

# Veritas 5150 Appliance Hardware Installation Guide

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# Hardware overview

This chapter includes the following topics:

- [About the appliance](#)
- [Appliance disk drives](#)
- [Appliance control panel](#)
- [Appliance rear panel](#)
- [About IPMI configuration](#)
- [Product documentation](#)

## About the appliance

The Veritas 5150 Appliance is a hardware and software storage system that can scale to 14 TB of usable capacity.

**Figure 1-1** Veritas 5150 Appliance



The Veritas 5150 Appliance supports the following software: Flex version 1.3 and later.

Refer to the Veritas 5150 documentation at the following site for details about usable storage options.

[Appliance Documentation](#)

# Appliance disk drives

The front panel of the appliance contains two SSDs and four disk drives.

**Figure 1-2** Disk drives



Slot designations are as follows. Do not rearrange the disk drives from the factory configuration.

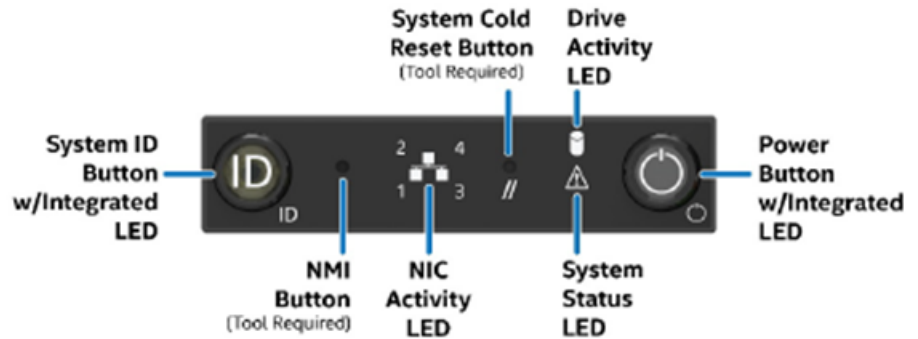
**Table 1-1** Veritas 5150 Appliance storage devices

Slot	RAID configuration	Device	Disk drive role
0,1	RAID 1	Intel 2280 M.2 SATA SSD 480GB	Boot/OS
4, 5, 6, 7	RAID 10	SEAGATE 8TB SAS 12G, 7.2K RPM, 3.5"	Internal storage
N/A	N/A	SMART 2280 M.2 SATA SSD 32GB	Certificate

## Appliance control panel

The front panel of the Veritas 5150 Appliance includes a small panel that is attached to the right side of the device. The panel provides basic control of the system as well as LED status indicators such as the power button, ID button/LED, and system status.

**Figure 1-3** Control panel system



**Table 1-2** Control panel system LED descriptions

LED	System information
Power button with integrated LED	The Power button toggles the system on and off. See <a href="#">“About the Power button LED states”</a> on page 8.
Hard drive Activity LED	The drive activity LED on the front panel indicates drive activity from the on-board hard disk controllers.
System ID button with integrated LED	The System ID button toggles the integrated ID LED and the blue server board LED on and off. The system ID LED identifies the system for maintenance when it is racked with similar server systems.
Network activity LEDs	The front control panel includes one LED for each of the 1 GB RJ45 port on the Quad Gigabit Ethernet OCP module. When network links are detected on the controllers, the LEDs are activated and remain solid green. The LEDs blink when network activity occurs, and the amount of network activity that occurs determines the rate at which they blink.

**Table 1-2** Control panel system LED descriptions (*continued*)

LED	System information
NMI button (recessed, tool required for use)	<p>When it is depressed, the NMI button puts the appliance in a halt state, issues a non-maskable interrupt (NMI), and then triggers the non-maskable interrupt. All server data can be lost.</p> <p>It can only be accessed with a small sharp object such as a pin or paperclip.</p> <p>Veritas recommends that you do not enable NMI by pressing the NMI button.</p>
System Cold Reset button (recessed, tool required for use on non-storage models)	<p>When depressed, the System Cold Reset button restarts and re-initializes the appliance without shutting down gracefully.</p> <p>It can only be accessed with a small sharp object such as a pin or paperclip.</p>
System Status LED	<p>The System Status LED is bi-color indicator that uses the colors green and amber to display the current health of the appliance.</p> <p>Two locations are provided for you to monitor the health of the system. You can find the first location on the front control panel, while the second location is located on the back edge of the server board. It is viewable from the rear of the appliance. Both LEDs show the same state of health.</p> <p>See <a href="#">“About the System Status LED states”</a> on page 9.</p>
Drive Carrier LED	<p>The appliance has 4 internal 3.5" SAS HDD. Each drive carrier has 2 LEDs, a drive activity LED (green) and drive status LED (amber).</p> <p>See <a href="#">“About the Drive Carrier LED states”</a> on page 12.</p>
Power Supply LED	<p>Each power supply has a bi-color indicator that uses the colors green and amber to represent its current status:</p> <p>See <a href="#">“About the Power Supply LED states”</a> on page 13.</p>

## About the Power button LED states

The Power button is located on the Veritas 5150 Appliance control panel. It is used to turn the appliance on and off.

