# SPARC T5-1B Server Module Installation Guide

**Part No: E35202-05**
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# Using This Documentation

- **Overview** – Describes how to install the SPARC T5-1B server module, which is installed in Oracle's Sun Blade 6000 modular system
- **Audience** – Technicians, system administrators, and authorized service providers
- **Required knowledge** – Advanced experience troubleshooting and replacing hardware

## Product Documentation Library

Late-breaking information and known issues for this product are included in the documentation library at http://www.oracle.com/goto/T5-1B/docs.

## Access to Oracle Support

Oracle customers have access to electronic support through My Oracle Support. For information, visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.

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# Understanding the Server Module

These topics describe the server module and the installation tasks.

- “Installation Task Overview” on page 9
- “Server Module Overview” on page 10
- “Front and Rear Panel Components” on page 12

### Related Information

- “Confirming Server Specifications” on page 15

## Installation Task Overview

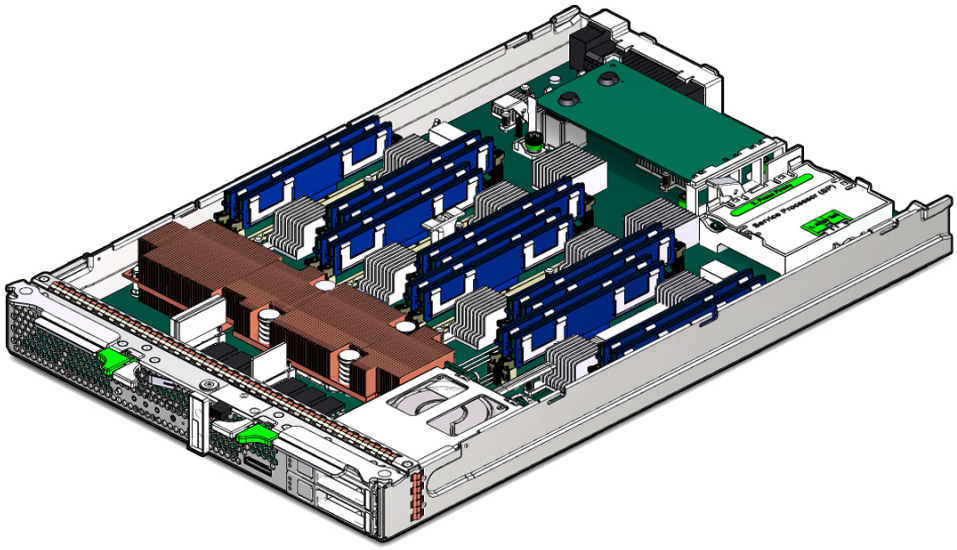
| Step | Description | Links |
|---|---|---|
| 1. | Review the product notes for any late-breaking news. | *SPARC T5-1B Server Module Product Notes* |
| 2. | Review the server module features and components. | “Server Module Overview” on page 10<br>“Front and Rear Panel Components” on page 12 |
| 3. | Review the server module requirements. | “Confirming Server Specifications” on page 15 |
| 4. | Confirm that you received all the items you ordered. | “Inventory” on page 19 |
| 5. | Review safety and ESD precautions. | “Handling Precautions” on page 20<br>“ESD Precautions” on page 20 |
| 6. | Gather the required tools. | “Tools Needed for Installation” on page 22 |
| 7. | Choose a method for connecting to the server module during installation. | “Plan Communication With the Server Module During Installation” on page 22<br>“Dongle Cables” on page 24 |
| 8. | Install optional components in the server module, and install the server module in the chassis. | “Installing the Server Module” on page 29 |
| 9. | Power on the server module for the first time. | “Powering On the Server Module for the First Time” on page 35 |

| Step | Description | Links |
|---|---|---|
| 10. | Configure the OS on the host. | “Installing the OS” on page 43 |
| 11. | (Optional) Assign a static IP address to the SP. | “Assign a Static IP Address to the SP” on page 50 |

### Related Information

- “Server Module Overview” on page 10
- “Front and Rear Panel Components” on page 12

# Server Module Overview



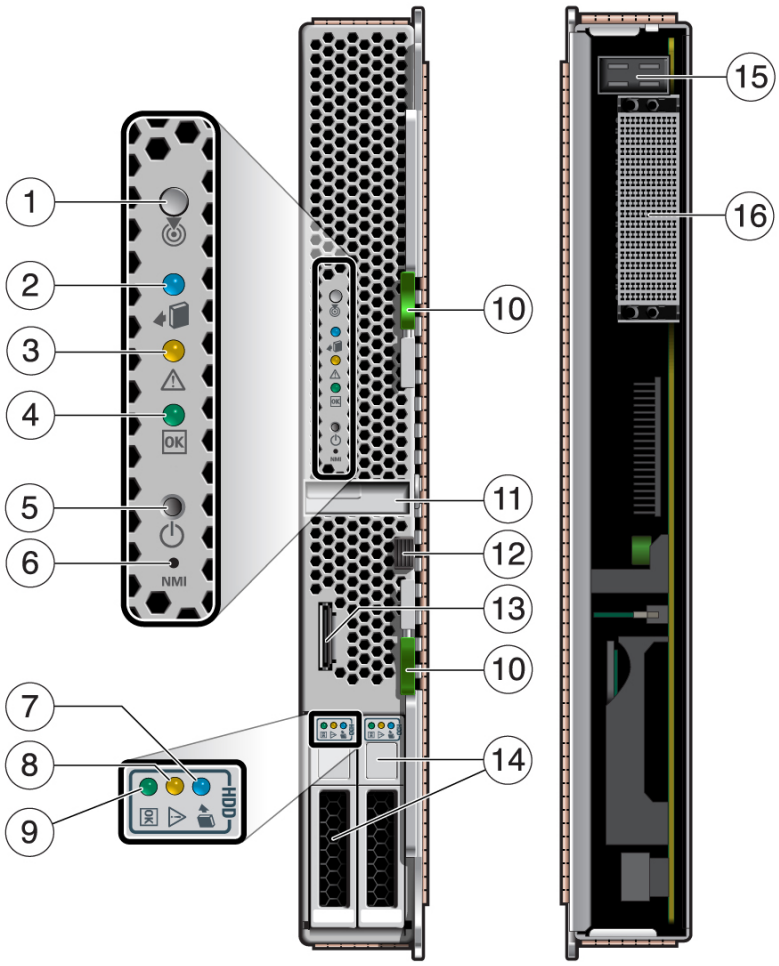
| Feature | Description |
|---|---|
| Processor | One 16-core 128-thread SPARC T5 processor. |
| Architecture | SPARC V9 architecture, ECC protected.<br>Platform group: sun4v.<br>Platform name: SPARC T5-1B. |
| Memory | 16 slots supporting 8 GB or 16 GB DDR3 DIMMs |

| Feature | Description |
|---|---|
| Ethernet | Two 10/100/1000 GbE ports |
| HBA | One on-board SAS/SATA RAID 0 or 1 controller (controls the two internal drives). |
| Internal drives | Up to two hot-pluggable 2.5-inch SAS-2 hard or SATA solid state drives. |
| Front panel I/O | One UCP connector. For local KVMS support, use a UCP-3 or UCP-4 dongle cable to access the following server module interfaces:<br>■ Two USB 2.0 ports<br>■ One RJ-45 Serial port<br>■ One DB-15 SVGA video port |
| Midplane I/O | ■ Four x8 PCIe interfaces (two to NEMs, two to PCIe EMs), operating at Gen2 speeds<br>■ Two 10/100/1000 GbE interfaces, one per NEM<br>■ One 10/100 Ethernet management port to CMM |
| OS | Oracle Solaris OS<br>**Note -** Refer to the *Server Module Product Notes* for details on software that is preinstalled and for information about required patches for supported Oracle Solaris OS releases. |
| Remote management | SP running Oracle ILOM. |
| Power | The modular system chassis provides power. |
| Cooling | The modular system chassis provides environmental controls. |

## Related Information

- “Front and Rear Panel Components” on page 12
- “Installation Task Overview” on page 9
- “Confirming Server Specifications” on page 15

# Front and Rear Panel Components




| No. | Description |
|---|---|
| 1 | Locator LED (white, also functions as the physical presence switch) |
| 2 | Ready to Remove LED (blue) |
| 3 | Fault LED (amber) |
| 4 | OK LED (green) |
| 5 | Power button |
| 6 | Reset button: NMI (for service use only) |

| No. | Description |
|---|---|
| 7 | Drive Ready to Remove LED (blue) |
| 8 | Drive Fault LED (amber) |
| 9 | Drive OK LED (green) |
| 10 | Ejector arm latch |
| 11 | RFID tag (provides the serial number of the server module) |
| 12 | Top cover release button |
| 13 | UCP |
| 14 | Drive slots |
| 15 | Rear chassis power connector |
| 16 | Rear chassis data connection |

Refer to *Server Module Service*, Interpreting LEDs, for more information about the LEDs.

