, mounts the cable management arm on the right outer rail
- a bracket that connects the cable management arm to the chassis
- the cable management arm itself.

Use one CMA for each appliance. Never run cables from one appliance through a CMA attached to another server.

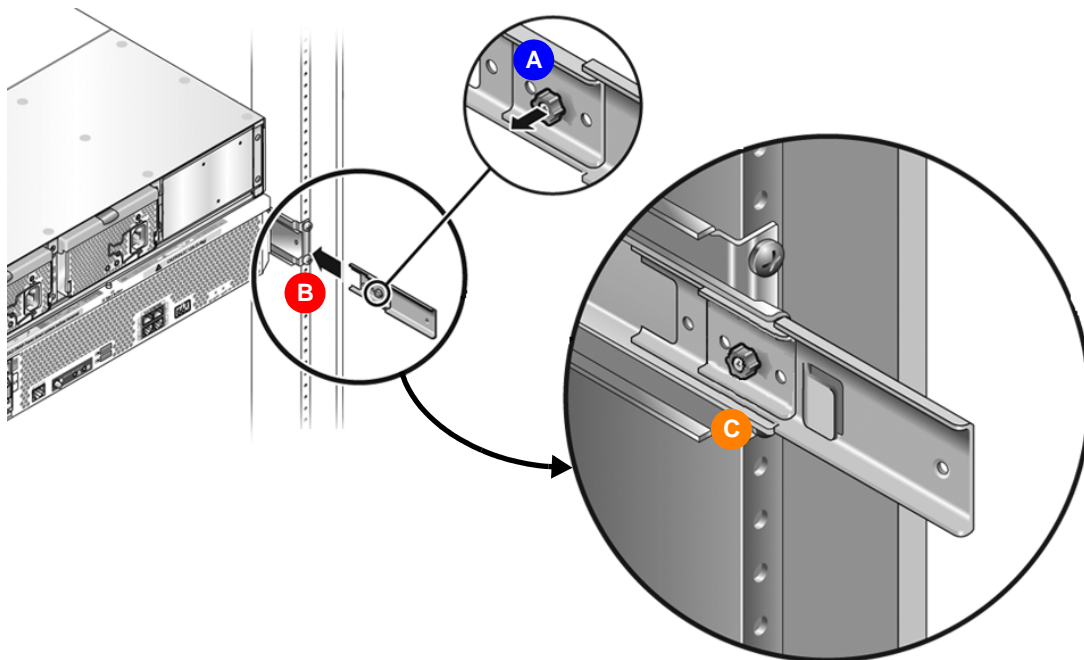
---

**Note** – References to “left” or “right” in the following procedures assume that you are facing the rear of the equipment rack.

---

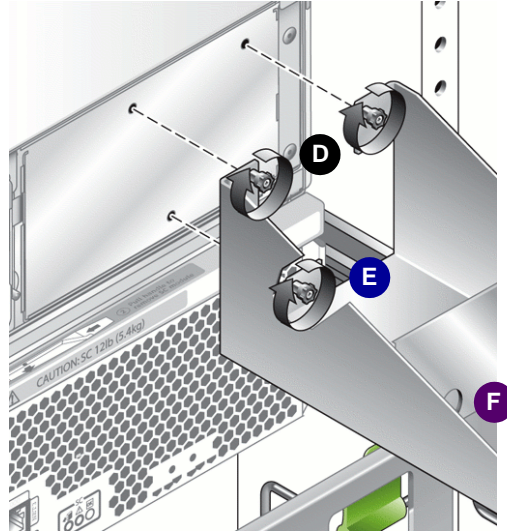
## ▼ Attaching the Outer Rail Extension

1. **Unpack the cable management arm (CMA) parts, and take them to the rear of the equipment rack.**

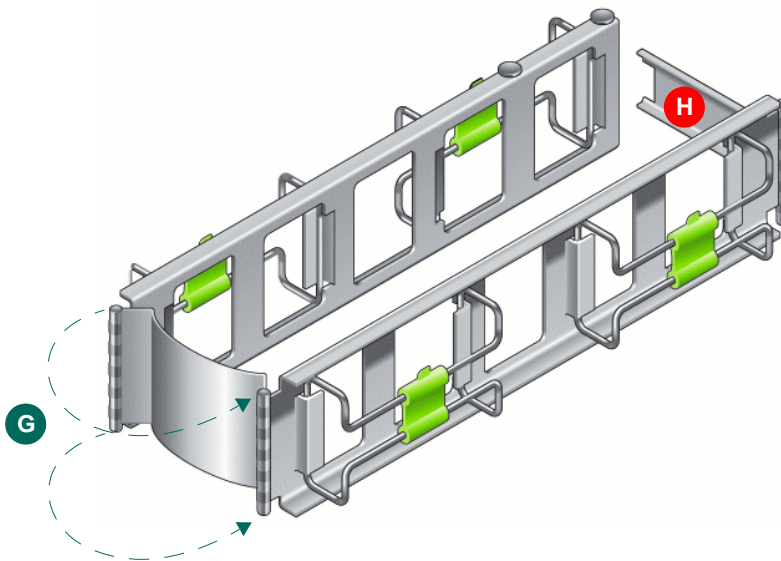


2. **Pull out the captive thumbscrew (A above) and insert the outer rail extension to the right outer rail.**
3. **Insert the extension as far as it will go while aligning the captive thumbscrew with the hole in the outer rail (B above).**
4. **Tighten the captive thumb screw to secure the rail extension (C above).**
5. **Make sure that the server is all the way back in the rack, against the internal stops.**

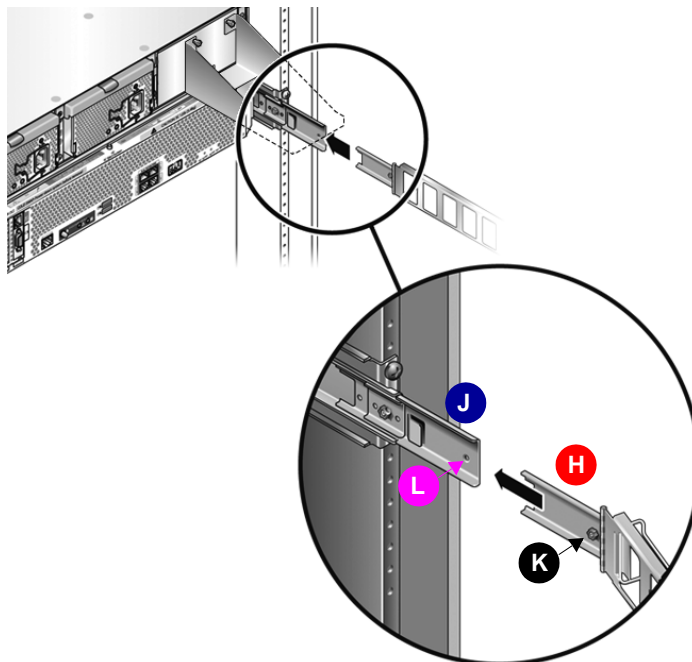
- Align the CMA-to-chassis bracket with the mounting holes in the right side of the server, and hand tighten the upper and lower screws (D and E below).



- Using a #2 Phillips screwdriver, tighten all three screws. Access the lower screw using the hole provided (F above).
- Fold the cable management arm (CMA) back on itself (G below).