The following table provides a description of each power state.



**Table 1-3** Power button LED states

State	Power Mode	LED	Description
Power - off	Non-ACPI	Off	The system power is off, and the BIOS has not initialized the chipset.
Power - on	Non-ACPI	On	The system power is on and the green Power button LED is active.

## About the System Status LED states

The System Status LED is a bi-color (Green/Amber) indicator that shows the current health of the system. The appliance provides two locations for this feature. The first location is on the Front Control Panel, while the second location is on the back edge of the server board.

**Table 1-4** System Status LED states

Color	State	Criticality	Description
No color	Off - The system is not operating.	Not ready	<ul style="list-style-type: none"><li>System power is off (AC and/or DC)</li><li>System is in EuP Lot6 Off Mode</li><li>System is in S5 Soft-Off State</li></ul>
Green	Solid on (SO)	Healthy	Indicates that the system is running (in S0 State) and its status is "Healthy". The system does not exhibit any errors. AC power is present and BMC has started and manageability functionality is up and running.

**Table 1-4** System Status LED states (*continued*)

Color	State	Criticality	Description
Green	~1-Hz blinking	Degraded  The system is operating in a degraded state although still functional.  or  The system is operating in a redundant state but with an impending failure warning.	System degraded: <ul style="list-style-type: none"> <li>■ Redundant loss, such as power supply or fan. Applies only if the associated platform sub-system has redundancy capabilities.</li> <li>■ Fan warning or failure when the number of fully operational fans is more than minimum number needed to cool the system.</li> <li>■ Non-critical threshold crossed: Temperature (including HSBP temp), voltage, input power to power supply, output current for main power rail from power supply and Processor Thermal Control (Therm Ctrl) sensors.</li> <li>■ Power supply predictive failure occurred while redundant power supply configuration was present.</li> <li>■ Unable to use all of the installed memory (more than one DIMM is installed).</li> <li>■ Correctable errors over a threshold and migrating to a spare DIMM (memory sparing). This indicates that the system has no spared DIMMs (a redundancy lost condition). The corresponding DIMM LED also lights up.</li> </ul>

**Table 1-4** System Status LED states (*continued*)

Color	State	Criticality	Description
Green	~1-Hz blinking	Degraded  The system is operating in a degraded state although still functional.  or  The system is operating in a redundant state but with an impending failure warning.	System degraded: (continued) <ul style="list-style-type: none"> <li>■ In mirrored configuration, when memory mirroring takes place and system loses memory redundancy.</li> <li>■ Battery failure</li> <li>■ BMC executing in uBoot. (Indicated by Chassis ID blinking at 3Hz). System in degraded state (no manageability). BMC uBoot is running but has not transferred control to the BMC Linux. Server will be in this state 6-8 seconds after BMC reset while it pulls the Linux image into flash.</li> <li>■ BMC booting Linux. (Indicated by Chassis ID solid ON). System in degraded state (no manageability). Control has been passed from BMC uBoot to BMC Linux itself. It will be in this state for 10-20 seconds.</li> <li>■ BMC Watchdog has reset the BMC.</li> <li>■ Power unit sensor offset for configuration error is asserted.</li> <li>■ Hard disk drive HSC is offline or degraded.</li> </ul>
Amber	~1-Hz blinking	Non-critical  The system is operating in a degraded state with an impending failure warning. However, the system is still functioning.	Non-fatal, although the system is likely to fail due to the following issues: <ul style="list-style-type: none"> <li>■ Critical threshold crossed – Voltage, temperature (including HSBP temp), input power to power supply, output current for main power rail from power supply and PROCHOT (Therm Ctrl) sensors.</li> <li>■ VRD Hot asserted</li> <li>■ Minimum number of fans to cool the system not present or failed</li> <li>■ Hard drive fault</li> <li>■ Power Unit Redundancy sensor – Insufficient resources offset (indicates not enough power supplies present)</li> <li>■ Correctable memory error threshold has been reached when the system is operating in a non-sparing and non-mirroring mode.</li> </ul>