## Related Information

- “Server Module Overview” on page 10
- “Installation Task Overview” on page 9

# Confirming Server Specifications

Site-planning information is included in the documentation for the Sun Blade 6000 modular system. Refer to the *Site Planning Guide for Sun Blade 6000 and Sun Blade 6048 Modular Systems*.

These topics help you plan installation of the server module.


- "Physical Specifications" on page 15
- "Electrical Specifications" on page 16
- "Environmental Specifications" on page 16


### Related Information


- "Installing the Server Module" on page 29
- "Installation Task Overview" on page 9
- "Server Module Overview" on page 10


## Physical Specifications

| Description | U.S. | Metric |
|---|---|---|
| Height | 12.9 in. | 327 mm |
| Width | 1.8 in. | 44 mm |
| Depth | 20.1 in. | 511 mm |
| Weight† | 17 lb | 7.7 kg |
| Minimum service clearance (front) | 36 in. | 91 cm |

†Weight specifications vary based on the model and internal options.

### Related Information


- "Server Module Overview" on page 10

# Electrical Specifications

| Description | Value | Notes |
|---|---|---|
| Voltage | 12V | From chassis backplane. |
| Voltage (auxiliary) | 3.3V | From chassis backplane. |
| Maximum operating power | 740 W | Estimated. |

For information on power specifications, use the power calculator at:

`http://www.oracle.com/us/products/servers-storage/sun-power-calculators`

Also refer to information about configuring server module power usage in the *SPARC T5-1B Server Module Product Notes*.

### Related Information

- "Powering On the Server Module for the First Time" on page 35

# Environmental Specifications

This topic includes these specifications:

- Temperature, humidity, and elevation
- Shock and vibration

**TABLE 1** Temperature, Humidity, and Elevation Specifications

| Description | Operating | | Nonoperating | | Notes |
|---|---|---|---|---|---|
| | U.S. | Metric | U.S. | Metric | |
| Temperature (maximum) | 41 to 95°F at 0 to 2953 ft | 5 to 35°C at 900m | -40 to 158°F at 0 to 2953 ft | -40 to 70°C at 900m | Above 2953 ft. (900m), decrease the maximum allowable temperature by 1.6°F per 1000 ft (1°C per 300m). |
| Relative humidity | 10 to 90% at 80.6°F | 10 to 90% at 27°C | Up to 93% at 100.4°F | Up to 93% at 38°C | Maximum wet bulb noncondensing. |
| Altitude | 10,000 ft at 95°F | 3048m at 40°C | Up to 40,000 ft | Up to 12,000m | |

**TABLE 2** Shock and Vibration Specifications

| Description | Operating | Notes |
|---|---|---|
| Shock | 3G, 11 ms | Half-sine. |

| Description | Operating | Notes |
|---|---|---|
| Vibration (vertical) | 0.15G | 5 to 500 HZ swept-sine. |
| Vibration (horizontal) | 0.10G | |

## Related Information

- “Installing the Server Module” on page 29

# Preparing for Installation

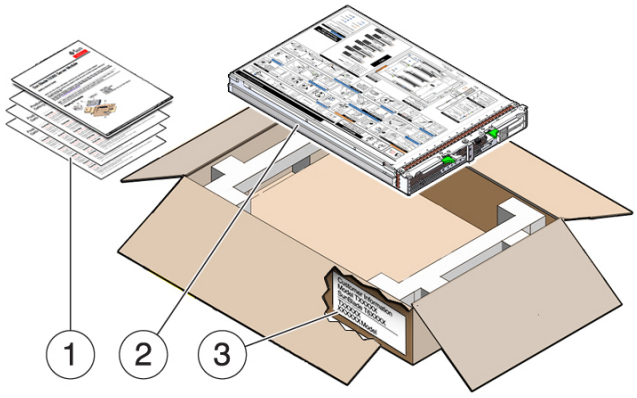
These topics help you prepare to install the server module.


- “Inventory” on page 19
- “Handling Precautions” on page 20
- “ESD Precautions” on page 20
- “Tools Needed for Installation” on page 22
- “Plan Communication With the Server Module During Installation” on page 22
- “Dongle Cables” on page 24


### Related Information


- “Installing the Server Module” on page 29
- “Installation Task Overview” on page 9


## Inventory



| No. | Description |
|---|---|
| 1 | Printed documentation, including the *Getting Started Guide*. |
| 2 | Server module. |
| 3 | Customer information sheet (on outside of shipping carton). Save this sheet as a record of the MAC address and other information about installed hardware and software. |

### Related Information

- “Handling Precautions” on page 20
- “ESD Precautions” on page 20
- “Tools Needed for Installation” on page 22
- “Plan Communication With the Server Module During Installation” on page 22
- “Dongle Cables” on page 24

## Handling Precautions

- Use both hands to carry the server module.
- Extend the ejector arms on the front panel only while they need to be in that position to perform a step in a task.

### Related Information

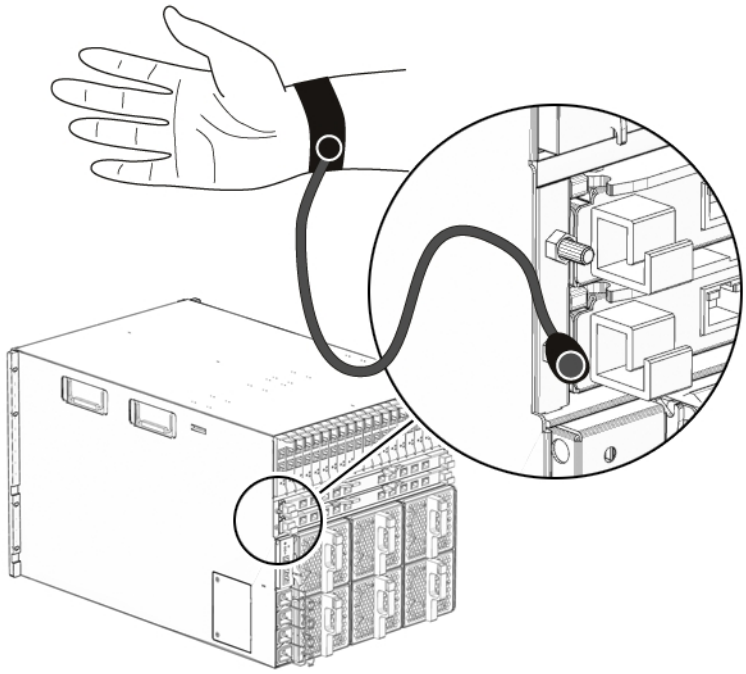
- “Physical Specifications” on page 15
- “Inventory” on page 19
- “ESD Precautions” on page 20
- “Tools Needed for Installation” on page 22
- “Plan Communication With the Server Module During Installation” on page 22
- “Dongle Cables” on page 24

## ESD Precautions

Electronic equipment is susceptible to damage by static electricity. Use a grounded antistatic wrist strap, foot strap, or equivalent safety equipment to prevent ESD when you install the server module.

**Caution -** To protect electronic components from ESD, which can permanently damage electronics, place components on an antistatic surface, such as an antistatic discharge mat, or an antistatic bag. Wear an antistatic grounding strap connected to a metal surface on the chassis when you work on server components.