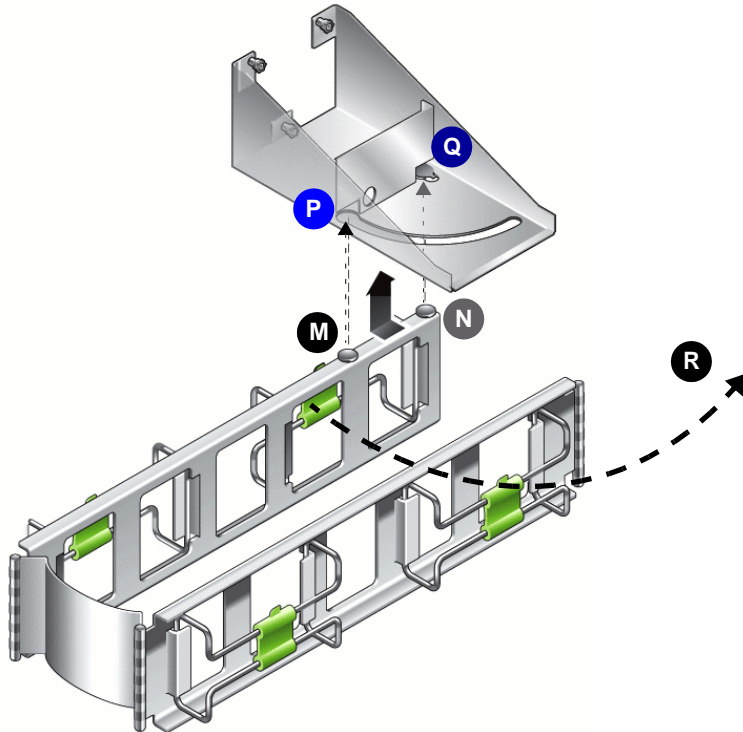


9. Push the CMA hinge plate (H above and below) into the outer rail extension (J below) until the captive thumbscrew on the hinge plate (K) aligns with the hole in the outer rail extension (L).



10. Tighten the captive thumbscrew (K above) to secure the cable management arm (CMA) to the rail extension.

11. Placing your hand under the CMA for support, fit the two pins (M, N below) into the keyholes in the CMA-to-chassis bracket (P, Q) and rotate CMA towards you until it seats with an audible snap (R).



**Next task:** "Routing and connecting cables" on page 20.

## Routing and connecting cables

Once you have racked the server and installed the cable management arm (CMA), you are ready to install cables, including:

- power cords
- Ethernet local area network (LAN) cables
- Fibre Channel storage area network (SAN) cables

Proceed as follows.

### ▼ Installing data and power cables

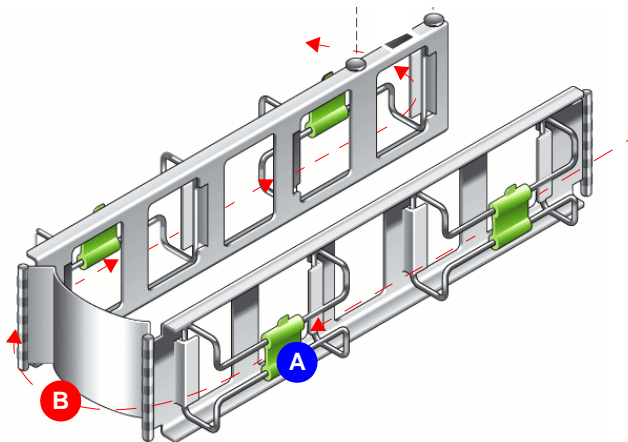
1. On the cable management arm (CMA), pop the green tabs to open the cable hangers (A below).



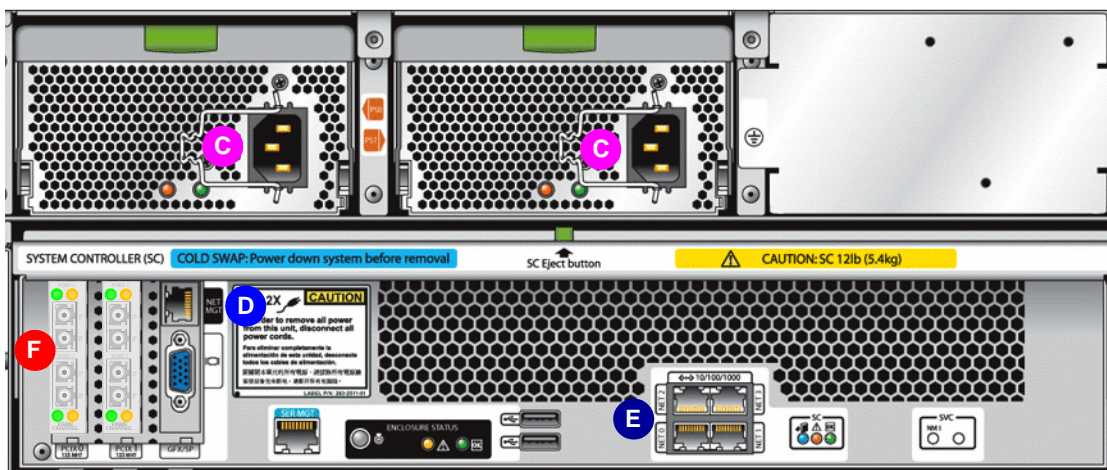
**2. Route power, SAN, and LAN cables to the server through the CMA cable hangers (B below).**

You need to route the following cables:

- one Ethernet LAN cable for the NETMGT port
- up to four Ethernet LAN cables for the LAN ports (NET0, NET1, NET2, and NET3).
- optical Fibre Channel cables for each SAN client (backup server).



**3. Connect the power cords to the connectors on the power supplies, and secure them to the chassis using the clips provided (C below).**



**4. Route Ethernet LAN cables to the NETMGT port (D above) and the LAN ports, NET0, NET1, NET2, and NET3 (E), but do not connect them yet.**

Wait to connect Ethernet cables until after LAN connectivity has been configured.

5. Route Fibre Channel Storage Area Network (SAN) cables to the host bus adapters (W above), but do not connect them at this time.

Wait to connect Fibre Channel cables until after the Fibre Channel interfaces have been zoned to hosts.

6. Inspect the attached cables for binding or kinks, and make sure that the CMA extends easily and does not bind in the slide-rails. Adjust the cable hangers and CMA as required.

7. To maximize airflow, tie-wrap power cords at the bottom of the CMA troughs and LAN and SAN cables at the top.

Next task: "Starting the VTL appliance" on page 22.

---

## Starting the VTL appliance

Powering up a VTL appliance is a two-step process. First, you apply standby power to bring up the Integrated Lights Out Manger (iLOM) service processor. Then you apply main power to start the VTL server and boot the Solaris operating system.