**Table 1-4** System Status LED states (*continued*)

Color	State	Criticality	Description
Amber	Solid on	Critical, non-recoverable – System is halted	<p>Fatal alarm – system has failed or shutdown:</p> <ul style="list-style-type: none"> <li>■ CPU CATERR signal asserted</li> <li>■ MSID mismatch detected (CATERR also asserts for this case)</li> <li>■ CPU1 is missing</li> <li>■ CPU Thermal Trip</li> <li>■ No power – power fault</li> <li>■ DIMM failure when there is only one DIMM present; no other good DIMM memory present</li> <li>■ Run time memory uncorrectable error in non-redundant mode.</li> <li>■ DIMM Thermal Trip or equivalent</li> <li>■ SBB Thermal Trip or equivalent</li> <li>■ CPU ERR2 signal is asserted</li> <li>■ BMC/Video memory test failed (Chassis ID shows blue/solid-on for this condition)</li> <li>■ Both uBoot BMC FW images are bad (Chassis ID shows blue/solid-on for this condition)</li> <li>■ 240 VA fault</li> <li>■ Fatal error in processor initialization: <ul style="list-style-type: none"> <li>■ Processor family not identical</li> <li>■ Processor model not identical</li> <li>■ Processor core/thread counts not identical</li> <li>■ Processor cache size not identical</li> <li>■ Unable to synchronize processor frequency</li> <li>■ Unable to synchronize QPI link frequency</li> </ul> </li> <li>■ Uncorrectable memory error in non-redundant mode</li> </ul>

## About the Drive Carrier LED states

Each drive carrier has 2 LEDs, a drive activity LED which is green in color, and a drive status LED which is amber in color.

The following tables provide a description of the drive carrier LEDs.

**Table 1-5** Amber LED status

LED state	Drive status
Solid On (SO)	Hard drive fault
Off	No access and no fault
1-Hz blinking	RAID rebuild in progress
2-Hz blinking	Locate (identify)

**Table 1-6** Green LED status

Condition	LED state
Power on with no drive activity	Solid On (SO)
Power on with drive activity	Blinks off when processing a command
Power on and drive spun down	Off
Power on with drive spinning up	Blinks

## About the Power Supply LED states

The power supply module has a bi-color LED to represent the current status of the power supply.

The following table provides a description of each power supply state.

**Table 1-7** Power supply LED states

LED	Power supply condition
Solid green	Output on and ok
Off	No AC power to all power supplies
1-Hz blinking (green)	AC is present but only 12 VSB or is in cold redundant state
Solid amber	<ul style="list-style-type: none"> <li>■ AC cord is unplugged or AC power is lost but a second power supply with AC input power is present</li> <li>■ Power supply critical event is causing a shutdown such as a failure, OCP, OVP or fan fail</li> </ul>

**Table 1-7** Power supply LED states (*continued*)

LED	Power supply condition
1-Hz blinking (amber)	Power supply warning events (such as, high temperature, high power, high current or slow fan) but the power supply continues to operate
2-Hz blinking (green)	Power supply FW updating

Both the SSDs also have a bi-color LED to represent the current status of the power supply.

The following table provides a description of the SSD LED states.

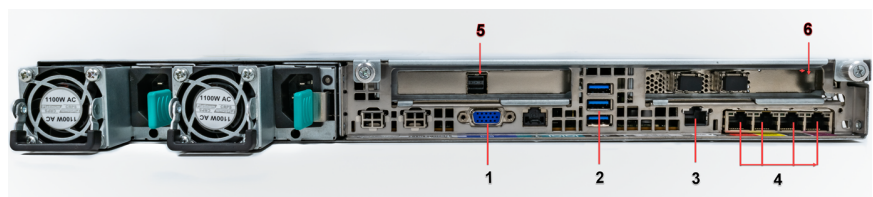
**Table 1-8** SSD LED states

LED	Power supply condition
Solid green	SSD is receiving power
Off	No power to the SSD
Blinking (green)	Drive activities to the SSD are on-going

## Appliance rear panel

The rear panel of the appliance contains several default ports that are embedded.

**Figure 1-4** Rear panel



The following list describes the numbered ports.

1. VGA port
2. 3 USB ports
3. Veritas Remote Management Interface (remote management (IPMI) port)

4. Four copper, RJ45, 1Gb Ethernet\* ports, host0, NIC0, NIC1, and NIC2, left to right
5. The middle slot is used for the external SAS tape-out functionality. This feature will be implemented in a future release.
6. The right PCIe is used for the add-on ethernet cards

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**Note:** \* The embedded Ethernet ports are copper. PCIe Ethernet ports can be either fibre or copper. You cannot bond the copper ports and the fibre ports to each other.

