Oracle® Fabric Interconnect F2-12 Service Manual

ORACLE®

Oracle Fabric Interconnect F2-12 Service Manual

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Contents

Using This Documentation

- **Overview** – Describes how to troubleshoot and service the Oracle Fabric Interconnect F2-12.
- **Audience** – Technicians, system administrators, and authorized service providers.
- **Required knowledge** – Advanced experience servicing network hardware.

This document uses the terms *virtualization switch* and *switch* to refer to the Oracle Fabric Interconnect F2-12.

Product Documentation Library

Documentation and resources for this product and related products are available at `http://www.oracle.com/goto/f2-12/docs`.

Feedback

Provide feedback about this documentation at `http://www.oracle.com/goto/docfeedback`.

Identifying Components

These topics identify switch components and provide links to service tasks.

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Related Information

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Switch Front Components
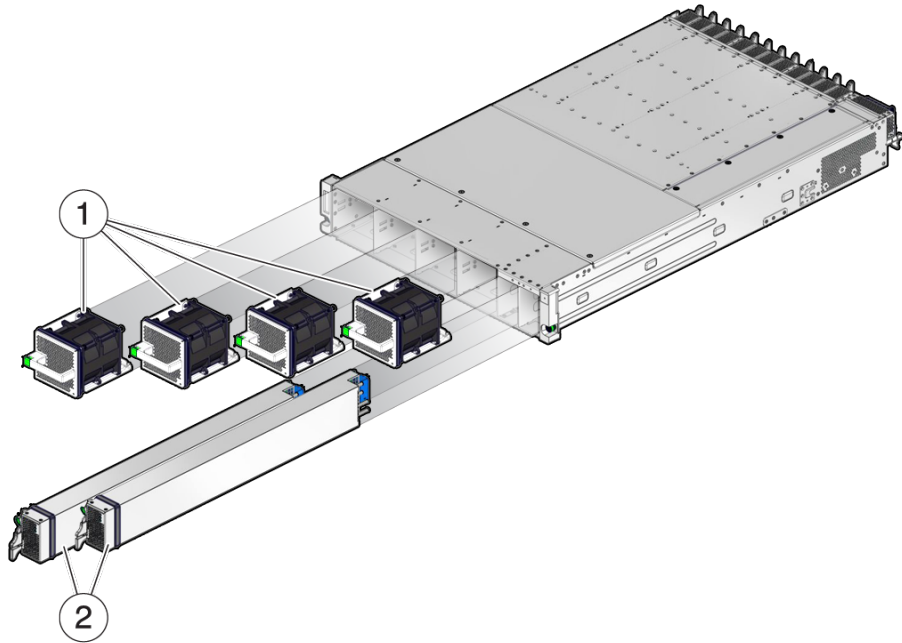
No.	Description	Links
1	Fan modules	"Servicing Fan Modules" on page 99
2	Power supplies	"Servicing Power Supplies" on page 129

Related Information

- "Front Panel Components" on page 14
- "Detecting and Managing Faults" on page 17