The following figure shows the modular system chassis ground connector for which you can connect antistatic equipment.



## Related Information


- "Inventory" on page 19
- "Handling Precautions" on page 20
- "Tools Needed for Installation" on page 22
- "Plan Communication With the Server Module During Installation" on page 22
- "Dongle Cables" on page 24

# Tools Needed for Installation

The following tools are sufficient for installing the server module, whether or not you need to install components inside the server module:

- Antistatic mat
- Antistatic wrist strap
- UCP-3 or UCP-4 dongle cable
- Terminal device or terminal emulator
- Stylus (to press power button)

### Related Information

- “Dongle Cables” on page 24
- “Handling Precautions” on page 20
- “ESD Precautions” on page 20
- “Plan Communication With the Server Module During Installation” on page 22
- “Inventory” on page 19

# ▼ Plan Communication With the Server Module During Installation

There are several methods to communicate with the server module during the initial installation. Plan which method you will use. Before you perform the installation, arrange to have the equipment, information, and permissions required by that method.

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**Note -** For information about identifying and configuring IP and MAC addresses, refer to the configuring network addresses information in the *Servers Administration.*

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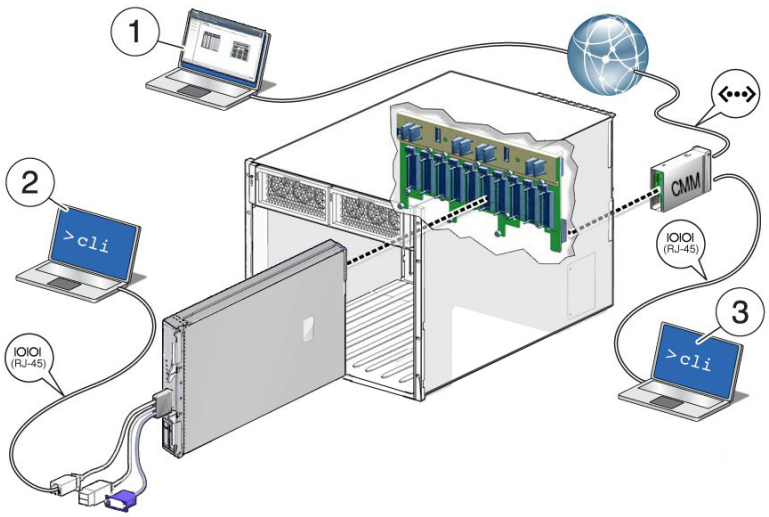
- **Choose one of the connection methods to communicate with the server module SP.**

The connection methods are shown in the figure and described in the table. Obtain the cables, monitoring devices, addresses, and passwords required for the method you choose.




| Method | Connection Description | Connection Requirements |
|---|---|---|
| 1 | Ethernet<br><br>**From:** CMM NET MGT port<br><br>**To:** Your network | ■ Know the IP address of the CMM.<br>■ Know the CMM Oracle ILOM user and password account information.<br><br>Use one of these procedures based on the type of Oracle ILOM interface you want to use:.<br><br>■ Web Interface – "Power On the Host Through the CMM SER MGT Port (CLI)" on page 41<br>■ CLI – "Power On the Host Through the CMM (CLI)" on page 37. |
| 2 | Serial<br><br>**From:** Server module SP UCP port<br><br>**To:** Terminal device | ■ A terminal device and serial cable.<br>■ Dongle cable<br><br>You communicate directly with Oracle ILOM on the server module SP using the CLI. See "Power On the Host Through the Front Panel (CLI)" on page 39. |
| 3 | Serial<br><br>**From:** CMM SER MGT port<br><br>**To:** Terminal device | ■ A terminal device and serial cable<br>■ Know the CMM Oracle ILOM user and password account information.<br><br>You communicate through the CMM using the Oracle ILOM CLI. See "Power On the Host Through the CMM (CLI)" on page 37.<br><br>. |

### Related Information


- “Dongle Cables” on page 24
- “Inventory” on page 19
- “Handling Precautions” on page 20
- “ESD Precautions” on page 20
- “Tools Needed for Installation” on page 22


# Dongle Cables

For setup, testing, or service purposes, you can connect cables directly to the server module SP by first attaching a dongle cable to the UCP on the front panel of the server module.

**Caution -** Dongle cables should be removed when not in use. These cables have not been evaluated for electromagnetic compatibility compliance and are not to be used during normal system operation.

There are two types of dongle cables you can use:

- **UCP-3** – Three-connector dongle cable (preferred) ships with the server module. Use the RJ-45 connector to connect to the server module SP.
- **UCP-4** – Four-connector dongle cable (previous version). You must use the DB-9 connector to connect to the server module SP. The RJ-45 connector is not supported. If you need an RJ-45 connection, attach an optional DB-9-to-RJ-45 adapter to the DB-9 connector.

**FIGURE 1** UCP-3 Three-Connector Dongle Cable

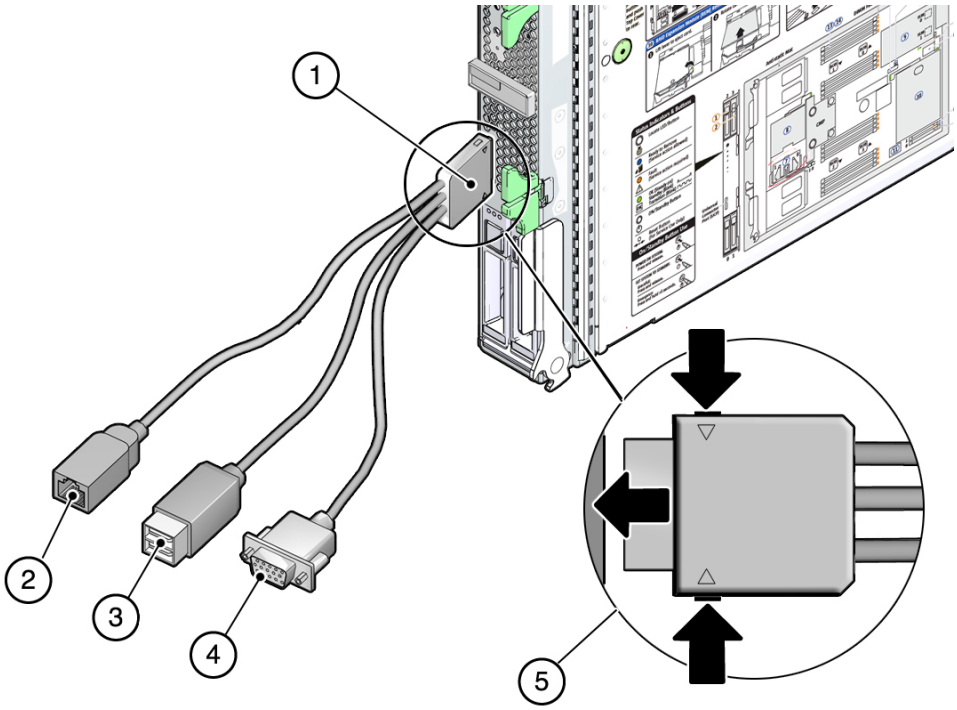



**Figure Legend**

**1** Dongle connector attaching to the server module UCP
**2** RJ-45 serial connector
**3** USB 2.0 (two connectors)
**4** VGA 15-pin female connector
**5** Insertion and release buttons