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## About IPMI configuration

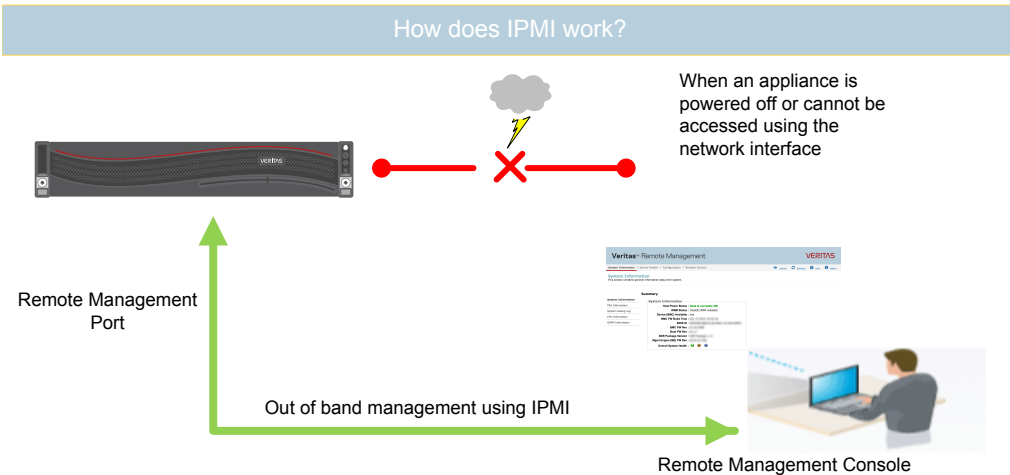
The Intelligent Platform Management Interface (or IPMI) provides management and monitoring capabilities independently of the host system's CPU, firmware, and operating system. You can configure the IPMI sub-system for your appliances. You can use the remote management port, located on the rear panel of the appliance, to connect to the IPMI sub-system.

The following figure shows the remote management port (or the IPMI port) on the rear panel of the appliance:



The IPMI is beneficial after an unexpected power outage shuts down the connected system. In case the appliance is not accessible after the power is restored, you can use a laptop or desktop computer to access the appliance remotely by using a network connection to the hardware rather than to an operating system or login shell. This enables you to control and monitor the appliance even if it is powered down, unresponsive, or without any operating system.

The following diagram illustrates how IPMI works:



The following are some of the main uses of IPMI:

- Manage an appliance that is powered off or unresponsive. Using the IPMI, you can power on, power off, or restart the appliance from a remote location.
- Provide out-of-band management and help manage situations where local physical access to the appliance is not possible or preferred like branch offices and remote data centers.
- Access the appliance shell remotely using IPMI if regular network interface is not possible.

---

**Note:** Only the appliance menu can be accessed by using the IPMI interface. The web console cannot be accessed by using the IPMI interface.

---

- Reimage the appliance from the IPMI interface by using ISO redirection.
- Monitor hardware health of the appliance from a remote location.
- Avoid messy cabling and hardware like keyboard, monitor, and mouse (KVM) solutions to access the appliance.

See [“Configuring the Veritas Remote Management Interface”](#) on page 28.

## Product documentation

Additional documentation is available at the following site:

[Appliance Documentation](#)



# Preinstallation requirements

This chapter includes the following topics:

- [Customer-provided environment and supplies](#)
- [Appliance shipping container contents](#)
- [Electrical and environmental requirements](#)
- [Heat dissipation](#)
- [Prerequisites for the Veritas Remote Management Interface configuration](#)

## Customer-provided environment and supplies

For best ventilation, the rack cabinet:

- Should be at least 100 cm (4 feet) from walls.
- Should have at least 100 cm (4 feet) from other cabinets on the front and back of the appliance.

Data centers with two-foot spaces in the front and in the back of the appliances are acceptable with proper cooling and ventilation.

Refer to the following section for more details.

See [“Heat dissipation”](#) on page 18.

The following describes the necessary personnel and equipment that are needed at the installation site:

- At least one person or a mechanical lift to move the appliance.

- Optional: For SAS tape-out capability only. A SAS cable with at least one SAS-3 connector. The second connector can be SAS-2 or SAS-3 depending on the type of tape-out device the customer uses.
- A USB-keyboard and a monitor to connect to the appliance.
- A 19-inch rack with dual Power Distribution Units (PDUs) with 120VAC or 220VAC power supplies.

## Appliance shipping container contents

The following items ship within the appliance box.

- Open Me First container, containing:
  - Cabling and remote management configuration card
  - Warranty and license information
  - Safety/Compliance flyer
- Rail installation card
- Two power cables
- Bezel

## Electrical and environmental requirements

This section lists the electrical and environmental specifications for the Veritas 5150 Appliance.