---

**Caution** – The VTL Value appliance requires 200 to 240 VAC.

---

### ▼ Powering up



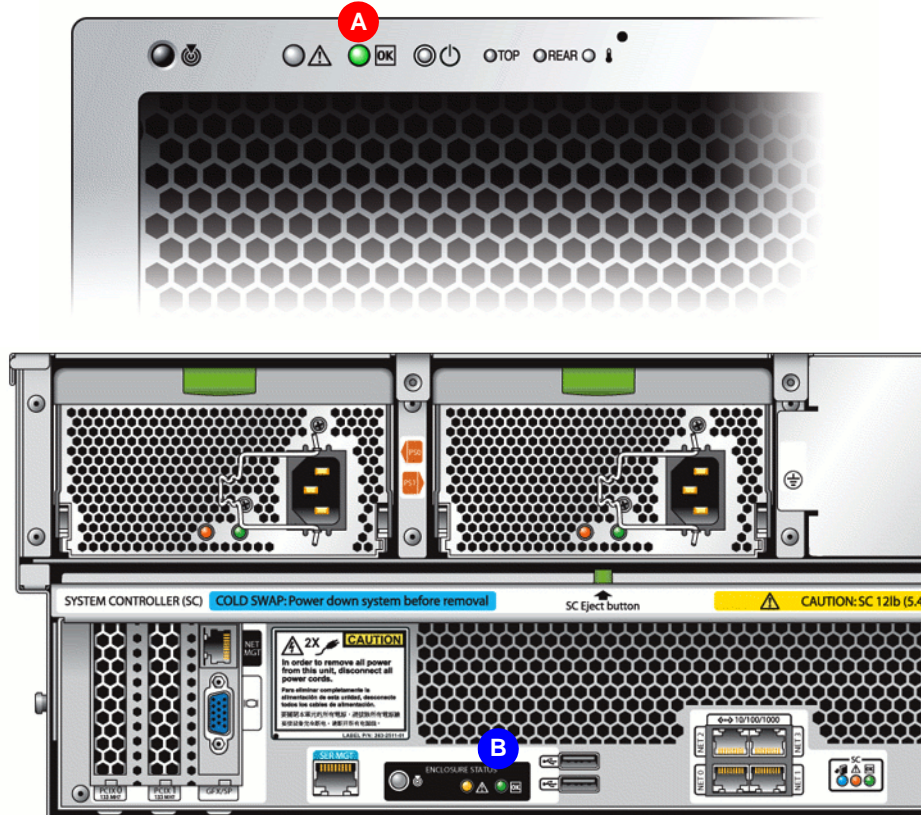
---

**Caution** – Do not operate the server for longer than 60m seconds unless all fans, component heat sinks, air baffles, and covers are installed. Severe damage to server components can occur if the server is operated without adequate cooling mechanisms.

---

1. To apply standby power and start the service processor, plug the two VTL appliance power cords in to grounded, 200-240 VAC power outlets.

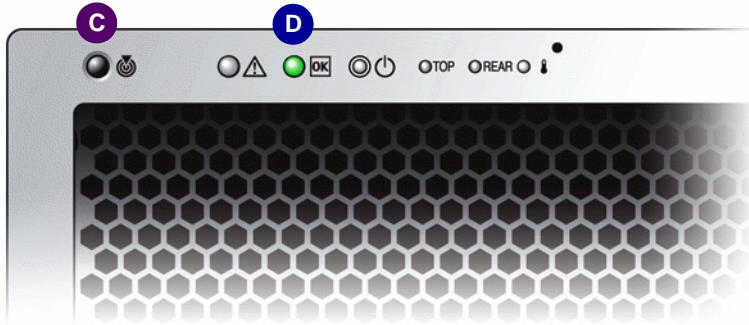
The startup process begins. It may take up to 58 seconds. When the service processor is up and the system is standing by, the OK LED on the front panel (**A** below) blinks, as does the Enclosure Status OK LED on the system controller (**B**).



2. **Once standby power is on, start the VTL server. Use a stylus to press and release the recessed main power button on the server front panel (C below).**

The VTL appliance ships with a pre-configured Solaris operating system, so you do not have to do any additional configuration before applying main power.

When the server is up and running on main power, the OK LED (D) stops blinking and stays lit.



**Next task:** "Setting up the VTL Value ILOM service processor" on page 25.

## ▼ Powering down

If you need to power off the appliance, you can proceed in any of three ways, depending on the circumstances.

1. **Under normal circumstances, power off the server gracefully by using a stylus to press and release the power button on the front panel.**

This is the normal way you shut down the VTL server. Pressing and releasing the power button causes the Advanced Configuration and Power Interface (ACPI) to stop the operating system in an orderly fashion before shutting main power off. It places the system in standby power mode. The OK LED on the front panel starts blinking.

2. **In an emergency, power off the server immediately by using a stylus to press and hold the power button for four seconds.**

This shuts the main power off and places the system in standby power mode. The OK LED on the front panel starts blinking.

3. **Then, if you need to power off the appliance completely, so that neither the server nor the service processor draws power, unplug the AC power cords from the power supplies at the rear of the server.**

The OK LED on the front panel is not lighted.

## Setting up the VTL Value ILOM service processor

---

The Sun StorageTek VTL Value appliance is implemented on a Sun Fire X4500 server platform that has been specially configured for tape virtualization. Much of the configuration of the base X4500 server has already been done at the factory. You merely need to set the IP address of the VTL Value Integrated Lights Out Manager (ILOM) service processor. This chapter covers the following tasks:

- “Understanding the ILOM” on page 25
- “Changing the IP address of the ILOM SP” on page 26
- “Changing the ILOM password” on page 29
- “Checking the health of the internal storage systems” on page 30.

---

## Understanding the ILOM

The Sun Integrated Lights Out Manager (ILOM) is a service processor that supports operating-system independent management interfaces and applications for the Sun StorageTek VTL Value appliance.

The core of the system is the Graphics Redirect and Service Processor (GRASP) hardware. The GRASP monitors the status and configuration of field-replaceable VTL Value components, including fans, disk drives, and power supplies. It also provides the physical, serial and Ethernet management interfaces to the VTL Value system.

GRASP firmware provides a suite of management applications that run independent of the operating system and CPU:

- A server-side Secure Shell (ssh) implementation supports encrypted remote login.
- A commandline interface (CLI) supports serial access to the system.

- A Simple Network Management Protocol (SNMP) interface supports network management using SNMP versions 1, 2c, or 3.
- A web server supports Remote Console operations. The server provides a browser-accessible ILOM graphical user interface (GUI) and supports VTL Value console redirection. By downloading a Java application from the ILOM web interface, users can access the Solaris desktop on a remote VTL Value appliance using a local keyboard, monitor, and mouse.

---

## Changing the IP address of the ILOM SP

The ILOM Ethernet management interface of the VTL appliance ships preconfigured with a private IP address. To complete the VTL hardware-installation process, you must change this private IP address to a customer specified address on the customer's local area network (LAN). This section explains:

- Attaching a laptop to the ILOM via the VTL private network
- Changing the IP address of the ILOM

### ▼ Attaching a laptop to the ILOM via the VTL private network

The VTL Value server incorporates a service processor running the Sun Integrated Lights Out Management (ILOM) interface. ILOM is a Java-based remote management tool that can export the Solaris desktop from a VTL Value server to a browser running on another computer. VTL Value servers come preconfigured with a temporary IP address that is located on a private subnet. To connect a laptop to the server, you simply join the private subnet by setting your laptop's IP address, attach a network cable, and open a web browser to the VTL Value server's ILOM address. This section describes the procedure in detail.

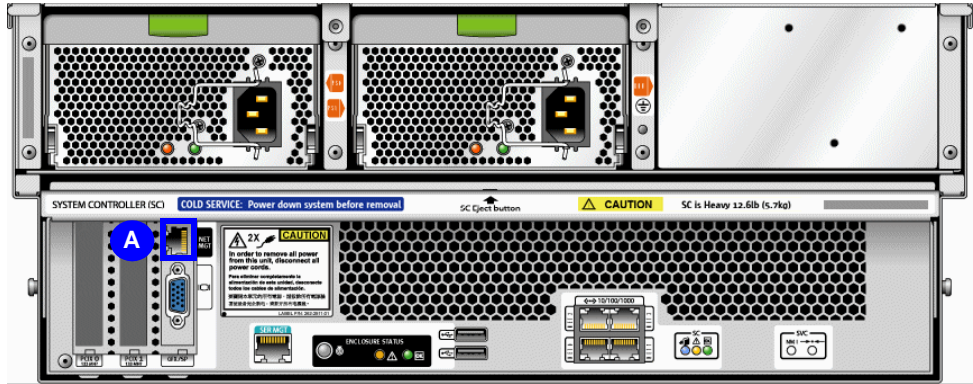
#### 1. On your laptop, configure your local area network (LAN) connection using the IP address 10.0.0.77.