**FIGURE 2** UCP-4 Four-Connector Dongle Cable

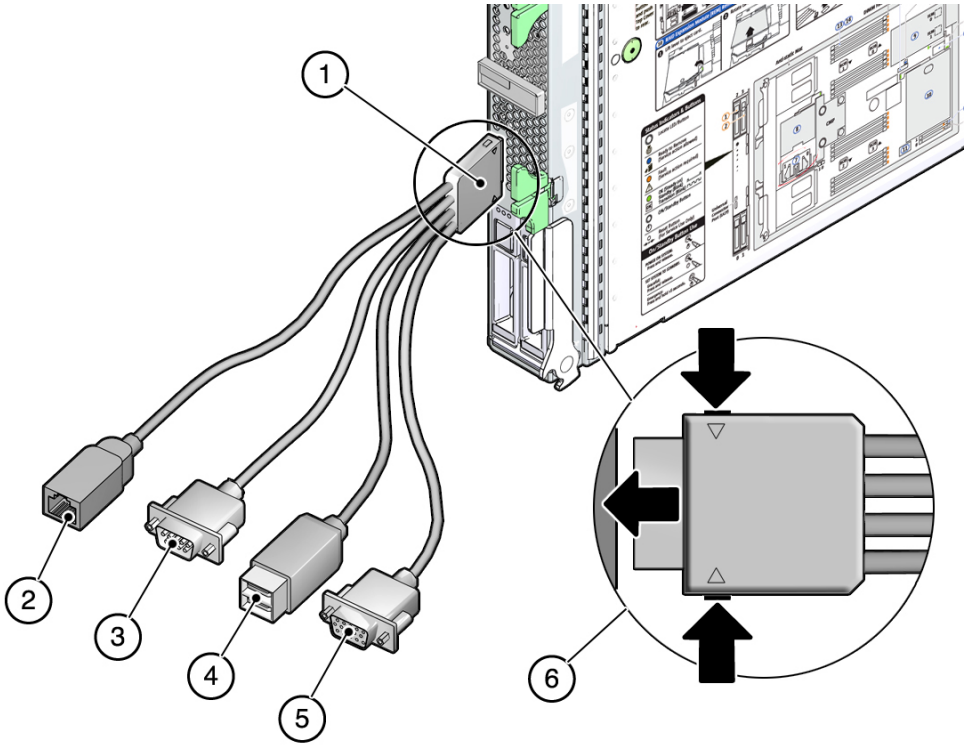



**Figure Legend**

1. Dongle connector attaching to the server module UCP
2. RJ-45 serial connector (Do not use this connector on the UCP-4)
3. DB-9 serial male connector (TTYA)
4. USB 2.0 (two connectors)
5. VGA 15-pin female connector
6. Insertion and release buttons

## Related Information


- “Inventory” on page 19
- “Handling Precautions” on page 20
- “ESD Precautions” on page 20
- “Tools Needed for Installation” on page 22

- “Plan Communication With the Server Module During Installation” on page 22

# Installing the Server Module

These topics describe how to physically install the server module into the modular system.

| Step | Description | Links |
|---|---|---|
| 1. | Prepare the modular system chassis and server module for installation. | “Prepare the Modular System and Server Module” on page 29 |
| 2. | Install any optional components. | “Install Optional Components” on page 30 |
| 3. | Insert the server module into the chassis. | “Insert the Server Module Into the Chassis” on page 31 |

### Related Information

- “Powering On the Server Module for the First Time” on page 35
- “Installation Task Overview” on page 9

## ▼ Prepare the Modular System and Server Module

You must install and configure the Sun Blade 6000 modular system (chassis) before installing the server module.

1. **Ensure that the modular system is installed and functional.**

   Satisfying the following conditions ensures a straightforward installation of the server module:

   a. **Install the modular system into its intended rack before installing server modules.**

   b. **If you plan to manage the server modules through the modular system CMM, configure the CMM to run in your network.**

   c. **Ensure that the modular system chassis is powered on and running.**

   d. **Ensure that the modular system is running the latest version of CMM Oracle ILOM firmware.**

**Note -** For more information about preparing the modular system and CMM Oracle ILOM, refer to the *Sun Blade 6000 Modular System Installation Guide*.

2. **Unpackage the server module.**

   Be ready to insert the server module within 60 seconds of removing the filler panel.

3. **Install any optional components.**

   See “Install Optional Components” on page 30.

### Related Information

- “Install Optional Components” on page 30
- “Insert the Server Module Into the Chassis” on page 31

# ▼ Install Optional Components

Optional components that you order as part of the server module's initial configuration are installed in the server module before it is shipped. These optional components are identified on the customer information sheet included with the server module's packaging.

However, if you ordered optional components separately, you must install them in the server module before you install the server module in the modular system chassis.

1. **Install any optional components in the server module.**

   To install any optional components, refer to the *Server Module Service Manual* and to the documentation for the optional component.

2. **Close the server module.**

3. **Insert the server module into the chassis.**

   See “Insert the Server Module Into the Chassis” on page 31.

### Related Information

- “Prepare the Modular System and Server Module” on page 29
- “Install Optional Components” on page 30

# ▼ Insert the Server Module Into the Chassis

There are limitations on the total number of server modules that you can install in a modular system. Refer to the *SPARC T5-1B Server Module Product Notes*, Configuring Server Module Power Usage for details.

1. **If you have not done so, prepare the modular system and server module.**

   See "Prepare the Modular System and Server Module" on page 29.

2. **If you have not done so, install any optional components.**

   See "Install Optional Components" on page 30.

3. **Remove the protective cover from the rear connector of the server module.**

4. **Be prepared to communicate with the server module after completing the physical installation.**

   As soon as you insert the server module in a powered modular system, power is supplied to the server module and the SP generates messages. If you want to see these messages, be ready to connect using one of the methods in "Plan Communication With the Server Module During Installation" on page 22.

5. **Locate the slot in the chassis where you plan to install the server module.**

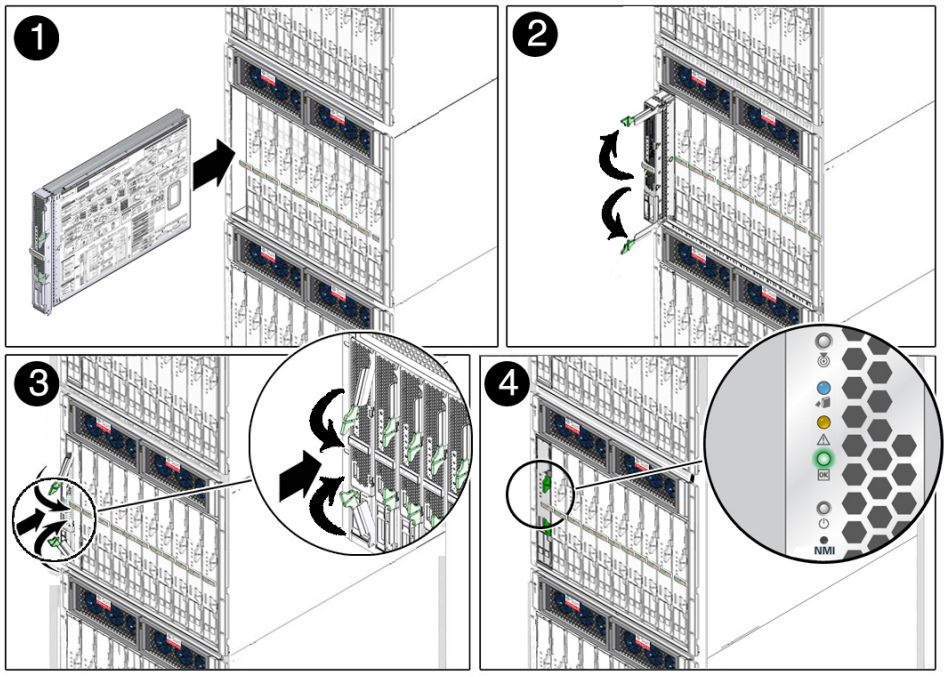
   A filler panel should remain in this slot until just before you are ready to insert the server module. All slots should remain filled with server modules or filler panels to ensure correct air flow, heat, and electromagnetic interference conditions in the modular system.

6. **Remove the filler panel from the selected chassis slot.**

   Pull down the ejector arm of the filler panel, then pull the panel straight out of the chassis.