Electrical requirements:

- 100 - 127 V, 10A (2 power cords) at 50/60 Hz
- 200 - 240 V, 5A (2 power cords) at 50/60 Hz

Environmental requirements:

- 10°C to 35°C (50°F to 95°F)

## Heat dissipation

Air flows from the front of each unit and exits from the rear of each unit. You can install the optional bezel without disruption to the airflow.

For best ventilation, the rack cabinet (if installed) should:

- Be at least 100 cm (4 feet) from walls.

- Be at least 100 cm (4 feet) from other cabinets on the front and back of the appliance.

---

**Note:** Data centers with two-foot spaces in the front and in the back of the appliances are acceptable with proper cooling and ventilation.

---

Veritas provides the following requirements to ensure sufficient cooling.

- Veritas requires that you install the system in a National Engineering Manufacturer's Association (NEMA)-certified or equivalent rack.
- A minimum of 3 inches (7.6 cm) of space must be between the front of an appliance and the cabinet door or other air block.
- A minimum of 6 inches (15.2 cm) of space must be between the rear of an appliance and the cabinet rear or other air block.

Refer to the *Veritas 5150 Appliance Product Description Guide* for specifications about temperature and cooling.

[Appliance documentation](#)

## Prerequisites for the Veritas Remote Management Interface configuration

Verify the following configuration prerequisites:

- The remote management (IPMI) port auto-negotiates its link speed to 1 Gbps.

---

**Note:** If the Veritas Remote Management Interface port is connected to a managed switch port, it is recommended that you configure the switch port to auto-negotiation

---

- If a firewall exists between the appliance and the remote devices that manage an appliance (like a laptop computer), open the following ports:

66	SOL SSH
80	HTTP
162	SNMP
443	HTTPS
623	Floppy/USB media

627	Secured Floppy/USB media
5120	CD
5124	Secured CD
5900	KVM
5902	Secured KVM

---

**Note:** If you have a private internal network, remember to configure the settings accordingly in your network address translation (NAT).

---

- The remote management (IPMI) port must be configured as a DHCP or static address.

# Installation procedures

This chapter includes the following topics:

- [Installing the appliance into a rack](#)
- [Connecting the network cables](#)
- [Connecting the power cords](#)
- [Turning on the hardware and verifying operation](#)
- [Configuring the Veritas Remote Management Interface](#)
- [Accessing and using the Veritas Remote Management interface](#)

## Installing the appliance into a rack

Veritas recommends the following:

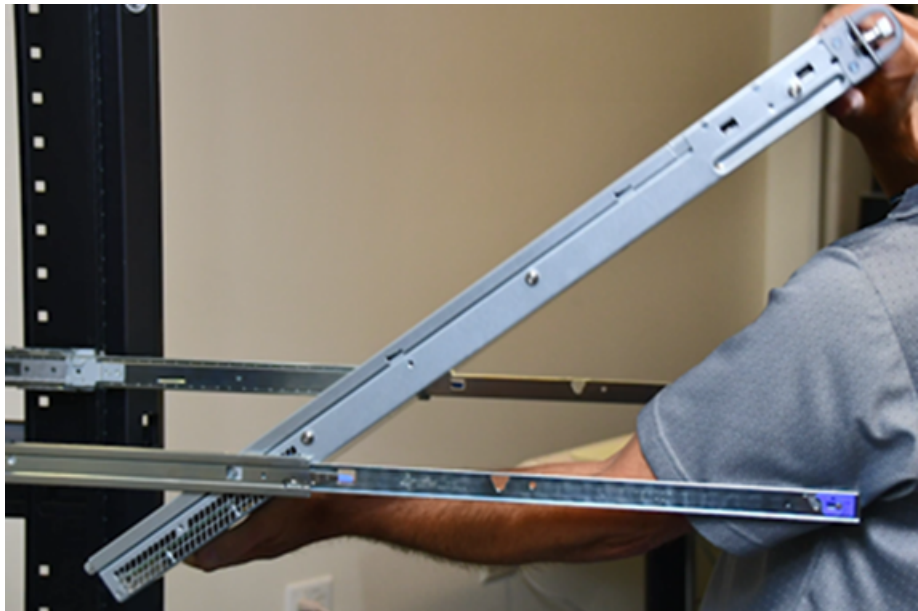
- Two people should install the rails; one person at the back of the rack and one at the front.
- Two people should lift and place the appliance into the mounted rails.

**To install the appliance into the rack**

- 1** Extend both of the rails until they lock in place.



- 2** While standing in front of the chassis, position the appliance within the extended rails with the back of the chassis towards the rack. Raise the front of the chassis and align the rear mounting posts of the chassis with the rear rail cut-outs of both rails.



- 3 Lower the rear chassis mounting posts into the rear rail cut-outs.



- 4 When the rear chassis mounting posts are secured in the rail cut-outs, rotate the front of the chassis down until the front chassis mounting posts on each side of the chassis fit securely into the front rail cut-outs on each rail.