The recommended address is on the private, 10.0.0.0 subnet used internally by the VTL appliance. For a list of other, reserved IP addresses on this network, see Appendix B, "VTL private network addresses" on page 41.

#### 2. Connect the LAN port of the laptop to the Ethernet management (NETMGT) port on the VTL server (A below) using either of the following:

- an Ethernet crossover cable

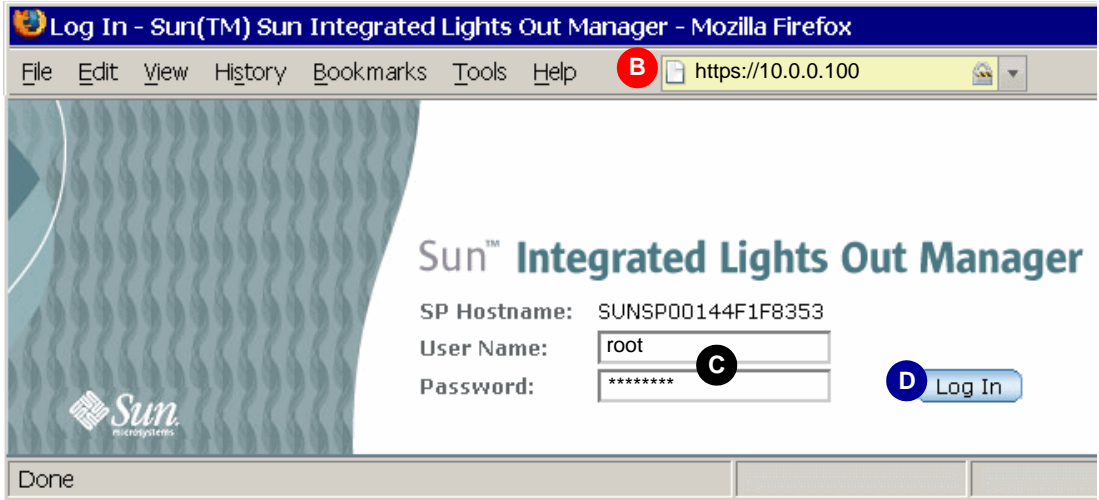
- two standard Ethernet cables and a hub



**3. Obtain passwords for the VTL Value ILOM and for Solaris.**

Default passwords are posted on the Sun StorageTek Customer Resource Center at Current Products > Appliance > Virtual Tape Library (VTL). If the defaults have already been changed, obtain the replacement passwords from the Sun engagement team or from a customer system administrator.

- 4. Open a web browser to the IP address of the VTL appliance (B below). When the login page appears, log in as root, and enter the server password (C). Press Log In (D).**



**Next task:** “Changing the IP address of the ILOM” on page 28.

## ▼ Changing the IP address of the ILOM

1. **When the Integrated Lights Out Manager page appears, press the Configuration button (A below).**

Role (User): Administrator (root) SP Hostname : SUNSP00144F1F8353

REFRESH LOG OUT

Sun™ Integrated Lights Out Manager

Java™

Sun™ Microsystems, Inc.

System Information System Monitoring **Configuration** User Management Remote Control Maintenance

System Management Access Alert Management Network Serial Port Clock Settings Syslog

### Network Settings

View the MAC address and configure network settings for the Service Processor from this page. DHCP is the default mode, but you can manually configure the Netmask, Gateway, and IP address. Select the radio button next to the appropriate mode, then enter settings as needed.

MAC Address: 00:14:4F:1F:83:53

Obtain an IP Address Automatically (use DHCP)

Use the Following IP Address  **B**

IP Address:  **C**

Subnet Mask:

Gateway:

**D** Save

2. **On the Network Settings panel, click the Use the Following IP Address radio button (B above).**
3. **Change the default IP Address and Subnet Mask shown to the IP address and subnet mask specified by the customer (C above).**
4. **Press Save (D above).**
5. **Pass the ILOM IP address and subnet mask on to the rest of the engagement team.**

The storage systems engineer will need this information when configuring the VTL software.

**Next task:** “Changing the ILOM password” on page 29.



# Changing the ILOM password

The Integrated Lights Out Manager (ILOM) service processor on the VTL Value appliance ships with a well-known default password that facilitates deployment and initial configuration. Once the initial configuration is complete, you must change this password to something that is more secure. Use the procedure below.

## ▼ Resetting the default ILOM password

1. On the Integrated Lights Out Manager web GUI page, press the User Management button (A below).

### User Settings

Add, delete, or modify local ILOM user accounts from this page. ILOM offers 10 local user accounts. The system uses `root`, which you cannot delete. The other 9 are available for your use. Single Sign On enables an ILOM administrator, logged in to the Chassis Monitoring Module, to access any blade Service Processor without the need to log in again. Single Sign On must be enabled on each Service Processor you want to access with this feature, which is enabled by default.

Enable Single Sign On

Name	Role
root	Administrator

2. Click the radio button for the `root` user account (B above).
3. Press the Edit button (C above).

4. When the edit dialog appears, enter the new password in the New Password and Confirm New Password fields (D below).

Sun™ Integrated Lights Out Manager

The password must be 8 to 16 characters, which are case sensitive. Use any characters except a colon or space.

User Name: root  Change

New Password:  **D**

Confirm New Password:

Role: Administrator ▼

**E** Save Close **F**

5. Press Save (E above) and then Close (F).

**Next task:** “Checking the health of the internal storage systems” on page 30.

---

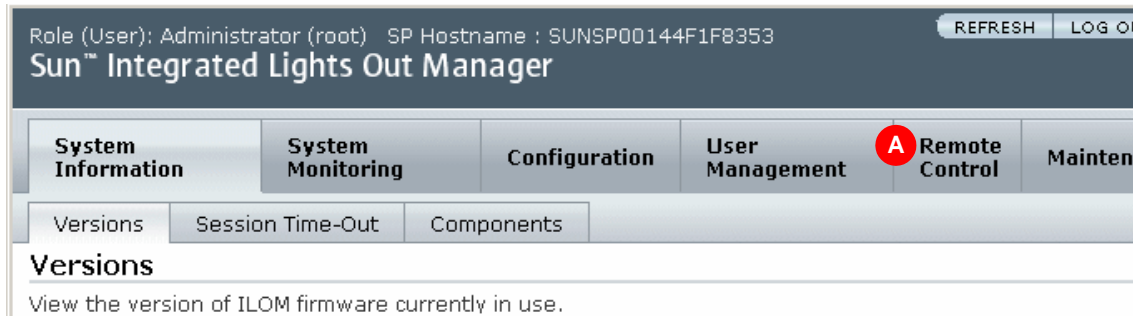
## Checking the health of the internal storage systems

Finally, check the health of the VTL Value appliance’s internal boot and storage volumes as follows:

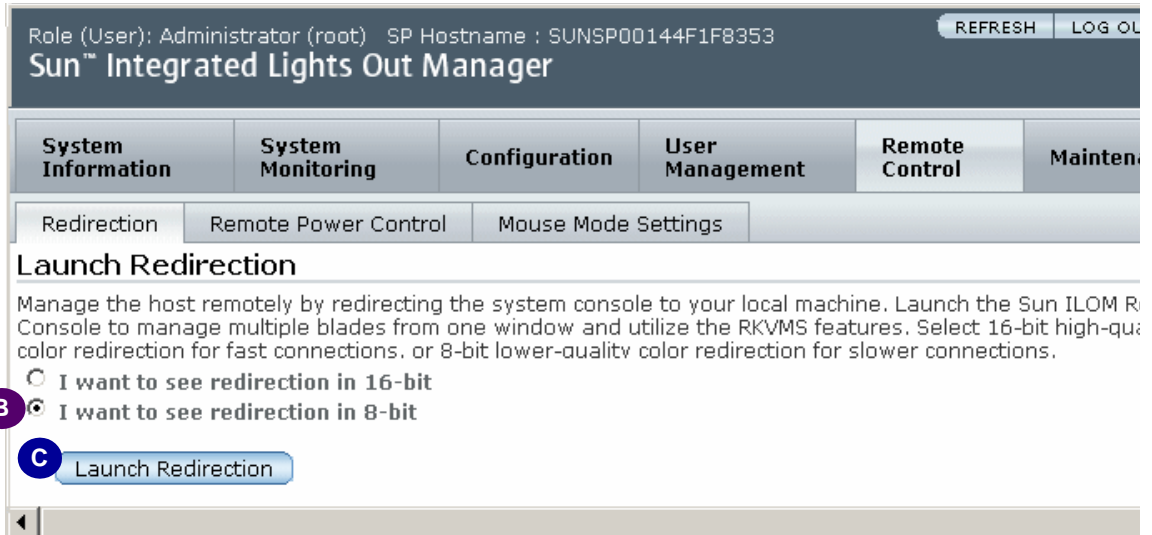
- “Accessing the Solaris desk top via the ILOM” on page 31.
- “Running basic storage diagnostics” on page 33.
- “Logging out” on page 36.

## ▼ Accessing the Solaris desk top via the ILOM

1. On the Integrated Lights Out Manager (ILOM) page, press the Remote Control button (A below).

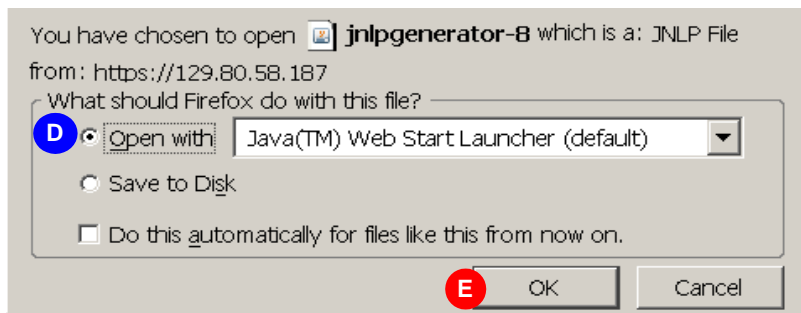


2. On the Launch Redirection panel, click the radio button for 8- or 16-bit resolution (B below), and press Launch Redirection (C).



Java starts, downloads files, and launches the Java console.

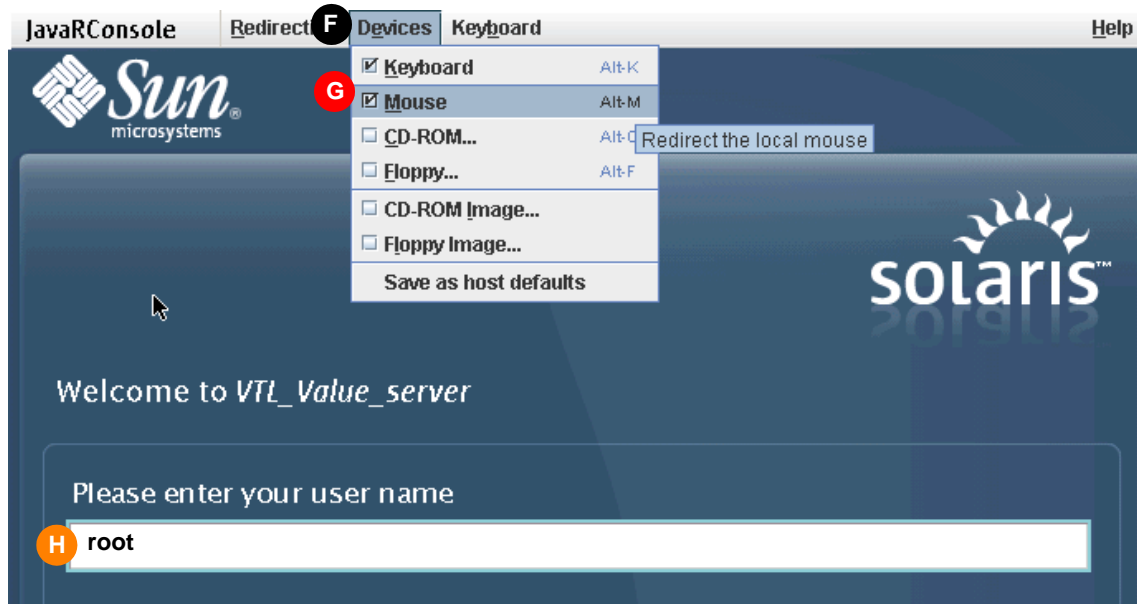
3. When the download dialog appears, click the **Open with** radio button, and select **Java (TM) Web Start Launcher** from the list (D below). Then press **OK** (E).



The jnlp file launches the Sun ILOM Remote Console application and displays the Solaris login screen for the VTL Value server.

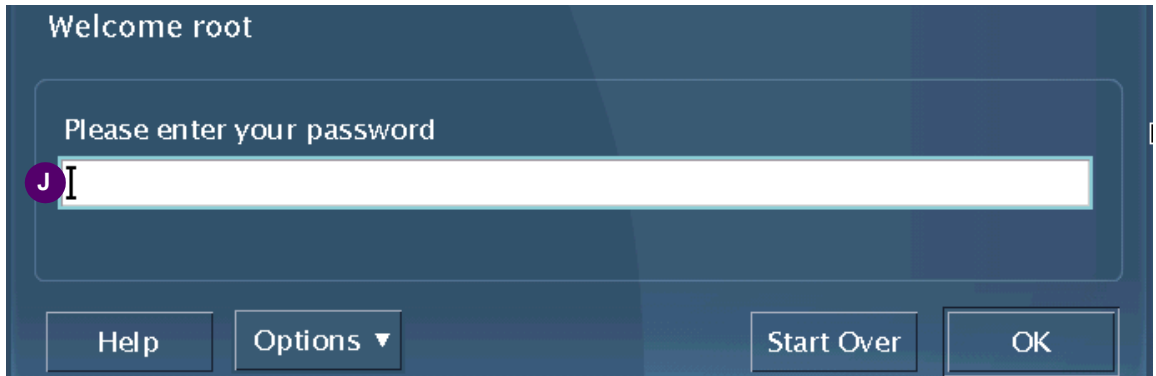
4. When the Sun ILOM Remote Console application interface appears, select **Devices** from the main menu (F below), and check the **Mouse** check box in the submenu (G).

You check the Mouse check box to enable mouse support inside the Remote Console environment.



5. In the **Please enter your user name** field (H above) of the Solaris login page, enter **root**.

6. When the `Welcome root` appears, enter the password for the `Solaris root` account in the `Please enter your password` field (J below).



When you enter your password, the Solaris desktop appears within the Sun ILOM Remote Console application.

**Next task:** “Running basic storage diagnostics” on page 33.

### ▼ Running basic storage diagnostics

Before going further, make sure that the appliance’s storage subsystem is healthy.