**Caution -** Be ready to insert the server module within 60 seconds of removing the filler panel.

7. **Use both hands to position the server module vertically with the ejector arms on the right (panel 1).**




8. **Push the server module into the empty slot until the module extends about 0.5 inch (1.5 cm) from the chassis front (panel 2).**

9. **Pinch the ejector levers to open them (panel 2).**

10. **Push the server module into the chassis and close the ejector levers (panels 2 and 3).**

11. **Monitor status messages when power is applied to the server module (panel 4).**

    When the server module is plugged in, standby power is supplied to the SP. After about 10 seconds, the front panel LEDs blink three times, then the green OK LED blinks for a few minutes. The server module SP generates messages as soon as the server module is connected to a powered modular system. See "Front and Rear Panel Components" on page 12.

12. **Power on the server module.**

    See "Powering On the Server Module for the First Time" on page 35.

## Related Information

- “Prepare the Modular System and Server Module” on page 29
- “Install Optional Components” on page 30
- “Front and Rear Panel Components” on page 12

# Powering On the Server Module for the First Time

When you power on Oracle's SPARC T5-1B server module host for the first time, you either configure the preinstalled OS or install a fresh OS.

| Description | Links |
|---|---|
| Use your preferred method to power on the server module for the first time. | "Powering On the Host for the First Time" on page 35 |
| Configure the preinstalled OS or install a new OS. | "Installing the OS" on page 43 |
| Optionally, assign a static IP address to the SP. | "Assign a Static IP Address to the SP" on page 50 |

### Related Information

- "Installation Task Overview" on page 9
- *Servers Administration*

## Powering On the Host for the First Time

Based on the connection method you selected from "Plan Communication With the Server Module During Installation" on page 22, perform the tasks in the applicable row of this table.

| Description | Links |
|---|---|
| Method 1 (web interface) –<br><br>Through a browser that is on the same network as the CMM, power on the host using the CMM Oracle ILOM web interface. | "Power On the Host Through the CMM (Web Interface)" on page 36 |
| Method 1 (CLI) –<br><br>Through a terminal window on a system that is on the same network as the CMM, power on the host using the CMM Oracle ILOM CLI. | "Power On the Host Through the CMM (CLI)" on page 37 |
| Method 2 (CLI) – | "Power On the Host Through the Front Panel (CLI)" on page 39 |

| Description | Links |
|---|---|
| Through a terminal device connected to the front panel of the server module (using the dongle cable), power on the host using the server module SP Oracle ILOM CLI. | |
| Method 3 (CLI) –<br><br>Through a terminal device connected to the CMM SER MGT port, power on the host using the CMM Oracle ILOM CLI. | "Power On the Host Through the CMM SER MGT Port (CLI)" on page 41 |

### Related Information

- "Plan Communication With the Server Module During Installation" on page 22

# ▼ Power On the Host Through the CMM (Web Interface)

You connect to the CMM through your network that is connected to the CMM NET MGT Ethernet port. While this Ethernet connection supports both the Oracle ILOM CLI and the web interface, this procedure uses the web interface.

This procedure assumes that the CMM Oracle ILOM is running version 3.1 or higher.

---

**Note -** By default, the server module is configured to use DHCP to obtain the IP address for the SP.

---

1. **Ascertain the IP addresses for the CMM.**
2. **Ensure that the CMM is connected to the network you are on.**

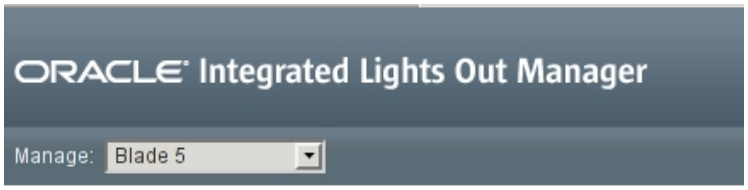
   The network connection is through the RJ-45 connector labeled NET MGT 0 on the CMM.
3. **In a browser on the same network as the modular system, enter the IP address of the CMM.**

   For example, if your CMM has the IP address `129.99.99.99`, enter `http://129.99.99.99` into your browser.

   A login window for Oracle ILOM appears.
4. **Log into Oracle ILOM on the CMM by typing your user name and password.**

   The factory default Oracle ILOM `root` password is `changeme`, but might have been changed in your environment.
5. **In the upper left corner, change Manage Chassis to Manage Blade *n*.**

where *n* is the slot in which the blade is installed.




The Blade Summary page is displayed.

6. **If you do not plan to use the preinstalled OS, do not perform the remaining steps.**

   Instead, go to "Reach a State to Install a Fresh OS (Oracle ILOM Web Interface)" on page 46.

7. **In the Actions pane, next to Power State, click the Turn On button.**

8. **Confirm the action.**

   The server module host powers on, runs POST, and boots from the preinstalled OS.

9. **In the left navigation panel, click on Remote Control > Redirection.**

10. **Select Use serial redirection, and click Launch Remote Console.**

    As the host boots, messages are displayed in the serial console. You are automatically prompted for Oracle Solaris OS configuration information.

11. **Configure the Oracle Solaris OS to meet your needs.**

    See "Installing the OS" on page 43.

### Related Information

- "Plan Communication With the Server Module During Installation" on page 22

## ▼ Power On the Host Through the CMM (CLI)

You connect to the CMM through the RJ-45 NET MGT 0 Ethernet port. While this Ethernet connection supports both the CLI and the web interface to the CMM SP, this procedure describes how to use the CMM CLI.

1. **Ascertain the IP addresses for the CMM.**

2. **Ensure that the CMM is connected to the network you are on.**

   The network connection is through the RJ-45 connector labeled NET MGT 0 on the CMM.

3. **Log in to the CMM with the SSH client.**

   ```
   $ ssh root@cmm_ip_address
   ```

   Replace *cmm_ip_address* with the IP address of the CMM.

4. **Type your password for the CMM Oracle ILOM `root` account when prompted.**

   The factory default Oracle ILOM `root` password is `changeme`, but might have been changed in your environment.

   ```
   Password: CMM_ILOM_password
   Oracle(TM) Integrated Lights Out Manager
   Version 3.x.x
   ...
   Warning: password is set to factory default.
   ->
   ```

   You are now logged into the Oracle ILOM CMM CLI.

   **Note -** When you are ready to log out of the Oracle ILOM CMM, type **`exit`**.

5. **If you do not plan to use the preinstalled OS, do not perform the remaining steps.**

   Instead, go to "Reach a State to Install a Fresh OS (Oracle ILOM CLI)" on page 49.

6. **Navigate to the server module.**

   ```
   -> cd /Servers/Blades/Blade_n
   ```

   Replace *n* with a number that identifies the chassis slot in the modular system where the target server module is installed.

7. **Power on the server module host.**

   Replace *n* with a number that identifies the chassis slot in the modular system where the target server module is installed.

   ```
   -> start System
   Are you sure you want to start /Servers/Blades/Blade_n/System (y/n)? y
   Starting /System. . .
   ```

The server module initializes.

8. **Switch communication to the server module host.**

When the Oracle ILOM prompt appears, type.

```
-> start HOST/console
Are you sure you want to start /Servers/Blades/Blade_5/HOST/console (y/n)? y
Serial console started. To stop, type #.
...
```

The server module might take several minutes to complete POST. If a boot device installed with Oracle Solaris OS is accessible locally, the server module boots. Otherwise, the server module uses the `boot net` command to seek a boot device on the network.

You are now connected to the server module host.

---

**Note -** You can perform other Oracle ILOM commands while the server initialization continues in the background. To return to Oracle ILOM, type **`#.`** (Hash Dot). To see information about available Oracle ILOM commands, type **`help`**. To return to the initialization, type: **`start /HOST/console`**.

---

9. **The server module hardware installation is now complete.**

You can now configure the Oracle Solaris OS to meet your needs. See "Installing the OS" on page 43.

### Related Information

- "Plan Communication With the Server Module During Installation" on page 22

## ▼ Power On the Host Through the Front Panel (CLI)

You can access the server module SP directly by connecting a dongle cable to the UCP on the front of the server module.

---

**Caution -** Dongle cables are intended for setup, testing, or service purposes and should be removed when not in use. These cables have not been evaluated for electromagnetic compatibility compliance and are not to be used during normal operation. See "Dongle Cables" on page 24.