- 5 Check the front rail locks on each of the rails and confirm that they are secured.





- 6 Lift the release tabs located at the sides of the rails and push the appliance into the rack as far as possible.



- 7 Fasten the front of the appliance to the rack with the two captive fasteners that are attached to the front of the chassis.



## Connecting the network cables

The networking ports are accessed on the rear panel of the device. The remote management (IPMI) port is for use by Veritas Technical Support staff or by approved field service technicians. The following picture shows the layout of the network ports. It includes the four 1 Gb Ethernet ports. The Veritas Remote Management Interface port is located to the left of the 1 Gb Ethernet ports.



Before configuration, host0 needs to be connected to an administrative network that does not provide any backup data transfer.

For configuration, host0 is required for the platform setup and at least one NIC should be configured for the application instance.

---

**Note:** You cannot bond the copper 1 GbE port that are installed in the appliance chassis with fibre ports on PCIe 10-GbE cards.

---

See [“Connecting the power cords”](#) on page 26.

## Connecting the power cords

Each appliance contains two AC power supplies. To ensure power redundancy, connect the power supplies on each component to separate AC power sources.

---

**Caution:** Do not turn on the power to any components while connecting the power cords. The components must be turned on in a specific sequence to ensure correct communication.

---

### To connect the power cables

- 1 Verify that the AC power supply input for the appliance is within one of these ranges.
  - 100 - 127 VAC at 50/60 Hz

- 200 - 240 VAC at 50/60 Hz
- 2 For each device, obtain two power cords that are appropriate for your region and equipment.
  - 3 Connect one cable to one PDU strip.
  - 4 Connect the other cable to the other PDU strip.
- See [“Turning on the hardware and verifying operation”](#) on page 27.

## Turning on the hardware and verifying operation

### To turn on the appliance

- 1 On the front, right, side of the appliance press the Power button.



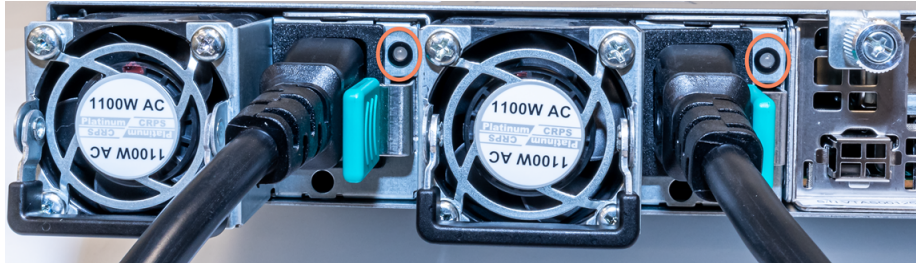
- 2 Verify that the bottom LED in all the four disk drive slots are green.



The following table provides details of the disk drive LEDs.

LED	States	Description
1-Status LED, Top	Off	No fault
	Solid amber	Disk fault
	Blinking amber	A RAID rebuild is in progress
2-Activity LED, Bottom	Off	Power is on and the disk has spun down
	Solid green	Power is on but there is no disk activity
	Blinking green	Power is on and the disk is spinning up
	Blinks green occasionally	Commands are being processed

- 3 On the bottom, left, rear of the appliance verify that the LED on each power supply is green.



- 4 Proceed to the next section to configure remote management.

## Configuring the Veritas Remote Management Interface

Veritas Flex Appliance release 1.x does not support configuring the IPMI port through the Flex Appliance Shell.

### **To configure the dedicated Veritas Remote Management Interface (IPMI) LAN settings in the BIOS**

- 1 Connect a standard video cable between the VGA (Video Graphics Array) port and the computer monitor
- 2 Connect a keyboard to a USB port at the rear of the Flex 5150 appliance.
- 3 Ensure that the power cords are connected to a power supply and press the power switch on the front panel.

- 4 The prompt about accessing the BIOS at the beginning of the startup cycle appears. Wait until the Veritas logo shows up and press **F2** to enter the initial BIOS setup screen. The initial setup dialog box appears and prompts you.