1. On the VTL Value Solaris desktop, open a terminal window, and enter the `metastat` command. Make sure that all metadevices return Okay:

```
# metastat
d30: Mirror
  Submirror 0: d31
    State: Okay
  Submirror 1: d32
    State: Okay
  Pass: 1
  Read option: roundrobin (default)
  Write option: parallel (default)
  Size: 512007615 blocks (244 GB)

d31: Submirror of d30
  State: Okay
  Size: 512007615 blocks (244 GB)
  Stripe 0:
    Device      Start Block  Dbase    State Reloc Hot Spare
    c5t0d0s4          0      No      Okay  Yes

d32: Submirror of d30
  State: Okay
  Size: 512007615 blocks (244 GB)
  Stripe 0:
    Device      Start Block  Dbase    State Reloc Hot Spare
    c5t4d0s4          0      No      Okay  Yes

d40: Mirror
  Submirror 0: d41
    State: Okay
  Submirror 1: d42
    State: Okay ...
```

2. In the Solaris terminal window, enter the `zpool status` command. Make sure that:

- there are six pools listed (`vtlpool0-5`)
- every element—`vtlpooln`, `raidz1`, and disk (`cxydz`)—is online
- four spares are listed and available (AVAIL) for each pool

- no data errors are reported

See the example below:

```
# zpool status
  pool: vtlpool0
state: ONLINE
scrub: none requested
config:
  NAME                STATE          READ  WRITE CKSUM
  vtlpool0            ONLINE         0     0     0
    raidz1
      c0t0d0          ONLINE         0     0     0
      c0t1d0          ONLINE         0     0     0
      c0t2d0          ONLINE         0     0     0
      c0t3d0          ONLINE         0     0     0
      c0t4d0          ONLINE         0     0     0
      c0t5d0          ONLINE         0     0     0
      c0t6d0          ONLINE         0     0     0
  spares
    c0t7d0            AVAIL
    c1t7d0            AVAIL
    c7t7d0            AVAIL
    c4t7d0            AVAIL
errors: No known data errors
```

Alternatively, to limit the output to problem pools only, use the following form of the command:

```
# zpool status -xv
```

### 3. Once you have finished your checks, close the terminal window.

**Next task:** “Changing the Solaris root password” on page 35.

---

## Changing the Solaris root password

You should not leave the system system configured with the default Solaris root password or share the default with the customer. Instead, change the default password to something the customer prefers. Proceed as follows.

## ▼ Changing the default Solaris root password

### 1. Enter the `passwd` command:

```
# passwd root
passwd: Changing password for root
```

### 2. When prompted, enter the default root password

```
# passwd root
passwd: Changing password for root
Enter login password:
```

### 3. When prompted, enter and re-enter the new root password:

```
# passwd root
passwd: Changing password for root
Enter login password:
New password:
Re-enter new password:
passwd (SYSTEM): passwd successfully changed for root
```

**Next task:** “Logging out” on page 36.

---

# Logging out

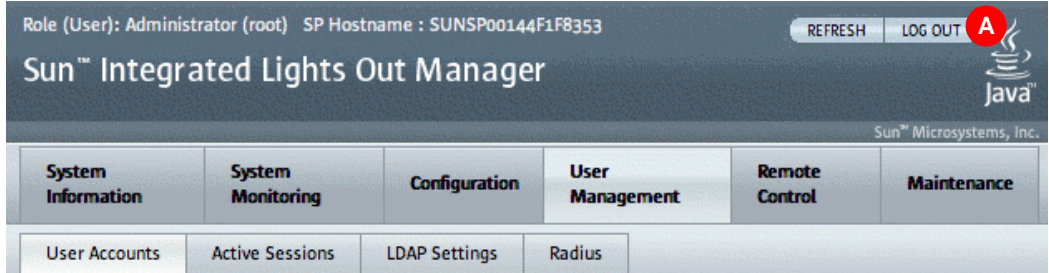
## ▼ Logging out of the operating system and ILOM

When you are finished changing the system root password and ILOM IP address and running diagnostics, log out, as described below.

### 1. **Log out of the Solaris session on the appliance, and close the Sun ILOM Remote Console application.**



2. When the Integrated Lights Out Manager page reappears, go to the top of the page and press LOG OUT (A below).

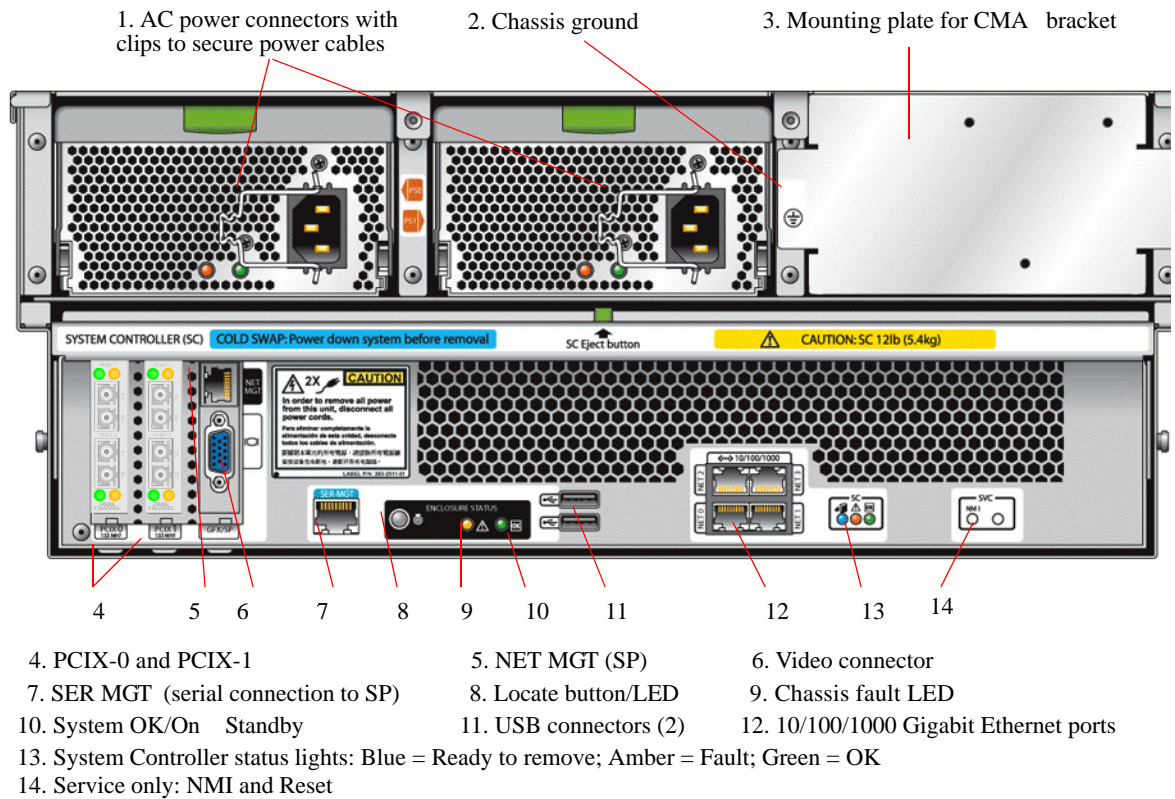


This concludes the installation and initial configuration of the VTL Value appliance.

For VTL software configuration instructions, consult the *VTL Software Configuration Guide*, available from the Sun StorageTek Customer Resource Center under Current Products > Appliance > Virtual Tape Library (VTL) > Manuals and Guides.