---

1. **Configure the terminal device or terminal emulation software with these settings:**

- 8N1 (eight data bits, no parity, one stop bit)

- 9600 baud (the default, but can be set to any standard rate up to 57600)
- Disable hardware flow control (CTS/RTS)

2. **Connect the dongle cable to the UCP connector on the front panel of the server module.**

   If possible, use a three-connector UCP-3 dongle cable rather than a four-connector UCP-4. See "Dongle Cables" on page 24 for details.

3. **Connect a terminal or terminal emulator to the dongle cable.**

   - For a UCP-3 dongle cable, use the RJ-45 connector.
   - For a UCP-4 dongle cable, use the DB-9 serial connector (TTYA). If you need to make an RJ-45 connection to a UCP-4, do so through a DB-9-to-RJ-45 adapter attached to the DB-9 connector.

   The Oracle ILOM login prompt is displayed on the terminal or terminal emulator.

4. **Type the user name and password when prompted.**

   The default user is `root`. The default password is `changeme`.

   You are now logged into Oracle ILOM on the server module SP.

5. **If you do not plan to use the preinstalled OS, do not perform the remaining steps.**

   Instead, go to "Reach a State to Install a Fresh OS (Oracle ILOM CLI)" on page 49.

6. **Power on the host.**

```
-> start /System
Are you sure you want to start /System (y/n)? y
Starting /System. . .
```

   The server module initializes.

7. **Switch communication to the server module host.**

   When the Oracle ILOM prompt appears, type.

```
-> start /HOST/console
Are you sure you want to start /HOST/console (y/n)? y
Serial console started. To stop, type #.
```

   The server module might take several minutes to complete POST. If a boot device installed with Oracle Solaris OS is accessible locally, the server module boots. Otherwise, the server module uses the `boot net` command to seek a boot device on the network.

   You are now connected to the server module host.

**Note -** You can perform other Oracle ILOM commands while the server initialization continues in the background. To return to Oracle ILOM, type **#.** (Hash Dot). To see information about available Oracle ILOM commands, type **help**. To return to the initialization, type: **start /HOST/console**.

8. **The server module hardware installation is now complete.**

   You can now configure the server module to meet your needs. See "Configure the Preinstalled OS" on page 44.

### Related Information

- "Plan Communication With the Server Module During Installation" on page 22
- "Dongle Cables" on page 24

## Power On the Host Through the CMM SER MGT Port (CLI)

You can access the server module SP by first accessing Oracle ILOM CMM through a terminal or terminal emulator connected to the RJ-45 serial port on the chassis. Then you can connect to the server module SP through the Oracle ILOM CMM CLI.

1. **Verify that the terminal, laptop, or terminal server that will connect to the chassis is operational.**

2. **Configure the terminal device or terminal emulation software with these settings:**

   - 8N1 (eight data bits, no parity, one stop bit)
   - 9600 baud (the default, but can be set to any standard rate up to 57600)
   - Disable hardware flow control (CTS/RTS)

3. **Connect a serial cable from the CMM serial port to the terminal device.**

   Refer to the modular system documentation for the location of the CMM serial port.

   The serial port requires a cable with these pin assignments.

| Pin | Signal Description |
|---|---|
| 1 | Request To Send (RTS) |
| 2 | Data Terminal Ready (DTR) |
| 3 | Transmit Data (TXD) |

| Pin | Signal Description |
|---|---|
| 4 | Ground |
| 5 | Ground |
| 6 | Receive Data (RXD) |
| 7 | Data Carrier Detect (DCD) |
| 8 | Clear To Send (CTS) |

4. **Press Enter on the terminal device.**

   The connection between the terminal device and the CMM is established.

   If you connected to the serial port before powering on the server module, you will see boot messages. The Oracle ILOM CMM software displays its login prompt.

   ```
   ORACLECMMnnnnnnnnnn login:
   ```

   The first string in the prompt is the default host name, which consists of the prefix `ORACLECMM` followed by the Oracle ILOM CMM MAC address. The MAC address for each CMM and SP is unique.

5. **Log into Oracle ILOM on the CMM by typing your user name and password.**

   The factory default Oracle ILOM `root` password is `changeme`, but might have been changed in your environment.

   You are now logged into the Oracle ILOM CMM web interface.

   After you have successfully logged in, the Oracle ILOM CMM displays its default command prompt.

   ```
   ->
   ```

6. **Navigate to the server module.**

   ```
   -> cd /Servers/Blades/Blade_n
   ```

   Replace *n* with a number that identifies the chassis slot in the modular system where the target server module is installed.

7. **Power on the server module host.**

   Replace *n* with a number that identifies the chassis slot in the modular system where the target server module is installed.

   ```
   -> start System
   Are you sure you want to start /Servers/Blades/Blade_n/System (y/n)? y
   Starting /System. . .
   ```

   The server module initializes.

8. **Switch communication to the server module host.**

   When the Oracle ILOM prompt appears, type.

```
-> start HOST/console
Are you sure you want to start /Servers/Blades/Blade_5/HOST/console (y/n)? y
Serial console started. To stop, type #.
...
```

   The server module might take several minutes to complete POST. If a boot device installed with Oracle Solaris OS is accessible locally, the server module boots. Otherwise, the server module uses the `boot net` command to seek a boot device on the network.

   You are now connected to the server module host.

9. **The server module hardware installation is now complete.**

   You can now configure the Oracle Solaris OS to meet your needs. See "Installing the OS" on page 43.

### Related Information

- "Plan Communication With the Server Module During Installation" on page 22

# Installing the OS

Perform the set of tasks that apply to your situation.

| Description | Links |
|---|---|
| Configure the preinstalled OS. | "Configure the Preinstalled OS" on page 44<br>"Oracle Solaris Configuration Parameters" on page 44 |
| Install a new OS (Oracle ILOM web interface). | "Reach a State to Install a Fresh OS (Oracle ILOM Web Interface)" on page 46 |
| Install a new OS (Oracle ILOM CLI). | "Reach a State to Install a Fresh OS (Oracle ILOM CLI)" on page 49 |

### Related Information

- "Powering On the Host for the First Time" on page 35

# ▼ Configure the Preinstalled OS

This procedure assumes that you are using the Oracle Solaris OS software that was preinstalled on the drive in slot 0 of the server module. If you are installing the Oracle Solaris OS another way, complete the Oracle Solaris OS installation then resume this procedure.

- **Respond to configuration questions in the Oracle Solaris installation process.** See the configuration choices in "Oracle Solaris Configuration Parameters" on page 44.

### Related Information

- "Oracle Solaris Configuration Parameters" on page 44
- "Assign a Static IP Address to the SP" on page 50

# Oracle Solaris Configuration Parameters

You are prompted to provide these parameters when configuring the Oracle Solaris OS on the server module. You need to collect only the information that applies to your installation environment.

**Note -** The configuration parameters vary slightly based on the release of the Oracle OS you are installing.

| Information for Installation | | Description or Example | Your Values (* Denotes the default value) |
|---|---|---|---|
| Language | | Select from the list of available languages for the OS. | English* |
| Locale | | Select your geographic region from the list of available locales. | |
| Terminal | | Select the type of terminal that you are using from the list of available terminal types. | |
| Network connection | | Is the system connected to a network? | ■ Networked<br>■ Nonnetworked* |
| DHCP | | Can the system use Dynamic Host Configuration Protocol (DHCP) to configure its network interfaces? | ■ Yes<br>■ No* |
| If you are not using DHCP, note the network address | IP address | Supply the IP address for the system.<br><br>Example: `192.168.100.1` | |
| | Subnet | Is the system part of a subnet?<br><br>If yes, what is the netmask of the subnet?<br><br>Example: `255.255.255.0` | `255.255.0.0`* |
| | IPv6 | Do you want to enable IPv6 on this machine? | ■ Yes |