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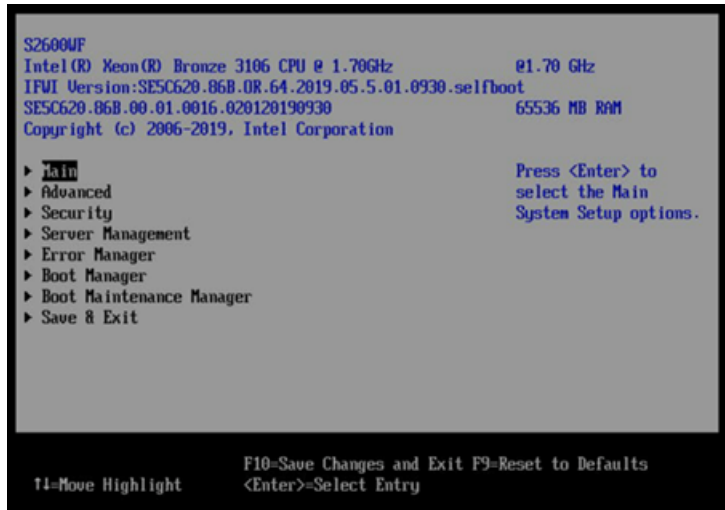
**Warning:** When you are in the BIOS, do not perform any other steps other than the ones mentioned in this section.

---

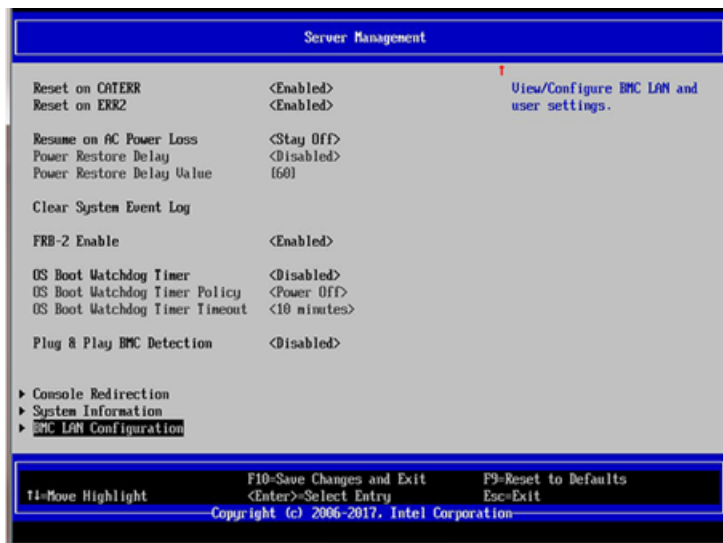
**Note:** If you miss the initial setup dialog box prompt in step 4, the appliance shell appears. Shut down and restart the appliance and try accessing the BIOS menu again.

---

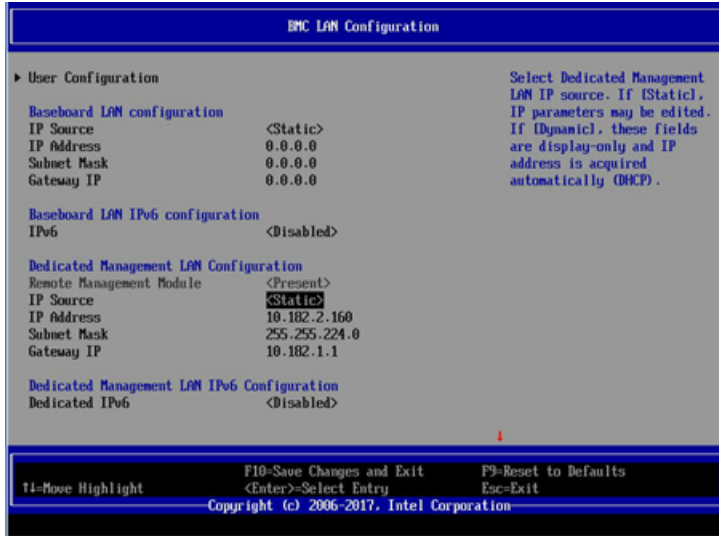
The **Setup Menu** page appears and the **Main** menu option should be highlighted.



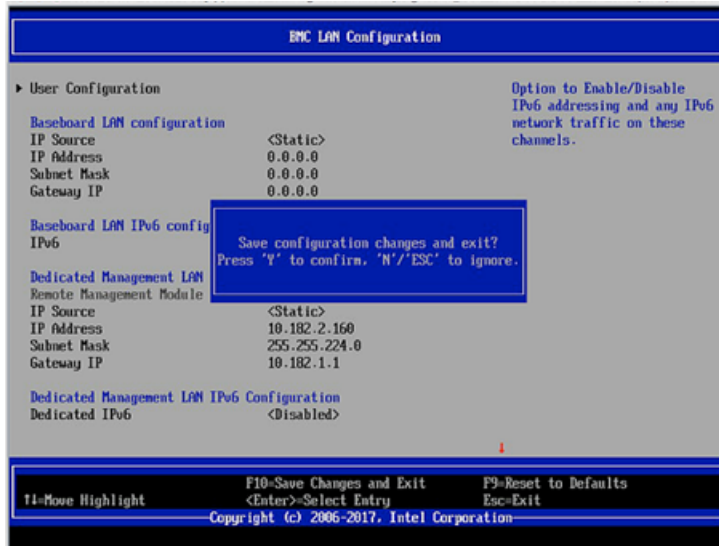
- 5 Use the down key on the keyboard and navigate to the **Server Management** menu option. Press **Enter**.
- 6 Press the up or down key on the keyboard to navigate to **BMC LAN Configuration**. Press **Enter**.
- 7 The **BMC LAN Configuration** options screen appears.