## LOGGING OUT

# The back and front panels of the VTL Value server

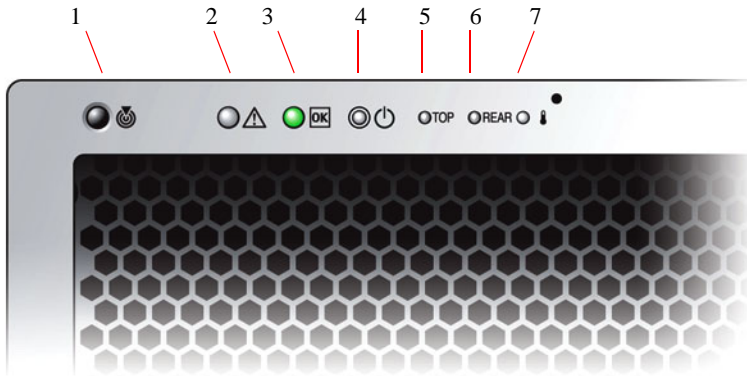




USB connectors (2)

Serial number labels on ledge (2)

- |   |                                       |                                    |
|---|---------------------------------------|------------------------------------|
| 1. Locate button/LED                              | 2. System Fault LED                   | 3. Power/OK LED (system power)     |
| 4. Power button                                   | 5. Top (hard disk drive or fan fault) |                                    |
| 6. Rear (power supply or system controller fault) |                                       | 7. System over temperature warning |



## VTL private network addresses

---

Offering	Device	Port name	Port label	IP address	Subnet mask
Service	laptop			10.0.0.77	255.255.255.0
VTL Value	system	e1000g0	Net 0	10.0.0.10	255.255.255.0
	ILOM		NETMGT	10.0.0.100	255.255.255.0
VTL Plus	Node1	BG0	eth0	10.0.0.10	255.255.255.0
	Node1	BG1	eth1	10.0.0.11	255.255.255.0
	Node1	mgmt	mgmt	10.0.0.100	255.255.255.0
	Node2	BG0	eth0	10.0.0.20	255.255.255.0
	Node2	BG1	eth1	10.0.0.21	255.255.255.0
	Node2	mgmt	mgmt	10.0.0.200	255.255.255.0
	Controller 1A			10.0.0.1	255.255.255.0
	Controller 1B			10.0.0.2	255.255.255.0
	Controller 2A			10.0.0.3	255.255.255.0
	Controller 2B			10.0.0.4	255.255.255.0

---



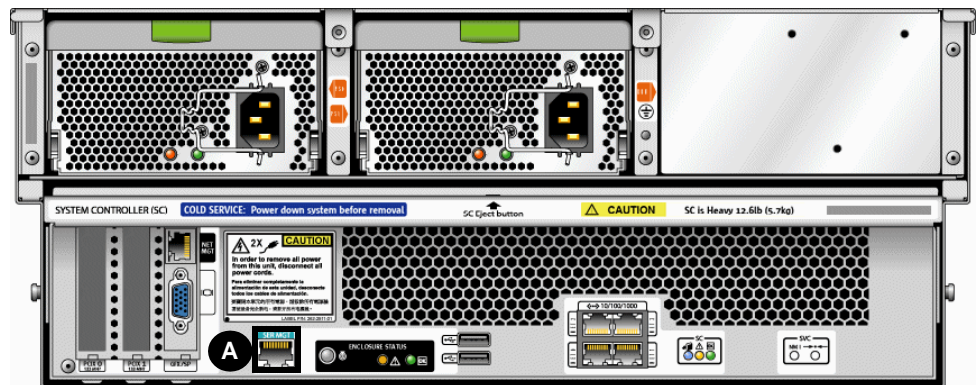
## Connecting to ILOM via a serial port

Normally, you access the Integrated Lights Out Manager (ILOM) service processor of a VTL Value appliance via the preconfigured Ethernet management port (NETMGT) and the ILOM graphical user interface (GUI). However, if network services are not available, you can still access the ILOM commandline interface (CLI) by connecting a terminal or a computer running terminal emulation software to the RJ-45 serial port on the back panel of the VTL Value appliance.

### 1. Configure the terminal device or the terminal emulation software for

- eight data bits, no parity, one stop bit
- 9600 baud
- no hardware flow control (CTS/RTS)
- no software flow control (XON/XOFF)

### 2. Connect an RJ-45 serial cable from the terminal device to the SER MGT port on the back panel of the VTL appliance (A below).



### 3. Press Enter on the terminal device.

This establishes the connection between the terminal device and the ILOM.

---

**Note** – If you connect a terminal or emulator to the serial port before it has been powered up or during its power-up sequence, you will see bootup messages.

---

When the system has booted, the ILOM displays its login prompt:

```
SUNSPnnnnnnnnnnn login:
```

The first string in the prompt is the default host name. It consists of the prefix SUNSP and the ILOM's MAC address.

#### 4. Log in to the CLI as root and enter the root password.

When you have successfully logged in, the SP displays the ILOM default command prompt:

```
->
```

The ILOM is now accessing the CLI. You can now run CLI commands.

For example, to display status information about the motherboard in your server, type the following command:

```
-> show /SYS/MB
```

Use the ILOM commands to configure the server's user accounts, network settings, access lists, alerts, and so on. For detailed instructions on CLI commands, see the *Integrated Lights Out Manager (ILOM) Administration Guide*, 819-1160.

#### 5. To go to the host serial console (host COM0), type the following commands:

```
cd /SP/console
```

```
-> start
```

---

**Note** – After you have returned to the serial console, to switch back to the CLI, enter the **Escape** and left parenthesis [ ( ) key in rapid succession.

---



## ILOM command reference

The following table summarizes Integrated Lights Out Manager (ILOM) commands you can use to manage the service processor. For more information on ILOM commands, see the *ILOM Administration Guide*.

Description	Command
<b>User Commands</b>	
Add a local user.	<code>create /SP/users/user1 password=password role=administrator operator</code>
Delete a local user.	<code>delete /SP/users/user1</code>
Change a local user's properties.	<code>set /SP/users/user1 role=operator</code>
Display information about all local users.	<code>show -display [targets properties all] -level [value all] /SP/users</code>
Display information about LDAP settings.	<code>show /SP/clients/ldap</code>
Change LDAP settings.	<code>set /SP/clients/ldap binddn=proxyuser bindpw=proxyuserpassword defaultrole=administrator operator ipaddress=ipaddress</code>
<b>Network and Serial Port Setting Commands</b>	
Display network configuration information.	<code>show /SP/network</code>
Change network properties for the ILOM. Changing certain network properties, like the IP address, disconnects your active session.	<code>set /SP/network pendingipaddress=ipaddress pendingipdiscovery=dchp static pendingipgateway=ipgateway pendingipnetmask=ipnetmask commitpending=true</code>
Display information about the external serial port.	<code>show /SP/serial/external</code>

Description	Command
Change the external serial port configuration.	<code>set /SP/serial/external pendingspeed=<i>integer</i> commitpending=true</code>
Display information about the serial connection to the host.	<code>show /SP/serial/host</code>
Change the host serial port configuration. Note: This speed setting must match the speed setting for serial port 0, COM1 or /dev/ttyS0 on the host operating system.	<code>set /SP/serial/host pendingspeed=<i>integer</i> commitpending=true</code>
<b>Alert Commands</b>	
Display information about PET alerts. You can configure up to 15 alerts.	<code>show /SP/alert/rules/1...15</code>
Change alert configuration.	<code>set /SP/alert/rules/1...15 destination=<i>ipaddress</i> level=down critical major minor</code>
<b>System Management Access Commands</b>	
Display information about HTTP settings.	<code>show /SP/services/http</code>
Change HTTP settings, such as enabling automatic redirection to HTTPS.	<code>set /SP/services/http port=<i>portnumber</i> secureredirect enabled disabled servicestate=enabled disabled</code>
Display information about HTTPS access.	<code>show /SP/services/https</code>
Change HTTPS settings.	<code>set /SP/services/https port=<i>portnumber</i> servicestate=enabled disabled</code>
Display SSH DSA key settings.	<code>show /SP/services/ssh/keys/dsa</code>
Display SSH RSA key settings.	<code>show /SP/services/ssh/keys/rsa</code>
<b>SNMP Commands</b>	
Display information about SNMP settings. By default, the SNMP port is 161 and v3 is enabled.	<code>show /SP/services/snmp engineid=<i>snmpengineid</i> port=<i>snmpportnumber</i> sets=enabled disabled v1=enabled disabled v2c=enabled disabled v3=enabled disabled</code>
Display SNMP users.	<code>show /SP/services/snmp/users</code>
Add an SNMP user.	<code>create /SP/services/snmp/users/<i>snmpusername</i> authenticationpassword=<i>password</i> authenticationprotocol=MD5 SHA permissions=rw ro privacypassword=<i>password</i> privacyprotocol=none DES</code>
Delete an SNMP user.	<code>delete /SP/services/snmp/users/<i>snmpusername</i></code>
Display information about SNMP public (read-only) communities.	<code>show /SP/services/snmp/communities/public</code>