Switch Rear Components

Note - This illustration is an example of the I/O modules that could be installed. Your configuration might be different.
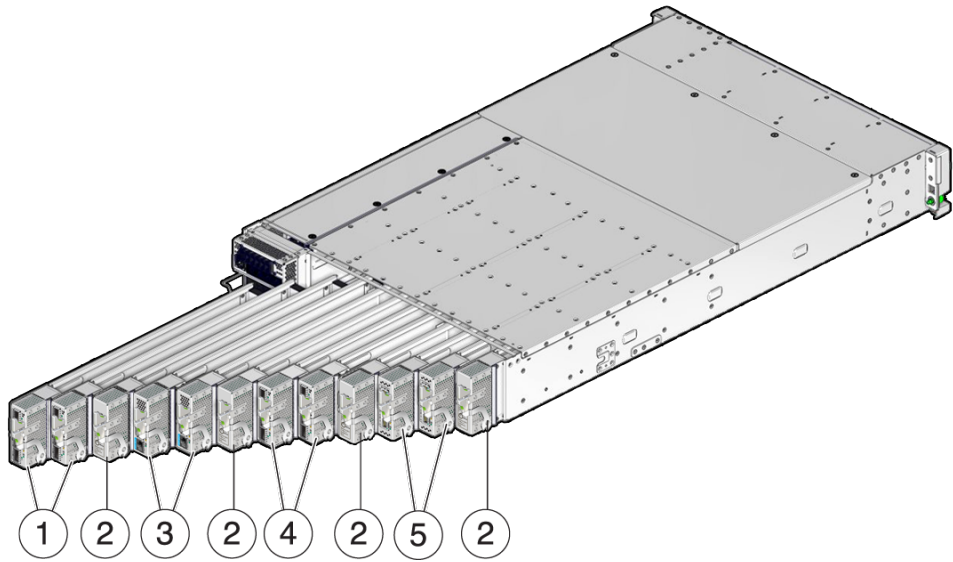
No.	Description	Links
1	Oracle F2 10 Gb and 40 Gb Ethernet module	"Servicing I/O Modules" on page 109
2	Filler panel	"Servicing Filler Panels" on page 123
3	Oracle F2 Dual Port 16Gb Fibre Channel module	"Servicing I/O Modules" on page 109
4	Oracle F2 Long Range InfiniBand module	"Servicing I/O Modules" on page 109
5	Oracle F2 Quad Port 10GBASE-T module	"Servicing I/O Modules" on page 109

Related Information

- "Rear Panel Components" on page 15
- "Servicing Data Cables" on page 71
- "Detecting and Managing Faults" on page 17
- I/O Module Documentation

Front Panel Components
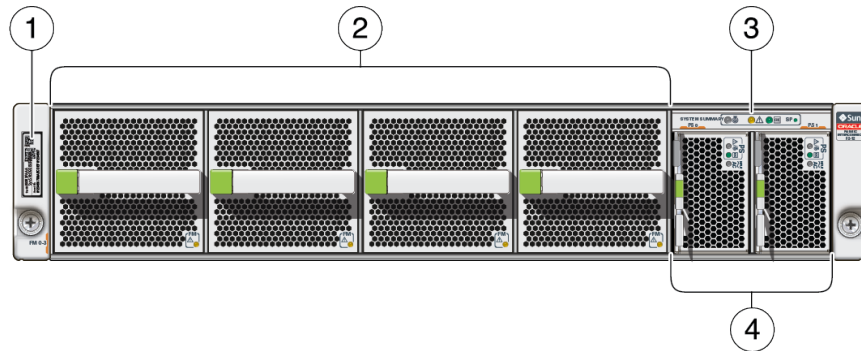
Item	Description	Links
1	Serial number	"Read the Switch Serial Number (Oracle ILOM)" on page 64
2	Fan modules 0 to 3 starting with the left-most fan.	"Servicing Fan Modules" on page 99
3	Chassis status LEDs	"Front Panel LEDs" on page 34
4	Power supplies 0 and 1 starting with the left-most power supply.	"Servicing Power Supplies" on page 129

Related Information

- "Switch Front Components" on page 12
- "Locate the Switch" on page 64
- "Detecting and Managing Faults" on page 17