| Information for Installation | | Description or Example | Your Values (* Denotes the default value) |
|---|---|---|---|
| | | | ■ No* |
| Host name | | Choose a host name for the system. | |
| Kerberos | | Do you want to configure Kerberos security on this machine?<br><br>If yes, gather this information:<br><br>Default realm:<br><br>Administration server:<br><br>First KDC:<br><br>(Optional) Additional KDCs: | ■ Yes<br>■ No* |
| Name service | Name service | If applicable, which name service will this system use? | ■ NIS+<br>■ NIS<br>■ DNS<br>■ LDAP<br>■ None* |
| | Domain name | Provide the name of the domain in which the system resides. | DNS or NIS |
| | NIS+ and NIS | *If you chose NIS+ or NIS*, do you want to specify a name server, or let the installation program find one? | ■ Specify One<br>■ Find One*<br><br>If you choose NIS:<br><br>■ Specify a NIS domain<br>■ Indicate whether to specify a NIS server or search for one |
| | DNS | *If you chose DNS*, provide IP addresses for the DNS server. You must enter at least one IP address, but you can enter up to three addresses.<br><br>You can also enter a list of DNS domains to search when a DNS query is made.<br><br>Search domain:<br><br>Search domain:<br><br>Search domain: | |
| | LDAP | *If you chose LDAP*, provide this information about your LDAP profile:<br><br>Profile name:<br><br>Profile server:<br><br>If you specify a proxy credential level in your LDAP profile, gather this information:<br><br>Proxy-bind distinguished name: | |

| Information for Installation | Description or Example | Your Values (* Denotes the default value) |
|---|---|---|
| | Proxy-bind password: | |
| Default route | Do you want to specify a default route IP address, or let the OS installation program find one?<br><br>The default route provides a bridge that forwards traffic between two physical networks. An IP address is a unique number that identifies each host on a network.<br><br>You have these choices:<br><br>■ You can specify the IP address. An `/etc/defaultrouter` file is created with the specified IP address. When the system is rebooted, the specified IP address becomes the default route.<br>■ You can let the OS installation program detect an IP address. However, the system must be on a subnet that has a router that advertises itself by using the ICMP for router discovery. If you are using the CLI, the software detects an IP address when the system is booted.<br>■ You can select None if you do not have a router or do not want the software to detect an IP address at this time. The software automatically tries to detect an IP address on reboot. | ■ Specify one<br>■ Detect One<br>■ None* |
| Time zone | How do you want to specify your default time zone? | ■ Geographic region*<br>■ Offset from GMT<br>■ Time zone file |
| Root password | Choose a root password for the system. | |

### Related Information

- “Configure the Preinstalled OS” on page 44
- “Assign a Static IP Address to the SP” on page 50

# ▼ Reach a State to Install a Fresh OS (Oracle ILOM Web Interface)

If you do not plan to use the preinstalled OS use this procedure to prevent the server module from booting the preinstalled OS.

1. **Prepare the appropriate boot media according to your installation method.**

   There are many methods by which you can install the OS. For example, you can boot and install the OS from DVD media or from another server on the network.

For more information about the methods, refer to these Oracle Solaris document sections:

- *Installing Oracle Solaris 11 Systems*, comparing installation options at:

  `http://www.oracle.com/goto/Solaris11/docs`
- *Oracle Solaris 10 Installation Guide: Planning for Installation and Upgrade*, choosing an Oracle Solaris installation method at:

  `http://www.oracle.com/goto/Solaris10/docs`

2. **If you have not done so, perform these tasks to access the Oracle ILOM web interface on the server module:**

   a. **In a browser on the same network as the modular system, enter the IP address of the CMM.**

   b. **Log into Oracle ILOM on the CMM by typing your user name and password.**

   c. **In the upper left corner, change Manage Chassis to Manage Blade_*n*, where *n* is the slot in which the server module is installed.**

---

**Note -** These tasks are described in "Power On the Host Through the CMM (Web Interface)" on page 36.

---

3. **In the Oracle ILOM web interface, in the left navigation pane, select Host Management > Host Boot Mode.**

   The Host Boot Mode page is displayed.

4. **Apply these changes to the Host Boot Mode Settings:**

   a. **For State, select: Reset NVRAM**

      This setting applies a one-time NVRAM (OBP) change based on the script setting, then resets the NVRAM to default settings on the next host reset.

   b. **For Script, type:** `setenv auto-boot? false`

      This setting configures the host to stop at the `ok` prompt instead of automatically booting the preinstalled OS.

   c. **Click Save.**

---

**Note -** You have 10 minutes to perform the next step. After 10 minutes, the state is automatically returned to normal.

---

5. **In the left navigation panel, click on Host Management > Power Control.**

6. **Select Reset from the pull-down menu, and click Save.**

7. **In the left navigation panel, click on Remote Control > Redirection.**

8. **Select Use Serial Redirection, and click Launch Remote Console.**

   As the host resets, messages are displayed in the serial console. The reset activity takes a few minutes to complete. When the `ok` prompt is displayed, continue to the next step.

9. **At the ok prompt, boot from the appropriate boot media for your installation method.**

   For more information, refer to the Oracle Solaris installation guide that corresponds to your desired release and installation method.

   - *Installing Oracle Solaris 11 Systems*, comparing installation options at:

     `http://www.oracle.com/goto/Solaris11/docs`
   - *Oracle Solaris 10 Installation Guide: Planning for Installation and Upgrade*, choosing an Oracle Solaris installation method at:

     `http://www.oracle.com/goto/Solaris10/docs`

   For a list of valid boot commands, type.

```
{0} ok help File
boot <specifier>  ( -- )    boot kernel ( default ) or other file
  Examples:
    boot                    - boot kernel from default device.
                              Factory default is to boot
                              from DISK if present, otherwise from NET.
    boot net                - boot kernel from network
    boot cdrom              - boot kernel from CD-ROM
    boot disk1:h            - boot from disk1 partition h
    boot tape               - boot default file from tape
    boot disk myunix -as    - boot myunix from disk with flags "-as"
dload <filename>  ( addr -- )     debug load of file over network at address
  Examples:
     4000 dload /export/root/foo/test
     ?go        - if executable program, execute it
                  or if Forth program, compile it
```

## Related Information

- “Configure the Preinstalled OS” on page 44
- “Reach a State to Install a Fresh OS (Oracle ILOM CLI)” on page 49
- “Assign a Static IP Address to the SP” on page 50

# ▼ Reach a State to Install a Fresh OS (Oracle ILOM CLI)

If you do not plan to use the preinstalled OS use this procedure to prevent the server module from booting from the preinstalled OS.

1. **Prepare the appropriate boot media according to your installation method.**

   There are many methods by which you can install the OS, for example, you can boot and install the OS from DVD media or from another server on the network.

   For more information about the methods, refer to these Oracle Solaris document sections:

   - *Installing Oracle Solaris 11 Systems*, comparing installation options at:

     `http://www.oracle.com/goto/Solaris11/docs`
   - *Oracle Solaris 10 Installation Guide: Planning for Installation and Upgrade*, choosing an Oracle Solaris installation method at:

     `http://www.oracle.com/goto/Solaris10/docs`

2. **From Oracle ILOM, set the OBP `auto-boot` parameter to `false`.**

   ```
   -> set /HOST/bootmode script="setenv auto-boot? false"
   ```

   This setting prevents the server module from booting from the preinstalled OS. When you use `bootmode`, the change applies only to a single boot and expires in 10 minutes if the power on the host is not reset.

3. **When you are ready to initiate the OS installation, reset the host.**

   ```
   -> reset /System
   Are you sure you want to reset /System (y/n)? y
   Performing reset on /System
   ```

4. **Switch communication to the server module host.**

   ```
   -> start /HOST/console
   Are you sure you want to start /HOST/console (y/n)? y
   Serial console started. To stop, type #.
   ```

   The server module might take several minutes to complete POST and then displays the `ok` prompt.

5. **Boot from the appropriate boot media for your installation method.**

   For more information, refer to the Oracle Solaris installation guide that corresponds to your desired release and installation method.