<b>Description</b>	<b>Command</b>
Add this device to an SNMP public community.	<b>create /SP/services/snmp/communities/public/comm1</b>
Delete this device from an SNMP public community.	<b>delete /SP/services/snmp/communities/public/comm1</b>
Display information about SNMP private (read-write) communities.	<b>show /SP/services/snmp/communities/private</b>
Add this device to an SNMP private community.	<b>create /SP/services/snmp/communities/private/comm2</b>
<b>Host System Commands</b>	
Delete this device from an SNMP private community.	<b>delete /SP/services/snmp/communities/private/comm2</b>
Start the host system.	<b>start /SYS</b>
Stop the host system.	<b>stop /SYS</b>
Reset the host system.	<b>reset /SYS</b>
Start a session to connect to the host console.	<b>start /SP/console</b>
Stop the session connected to the host console.	<b>stop /SP/console</b>
<b>Clock Settings</b>	
Set the ILOM clock to synchronize with a primary NTP server.	<b>set /SP/clients/ntp/server/1 address=ntpIPAddress</b>
Set the ILOM clock to synchronize with a secondary NTP server.	<b>set /SP/clients/ntp/server/2 address=ntpIPAddress2</b>



## Removing VTL Value hardware

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When preparing to remove a VTL Value system from an equipment rack, see the following:

- “Shutting off system power” on page 49
- “Removing the cable management arm” on page 50
- “Removing the VTL appliance from a rack” on page 51.

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## Shutting off system power

### ▼ Powering down

If you need to power off the appliance, you can proceed in any of three ways, depending on the circumstances.

- 1. Under normal circumstances, power off the server gracefully by using a stylus to press and release the power button on the front panel.**

This is the normal way you shut down the VTL server. Pressing and releasing the power button causes the Advanced Configuration and Power Interface (ACPI) to stop the operating system in an orderly fashion before shutting main power off. It places the system in standby power mode. The OK LED on the front panel starts blinking.

- 2. In an emergency, power off the server immediately by using a stylus to press and hold the power button for four seconds.**

This shuts the main power off and places the system in standby power mode. The OK LED on the front panel starts blinking.

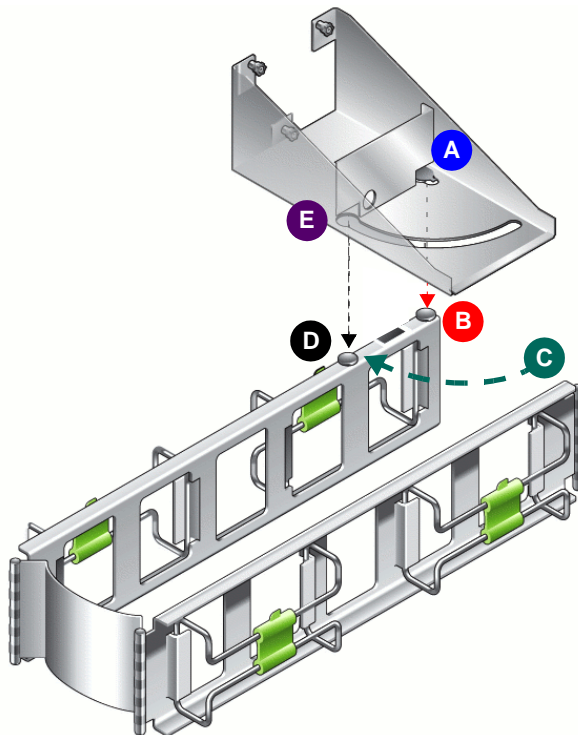
- 3. Then, if you need to power off the appliance completely, so that neither the server nor the service processor draws power, unplug the AC power cords from the power supplies at the rear of the server.**

The OK LED on the front panel is not lighted.

## Removing the cable management arm

If you need to access the system controller (SC), remove the cable management arm (CMA) using the following procedure.

1. If you have not already done so, shutdown main (server) and standby (service processor) power, as described in “Shutting off system power” on page 49.
2. Unplug the power and data cables from the server.
3. Lift the small tab (A below) on the CMA-to-chassis bracket to release the right pinhead (B).



4. Push the CMA toward the chassis (C above), so that the second pinhead (D) aligns with the keyhole (E), freeing the CMA to drop away from the bracket.
5. Pull the CMA away from the rear of the chassis, and remove the CMA from the slide-rail extension.

# Removing the VTL appliance from a rack

This procedure assumes you have turned off the server, removed the cable management arm, and removed any cables or cords that would restrict the movement of the server.

## ▼ Preparing to remove the appliance

1. **If you have not already done so, shutdown main (server) and standby (service processor) power, as described in “Shutting off system power” on page 49.**
2. **If you have not already done so, remove the cable management arm (CMA), as described in “Removing the cable management arm” on page 50.**
3. **Have a mechanical lift on hand, if at all possible.**




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**Caution** – The VTL Value appliance weighs 160 pounds (72.7 kg) when fully loaded with components. To prevent injury to personnel or damage to the equipment, Sun strongly recommends using a mechanical lift when installing the server in a rack.

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4. **If a mechanical lift is not available, make sure that at least four trained people are available to remove the server and/or reduce the weight of the server by removing components:**
  - Remove both power supplies.
  - Remove the system controller.
  - Label the hard disk drives in slots 2 to 46 and then remove them (you will reinstall the drives in their original slots using the labels as a guide).

Do not uninstall the fan trays or the bootable drives in slots 0 and 1.

5. **If a mechanical lift is available, make sure that at least three trained people are available to install the server in the rack.**

It takes two people to operate the lift and install the server and one additional person to insure that the rails are engaged correctly.

**Next task:** “Removing the appliance from the rack” on page 51.

## ▼ Removing the appliance from the rack

1. **From the front of the rack, squeeze the slide-rail locks (with green plastic handles) to release the lock and pull the server about 1.5 inches from the rack.**
2. **Push the green plastic tabs on the middle slide rails to release the first stop.**

3. **Push the green plastic tabs on the middle slide rails to release the second stop and pull the server out about 36 inches from the rack.**
4. **If you do not have a mechanical lift, open the hard disk drive access cover and remove the disk drives in slots 2 to 46 and follow the important instructions in “If a mechanical lift is not available, make sure that at least four trained people are available to remove the server and/or reduce the weight of the server by removing components:” on page 51.**
5. **Slide the server completely out of the slide rails and place on a clean, stable surface.**

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**Note** – If you are removing the server in a data center with narrow aisles (under 44 inches or approximately 1.12 meters wide), you can order a narrow aisle removal kit from Sun Service.

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