Rear Panel Components
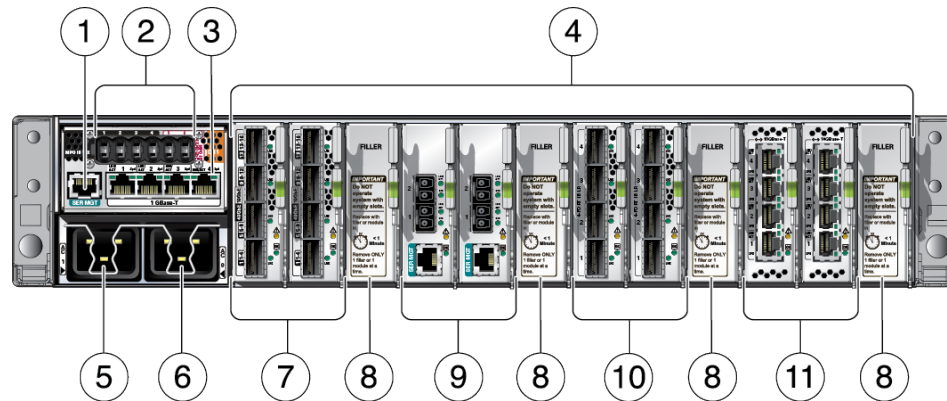
No.	Description
1	SER MGT connector
2	PrizmMT connectors: ■ **Ports 1 to 4** – 12x IB, which can be used for high-speed inter-switch links connecting leaf switches, virtualization switches, and spine switches together. ■ **Ports 5 and 6** – Either 4x IB or 40 GbE
3	1GBASE-T RJ-45 connectors – Any one of these connectors can be used for network management.
4	I/O module slots 0 to 11 with slot 0 as the left-most slot.
5	Power receptacles for PS1 (AC1 inlet)
6	Power receptacle for PS0 (AC0 inlet)
7	Oracle F2 10 Gb and 40 Gb Ethernet module
8	Filler Panel
9	Oracle F2 Dual Port 16Gb Fibre Channel module
10	Oracle F2 Long Range InfiniBand module
11	Oracle F2 Quad Port 10GBASE-T module

Related Information

■ "Switch Rear Components" on page 12

■ "Detecting and Managing Faults" on page 17

■ "Servicing Data Cables" on page 71

■ "Servicing I/O Modules" on page 109

- I/O Module Documentation

Detecting and Managing Faults

These topics describe the troubleshooting process.

Related Information

Troubleshooting the Switch

These topics describe how to troubleshoot the switch.

Related Information

- "Identifying Components of Faulted Targets" on page 28
- "Diagnostic Tools" on page 33
- "Troubleshooting (LEDs)" on page 33
- "Accessing the SP" on page 37
- "Troubleshooting (Oracle ILOM /SP Targets)" on page 40
- "Troubleshooting (Oracle ILOM /System Targets)" on page 45
- "Troubleshooting (Oracle ILOM Legacy Targets)" on page 50

▼ Begin the Diagnostic Process

Follow this process when you are informed of or recognize a problem.

1. **Are you sure you know the cause of the problem?**

   - **Yes – Go to Step 2.**

   - **No – Go to Step 5.**

2. **Is the cause from a software failure or hardware failure?**

   - **Hardware – Go to Step 3.**

   - **Software – The solution is beyond the scope of this document.**
     Refer to the *Oracle EDR InfiniBand Switch and Virtualized I/O Systems Administration Guide* and the software troubleshooting documentation. If necessary, contact your authorized Oracle Service Provider.

3. **Are you sure you know the solution to the hardware problem?**

   - **Yes – Go to Step 4.**

   - **No – Go to Step 5.**

4. **Replace the problematic component.**
   See "Faulted Item Replaceable Components" on page 31 for links to component service tasks.

5. **Are you in the physical presence of the switch?**

   - **Yes – Go to "Perform Diagnostics at the Switch" on page 19.**

- **No – Go to "Perform Diagnostics Remotely" on page 23.**

Related Information

- "Perform Diagnostics at the Switch" on page 19
- "Perform Additional Diagnostics at the Switch" on page 21
- "Perform Diagnostics Remotely" on page 23
- "Perform Oracle ILOM Target Diagnostics" on page 26

▼ Perform Diagnostics at the Switch

1. **Are you starting a new troubleshooting session with this task?**

    - **Yes – Go to "Begin the Diagnostic Process" on page 18 and start your troubleshooting session there.**

    - **No – Go to Step 2.**

2. **Are any power supply LEDs on?**

    - **Yes – Go to Step 4.**

    - **No – Go to Step 3.**

3. **Check the power cords and supplied power, and correct as necessary.**
    Refer to the *Oracle Fabric Interconnect F2-12 Installation Guide*, then return to Step 2.