- 8 Navigate to the **Dedicated Management LAN Configuration** option. Use the information supplied by the customer to fill in the following fields: IP Source, IP address, Subnet mask, Gateway IP.



- 9 To save your BIOS changes, press **F10**.



- 10 Press **Y** to save and exit. The appliance restarts itself.

## Accessing and using the Veritas Remote Management interface

The IPMI web interface is known as Veritas Remote Management interface. You can use Veritas Remote Management interface to log on to the appliance shell.

Before you use the remote management interface, the following prerequisites must be met:

- The Remote Management interface (IPMI port) must first be configured.
- At least one power cable must be connected to a functioning power source.
- At least one user must be enabled to use the LAN channel(s).



**Note:** A default user is configured in the system. The default user name is **sysadmin**. The default password is **P@ssw0rd**, where 0 is the number zero.

**To access and use the Veritas Remote Management web interface from a remote computer**

- 1 Log on to a remote computer in the network and open a supported Windows browser.
- 2 Enter the remote management (IPMI) port IP address (https://) that is assigned to the remote management port. The following page appears:



- 3 Enter your login credentials. The default user name is **sysadmin**. The default password is **P@ssw0rd**, where **0** is the number zero.

Click **Login**.

- 4 Click the **Remote Control** section located at the top of the page. The **Remote Control** section lets you remotely monitor and control the server.

Do **one** of the following to launch the Flex Appliance Shell:

- If available, navigate to **Remote Control> iKVM over HTML5**. Click **Launch iKVM over HTML5** to launch the Appliance shell. A new window opens that enables you to remotely monitor and control the appliance.

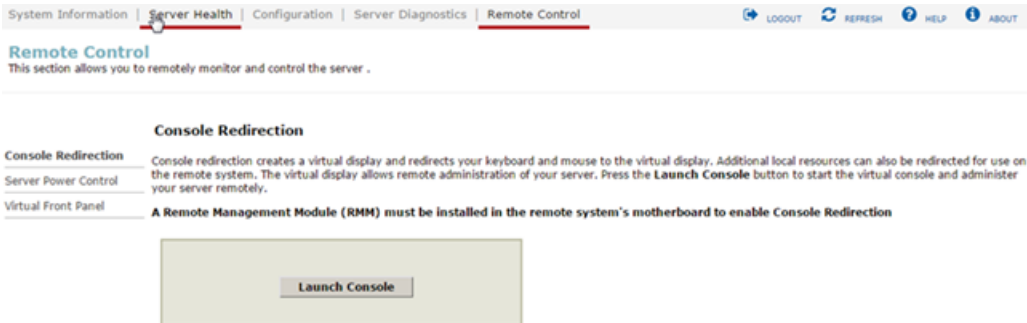


---

**Note:** Availability of the HTML5 option depends on the appliance firmware version. You can check the version from the **System > System Information** page. The BIOS must show version 00.01.0016 or later.

---

- Click **Remote Control > KVM/Console Redirection** . Click **Launch Console** to launch the appliance shell menu.



A JViewer application opens that enables you to remotely monitor and control the appliance. This application requires Java Runtime Environment (JRE) version 6.0 or later. Install Java. You can login to the JViewer application using the same user name and password from step 3

- 5 You can now access and log on to the appliance shell. Enter the user name and password for the appliance.

By default, the user name `hostadmin` has the password, `P@ssw0rd` where 0 is the number zero.

Type "?" and then enter the "system" command to actually see the list of available commands.

```
Console IP:
Flex SW Version:      1.3
Build Tag:            1.3-28198422122457

-----
Installation status: failed (Wed Oct 16 18:44:32 PDT 2819)
Hint: Num Lock on

eagappfx022 login: hostadmin
Password:
Last login: Wed Oct 16 18:41:21 from m383973bfg8up.community.veritas.com
Flex-shell is starting (maximum 5 seconds).

      Welcome to the Flex Appliance Shell

      This interface provides tab-completed options for managing
      the lifecycle of your Flex Appliance

      * For a list of available commands, press '?'
      * For a list of shell shortcuts, press 'Alt-s'
      * To get more information on a command, press '?' while typing or
      after tab-completing it
```

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