- *Installing Oracle Solaris 11 Systems*, comparing installation options at:

  http://www.oracle.com/goto/Solaris11/docs
- *Oracle Solaris 10 Installation Guide: Planning for Installation and Upgrade*, choosing an Oracle Solaris installation method at:

  http://www.oracle.com/goto/Solaris10/docs

For a list of valid boot commands, type.

```
{0} ok help File
boot <specifier>  ( -- )    boot kernel ( default ) or other file
  Examples:
    boot                    - boot kernel from default device.
                              Factory default is to boot
                              from DISK if present, otherwise from NET.
    boot net                - boot kernel from network
    boot cdrom              - boot kernel from CD-ROM
    boot disk1:h            - boot from disk1 partition h
    boot tape               - boot default file from tape
    boot disk myunix -as    - boot myunix from disk with flags "-as"
dload <filename>  ( addr -- )     debug load of file over network at address
  Examples:
     4000 dload /export/root/foo/test
     ?go        - if executable program, execute it
                  or if Forth program, compile it
```

### Related Information

- “Configure the Preinstalled OS” on page 44
- “Reach a State to Install a Fresh OS (Oracle ILOM Web Interface)” on page 46
- “Assign a Static IP Address to the SP” on page 50

## ▼ Assign a Static IP Address to the SP

If you plan to connect to the SP through its NET MGT port (through the dongle's RJ-45 connector), the SP must have a valid IP address.

By default, the server module is configured to obtain an IP address from DHCP services in your network. If the network your server module is connected to does not support DHCP for IP addressing, perform this procedure.

To configure the server module to support DHCP, refer to the Oracle ILOM documentation.

1. **Set the SP to accept a static IP address.**

```
->set /SP/network pendingipdiscovery=static
Set 'pendingipdiscovery' to 'static'
```

**2. Set the IP address for the SP.**

```
->set /SP/network pendingipaddress=service-processor-IPaddr
Set 'pendingipaddress' to 'service-processor-IPaddr'
```

**3. Set the IP address for the SP gateway.**

```
-> set /SP/network pendingipgateway=gateway-IPaddr
Set 'pendingipgateway' to 'gateway-IPaddr'
```

**4. Set the netmask for the SP.**

```
-> set /SP/network pendingipnetmask=255.255.255.0
Set 'pendingipnetmask' to '255.255.255.0'
```

This example uses `255.255.255.0` to set the netmask. Your network environment subnet might require a different netmask. Use a netmask number most appropriate to your environment.

**5. Verify that the pending parameters are set correctly.**

```
-> show /SP/network
  /SP/network
     Targets:
     Properties:
        commitpending = (Cannot show property)
        dhcp_server_ip = xxx.xxx.xxx.xxx
        ipaddress = xxx.xxx.xxx.xxx
        ipdiscovery = dhcp
        ipgateway = xxx.xxx.xxx.xxx
        ipnetmask = 255.255.255.0
        macaddress = 00:21:28:C1:6E:C5
        managementport = /System/MB/SP/NETMGMT
        outofbandmacaddress = 00:21:28:C1:6E:C5
        pendingipaddress = service-processor-IPaddr
        pendingipdiscovery = static
        pendingipgateway = gateway-IPaddr
        pendingipnetmask = 255.255.255.0
        pendingmanagementport = /System/MB/SP/NETMGMT
        sidebandmacaddress = 00:21:28:C1:6E:C4
        state = enabled
```

**6. Commit the changes to the SP network parameters.**

```
-> set /SP/network commitpending=true
Set 'commitpending' to 'true'
```

**Note -** You can type the `show /SP/network` command again to verify that the parameters have been updated.

7. **Set the static IP address when you configure the Oracle Solaris OS.**

   See “Configure the Preinstalled OS” on page 44.

## Related Information

- “Configure the Preinstalled OS” on page 44
- “Oracle Solaris Configuration Parameters” on page 44

# Glossary

## A

**ANSI SIS** American National Standards Institute Status Indicator Standard.

**ASF** Alert standard format (Netra products only).

**AWG** American wire gauge.

## B

**blade** Generic term for server modules and storage modules. *See* server module *and* storage module.

**blade server** Server module. See server module.

**BMC** Baseboard management controller.

**BOB** Memory buffer on board.

## C

**chassis** For servers, refers to the server enclosure. For server modules, refers to the modular system enclosure.

**CMA** Cable management assembly.

**CMM** Chassis monitoring module (server modules only). The CMM is the service processor in the modular system that contains server modules. Oracle ILOM runs on the CMM, providing lights out management of the components in the modular system chassis. *See* modular system *and* Oracle ILOM.

**CMP** Chip multiprocessor.

## D

**DHCP** Dynamic Host Configuration Protocol.

**disk module or disk blade** Interchangeable terms for storage module. *See* storage module.

**DTE** Data terminal equipment.

## E

**EIA** Electronics Industries Alliance.

**ESD** Electrostatic discharge.

## F

**FEM** Fabric expansion module (server modules only). FEMs enable server modules to use the 10GbE connections provided by certain NEMs. *See* NEM.

**FRU** Field-replaceable unit.

## H

**HBA** Host bus adapter.

**host** The part of the server or server module with the CPU and other hardware that runs the Oracle Solaris OS and other applications. The term *host* is used to distinguish the primary computer from the SP. *See* SP.

**hot-pluggable** Describes a component that can be replaced with power applied, but the component must be prepared for removal.

**hot-swappable** Describes a component that can be replaced with power applied, and no preparation is required.

## I

**ID PROM** Chip that contains system information for the server or server module.

**IP** Internet Protocol.

## K

**KVM** Keyboard, video, mouse. Refers to using a switch to enable sharing of one keyboard, one display, and one mouse with more than one computer.

## L

**LwA** Sound power level.

## M

**MAC** Machine access code.

**MAC address** Media access controller address.

**modular system** The rackmountable chassis that holds server modules, storage modules, NEMs, and PCI EMs (server modules only). The modular system provides Oracle ILOM through its CMM.

**MSGID** Message identifier.

## N

**name space** Top-level Oracle ILOM target.

**NEBS** Network Equipment-Building System (Netra products only).

**NEM** Network express module (server modules only). NEMs provide Ethernet and SAS connectivity to storage modules.

**NET MGT** Network management port. An Ethernet port on the server SP, the server module SP, and the CMM.

**NIC** Network interface card or controller.

**NMI** Nonmaskable interrupt.

## O

**OBP** OpenBoot PROM. Sometimes OBP is used in file names and messages to indicate a relationship to OpenBoot.

**Oracle ILOM** Oracle Integrated Lights Out Manager. Oracle ILOM firmware is preinstalled on a variety of Oracle systems. Oracle ILOM enables you to remotely manage your Oracle servers regardless of the state of the host system.

**Oracle ILOM CMM** Oracle ILOM that runs on the CMM (server modules only). *See* Oracle ILOM.

**Oracle Solaris OS** Oracle Solaris operating system.

## P

**PCI** Peripheral component interconnect.

**PEM** PCIe ExpressModule (server modules only). Modular components that are based on the PCI Express industry-standard form factor and offer I/O features such as Gigabit Ethernet and Fibre Channel.

**POST** Power-on self-test.

**PROM** Programmable read-only memory.

**PSH** Predictive self healing.

## R

**REM** RAID expansion module (server modules only). Sometimes referred to as an HBA *See* HBA. Supports the creation of RAID volumes on drives.

## S

**SAS** Serial attached SCSI.

**SCC** System configuration chip.

**SER MGT** Serial management port. A serial port on the server SP, the server module SP, and the CMM.

**server module** Modular component that provides the main compute resources (CPU and memory) in a modular system. Server modules also might have on-board storage and connectors that hold FEMs.

**SP** Service processor. In the server or server module, the SP is a card with its own OS. The SP processes Oracle ILOM commands providing lights out management control of the host. *See* host.

**SSD** Solid-state drive.

**SSH** Secure shell.

**storage module** Modular component that provides computing storage to the server modules.

## T

**TIA** Telecommunications Industry Association (Netra products only).

**Tma** Maximum ambient temperature.

## U

**U.S. NEC** United States National Electrical Code.

**UCP** Universal connector port.

**UI** User interface.

**UL** Underwriters Laboratory Inc.

**UTC** Coordinated Universal Time.

**UUID** Universal unique identifier.

## W

**WWN** World wide name. A unique number that identifies a SAS target.

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