4. **Is a power supply amber Attention LED on?**

    - **Yes – Go to Step 5.**

    - **No – Go to Step 7.**

5. **Release the tab and unseat the faulted power supply, wait a minute, then reseat the power supply and secure the tab.**

6. **Does the power supply Attention LED persist?**

    - **Yes – Go to Step 16.**

    - **No – Go to Step 7.**

7. **Is the green SP LED off?**

   - **Yes – Go to Step 16.**

   - **No – Go to Step 8.**

8. **Is a 1GBASE-T port or SFP+ port used for the network management interface?**

   - **Yes – Go to Step 9.**

   - **No – Go to Step 17.**

9. **Is the port's Link LED on?**

   - **Yes – Go to Step 10.**

   - **No – Go to Step 11.**

10. **Does the Link LED flash on occasion?**

    - **Yes – Go to Step 17.**

    - **No – Go to Step 13.**

11. **Are you sure you know that the cabling is wired correctly with good cables and firm connections?**

    - **Yes – Go to Step 13.**

    - **No – Go to Step 12.**

12. **Inspect and replace cabling as necessary.**
    Then return to Step 9.

13. **Are you sure you know that the communication hardware (terminals, routers, and switches) are fully functional?**

    - **Yes – Go to Step 15.**

    - **No – Go to Step 14.**

14. **Inspect and replace communication hardware as necessary.**
    Then return to Step 9.

15. **Use new cabling and connect to a different 1GBASE-T port or SFP+ port.**

Go to Step 9. If you arrive back at this step a second time, go to Step 16.

16. **Remove the faulted component and install a new component.**
    See "Faulted Item Replaceable Components" on page 31 for links to service tasks.

17. **Perform further diagnostics.**
    See "Perform Additional Diagnostics at the Switch" on page 21.

    ### Related Information

    - "Begin the Diagnostic Process" on page 18
    - "Perform Additional Diagnostics at the Switch" on page 21
    - "Perform Diagnostics Remotely" on page 23
    - "Perform Oracle ILOM Target Diagnostics" on page 26

▼ Perform Additional Diagnostics at the Switch

1. **Are you starting a new troubleshooting session with this task?**

   - **Yes – Go to "Begin the Diagnostic Process" on page 18 and start your troubleshooting session there.**

   - **No – Go to Step 2.**

2. **Is the chassis status amber Attention LED on to indicate a fault?**

   - **Yes – Go to Step 3.**

   - **No – Go to Step 15.**

3. **Is a fan module amber Attention LED on?**

   - **Yes – Go to Step 4.**

   - **No – Go to Step 7.**

4. **Fully depress the green release button and unseat the faulted fan module, wait a minute, then reseat the fan module.**

5. **Does the fan module Attention LED persist?**

   - **Yes – Go to Step 14.**

- **No – Go to Step 7.**

6. **Are black-colored PrizmMT cables connected in ports 1 through 4?**

   - **Yes – Go to Step 8.**

   - **No – Reattach the black-colored PrizmMT cables to ports 1 through 4, then go to Step 8.**

7. **Are magenta-colored PrizmMT or aqua-colored standard MT cables connected in ports 5 and 6?**

   - **Yes – Go to Step 6.**

   - **No – Reattach the magenta-colored PrizmMT or aqua-colored standard MT cables to ports 5 and 6, then go to Step 6.**

8. **Are all cabled Ethernet port Link LEDs on?**

   - **Yes – Go to Step 9.**

   - **No – Go to Step 10.**

9. **Does any cabled Ethernet port Link LED flash on occasion?**

   - **Yes – Go to Step 15.**

   - **No – Go to Step 12.**

10. **Are you sure you know that the cabling for the suspect ports is wired correctly with good cables and firm connections?**

    - **Yes – Go to Step 12.**

    - **No – Go to Step 11.**

11. **Inspect and replace cabling as necessary.**

    Then return to Step 8.

12. **Are you sure you know that the communication hardware (NICs, hosts, routers, and switches) are fully functional?**

    - **Yes – The switch itself is defective. Go to Step 14.**

■   **No – Go to Step 13.**

13.   **Inspect and replace communication hardware as necessary.**

Then return to Step 8.

14.   **Remove the faulted component and install a new component.**

See "Faulted Item Replaceable Components" on page 31 for links to service tasks.

15.   **Perform further diagnostics.**

See "Perform Diagnostics Remotely" on page 23.

Related Information

■   "Begin the Diagnostic Process" on page 18
■   "Perform Diagnostics at the Switch" on page 19
■   "Perform Diagnostics Remotely" on page 23
■   "Perform Oracle ILOM Target Diagnostics" on page 26

▼ Perform Diagnostics Remotely

1.   **Are you starting a new troubleshooting session with this task?**

■   **Yes – Go to "Begin the Diagnostic Process" on page 18 and start your troubleshooting session there.**

■   **No – Go to Step 2.**

2.   **Do you access the SP from the network or terminal server?**

■   **Network – Go to Step 3.**

■   **Terminal server (serial interface) – Go to Step 8.**

3.   **Can you access the SP from the network?**

See "Access the SP (1GBase-T RJ-45 Port)" on page 37, then return to this step.

■   **Yes – Go to Step 17.**

■   **No – Go to Step 4.**

4. **Can you ping the switch from the network?**

   - **Yes – Go to Step 6.**

   - **No – Go to Step 5.**

5. **Are you sure that the network parameters are configured correctly?**

   - **Yes – Go to Step 12.**

   - **No – Go to Step 7.**

6. **From the terminal server (serial interface), enable the network administrative interface and network services through Oracle ILOM.**

   ```
   -> set /SP/network state=enabled
   -> set /SP/services/ssh state=enabled
   -> set /SP/services/https servicestate=enabled
   ```

   Then return to Step 3.

7. **From the terminal server (serial interface), configure the correct network parameters through Oracle ILOM.**

   See "Access the SP (SER MGT Port)" on page 38, then return to this step.

   Type:

   ```
   -> set /SP/network pendingipdiscovery=static
   -> set /SP/network pendingipaddress=IP_address_for_SP
   -> set /SP/network pendingipgateway=IP_address_for_gateway
   -> set /SP/network pendingipnetmask=255.255.255.0
   -> set /SP/network commitpending=true
   ```

   Then return to Step 3.

8. **Can you access the SP from the terminal server or serial interface?**

   See "Access the SP (SER MGT Port)" on page 38, then return to this step.

   - **Yes – Go to Step 17.**

   - **No – Go to Step 9.**

9. **Are you sure that the serial parameters are configured correctly?**

   - **Yes – Go to Step 12.**

   - **No – Go to Step 10.**

10. **Configure the correct serial parameters for the terminal server or serial console.**

    - **Baud** – 9600
    - **Data bits** – 8
    - **Parity** – N
    - **Stop bits** – 1
    - **Flow control** – none

11. **From the network, configure the correct serial parameters through Oracle ILOM.**

    See "Access the SP (1GBase-T RJ-45 Port)" on page 37, then return to this step.

    Type:

    ```
    -> set /SP/serial/external pendingflowcontrol=none
    -> set /SP/serial/external pendingspeed=9600
    -> set /SP/serial/external commitpending=true
    ```

    Then return to Step 8.

12. **Are you sure that the cabling is wired correctly with good cables and firm connections?**

    - **Yes – Go to Step 14.**

    - **No – Go to Step 13.**

13. **Inspect and replace cabling as necessary.**

    Then return to Step 2.

14. **Are you sure that the communication hardware (NICs, hosts, terminals, routers, and switches) is fully functional?**

    - **Yes – Go to Step 16.**

    - **No – Go to Step 15.**

15. **Inspect and replace communication hardware as necessary.**

    Then return to Step 2.

16. **Perform a visual inspection of the switch.**

    See "Perform Diagnostics at the Switch" on page 19.

17. **Display the log files from Oracle ILOM.**

    ```
    -> show /SP/logs/event/list Class==Fault Type==Fault
    ```

18. **Do the log entries identify the problem?**

    ■ **Yes – Go to Step 19.**

    ■ **No – Go to Step 22.**

19. **Is the problem hardware or software related?**

    ■ **Hardware – Go to Step 20.**

    ■ **Software – The solution is beyond the scope of this document. Refer to the *Oracle EDR InfiniBand Switch and Virtualized I/O Systems Administration Guide* and the software troubleshooting documentation. If necessary, contact your authorized Oracle Service Provider.**

20. **Has enough information been provided to justify a service operation?**

    ■ **Yes – Go to Step 21.**

    ■ **No – Go to Step 22.**

21. **Remove the faulted component and install a new component.**

    See "Faulted Item Replaceable Components" on page 31 or "Oracle ILOM Legacy Target Replaceable Components" on page 30 for links to component service tasks.

22. **Perform Oracle ILOM target diagnostics.**

    See "Perform Oracle ILOM Target Diagnostics" on page 26.

    ### Related Information

    ■ "Begin the Diagnostic Process" on page 18
    ■ "Perform Diagnostics at the Switch" on page 19
    ■ "Perform Additional Diagnostics at the Switch" on page 21
    ■ "Perform Oracle ILOM Target Diagnostics" on page 26

▼ Perform Oracle ILOM Target Diagnostics

1. **Are you starting a new troubleshooting session with this task?**

    ■ **Yes – Go to "Begin the Diagnostic Process" on page 18 and start your troubleshooting session there.**

- **No – Go to Step 2.**

2. **Display problematic components with Oracle ILOM.**

   `-> show /System/Open_Problems`

3. **Are there any problematic components?**

   - **Yes – Go to Step 11.**

   - **No – Go to Step 4.**

4. **Display the subsystems' health with Oracle ILOM.**

   `-> show /System -t health`

5. **Are there any unhealthy subsystems?**

   - **Yes – Go to Step 6.**

   - **No – Go to Step 7.**

6. **Are any individual components unhealthy?**

   - **Yes – Go to Step 11.**

   - **No – Go to Step 7.**

7. **Are you sure that Oracle ILOM legacy targets are enabled?**

   The following show command example shows that legacy targets are disabled.

   ```
   -> show /SP/cli legacy_targets

     /SP/cli
       Properties:
           legacy_targets = disabled
   ```

   - **Yes – Go to Step 9.**

   - **No – Go to Step 8.**

8. **Enable Oracle ILOM legacy targets.**

   `-> set /SP/cli legacy_targets=enabled`

9. **Investigate the sensors of suspect components.**

See "Display Status for Specific Components" on page 51, then return to this step. Use these tables for legacy targets.

Legacy Target Type	Links
Fault state and FRUID	"Oracle ILOM Legacy Targets for Fault State and FRUID" on page 53
Power consumption	"Oracle ILOM Legacy Targets for Power Consumption" on page 55
Voltage	"Oracle ILOM Legacy Targets for Voltage" on page 55
Temperature	"Oracle ILOM Legacy Targets for Temperature" on page 56
Fan speed	"Oracle ILOM Legacy Targets for Fan Speeds" on page 57
LED state	"Oracle ILOM Legacy Targets for LED States" on page 58

10. **Were any displayed values outside the range of normal operation or indicative of a fault?**

    ■ **Yes – Go to Step 11.**

    ■ **No – Continued diagnostics are beyond the scope of this document.**

    Contact your authorized Oracle Service Provider.

11. **Use the component Oracle ILOM path or component name to determine which component to service.**

    See "Oracle ILOM Legacy Target Replaceable Components" on page 30 and "Faulted Item Replaceable Components" on page 31 for links to component service tasks.

    Related Information

    ■ "Begin the Diagnostic Process" on page 18
    ■ "Perform Diagnostics at the Switch" on page 19
    ■ "Perform Additional Diagnostics at the Switch" on page 21
    ■ "Perform Diagnostics Remotely" on page 23

Identifying Components of Faulted Targets

These topics map targets and faulted components to their service tasks.

■ "Oracle ILOM `/HOST` and `/SP` Target Replaceable Components" on page 29
■ "Oracle ILOM `/System` Target Replaceable Components" on page 29
■ "Oracle ILOM Legacy Target Replaceable Components" on page 30
■ "Faulted Item Replaceable Components" on page 31

Related Information

- "Troubleshooting the Switch" on page 17
- "Diagnostic Tools" on page 33
- "Troubleshooting (LEDs)" on page 33
- "Accessing the SP" on page 37
- "Troubleshooting (Oracle ILOM `/SP` Targets)" on page 40
- "Troubleshooting (Oracle ILOM `/System` Targets)" on page 45
- "Troubleshooting (Oracle ILOM Legacy Targets)" on page 50

Oracle ILOM `/HOST` and `/SP` Target Replaceable Components

Oracle ILOM Target	Component	Links
`/HOST` and all subtargets	Switch	"Replacing the Switch" on page 141
`/SP` and all subtargets	Switch	"Replacing the Switch" on page 141
`/SP/clock`	Battery	"Replacing the Switch" on page 141

Related Information

- "Oracle ILOM `/System` Target Replaceable Components" on page 29
- "Oracle ILOM Legacy Target Replaceable Components" on page 30
- "Faulted Item Replaceable Components" on page 31

Oracle ILOM `/System` Target Replaceable Components

Oracle ILOM Target	Component	Links
`/System`	Switch	"Replacing the Switch" on page 141
`/System/Cooling`	Fan modules	"Servicing Fan Modules" on page 99
`/System/Cooling/Fans/Fan_0`	Fan module 0	"Servicing Fan Modules" on page 99
`/System/Cooling/Fans/Fan_1`	Fan module 0	"Servicing Fan Modules" on page 99
`/System/Cooling/Fans/Fan_2`	Fan module 1	"Servicing Fan Modules" on page 99

Oracle ILOM Target	Component	Links
/System/Cooling/Fans/Fan_3	Fan module 1	"Servicing Fan Modules" on page 99
/System/Cooling/Fans/Fan_4	Fan module 2	"Servicing Fan Modules" on page 99
/System/Cooling/Fans/Fan_5	Fan module 2	"Servicing Fan Modules" on page 99
/System/Cooling/Fans/Fan_6	Fan module 3	"Servicing Fan Modules" on page 99
/System/Cooling/Fans/Fan_7	Fan module 3	"Servicing Fan Modules" on page 99
/System/Firmware	Firmware	*Oracle EDR InfiniBand Switch and Virtualized I/O Systems Administration Guide*
/System/Firmware/Other_Firmware/Firmware_x	Firmware	*Oracle EDR InfiniBand Switch and Virtualized I/O Systems Administration Guide*
/System/Log	Switch	"Replacing the Switch" on page 141
/System/Networking	Switch	"Replacing the Switch" on page 141
/System/Networking/Switches/Switch_x	Switch	"Replacing the Switch" on page 141
/System/Networking/Modules/Module_x	I/O module	"Servicing I/O Modules" on page 109
/System/Power	Power supplies	"Servicing Power Supplies" on page 129
/System/Power/Power_Supplies/Power_Supply_0	Power supply 0	"Servicing Power Supplies" on page 129
/System/Power/Power_Supplies/Power_Supply_1	Power supply 1	"Servicing Power Supplies" on page 129

Related Information

- "Oracle ILOM /HOST and /SP Target Replaceable Components" on page 29
- "Oracle ILOM Legacy Target Replaceable Components" on page 30
- "Faulted Item Replaceable Components" on page 31

Oracle ILOM Legacy Target Replaceable Components

Oracle ILOM Target	Component	Links
/SYS	Switch	"Replacing the Switch" on page 141
/SYS/CPUM	Switch	"Replacing the Switch" on page 141
/SYS/ETHSWITCH0	Switch	"Replacing the Switch" on page 141
/SYS/FMx	Fan module *x*	"Servicing Fan Modules" on page 99
/SYS/FMx/FANy	Fan module *x*	"Servicing Fan Modules" on page 99
/SYS/FMx/FANy/TACH	Fan module *x*	"Servicing Fan Modules" on page 99

Oracle ILOM Target	Component	Links
/SYS/FMx/PRSNT	Fan module *x*	"Servicing Fan Modules" on page 99
/SYS/MODULES/MODULEx	I/O module *x*	"Servicing I/O Modules" on page 109
/SYS/IBSWITCH0	Switch	"Replacing the Switch" on page 141
/SYS/LOCATE	Switch	"Replacing the Switch" on page 141
/SYS/MB	Switch	"Replacing the Switch" on page 141
/SYS/MB/T_AMB	Switch	"Replacing the Switch" on page 141
/SYS/MB/T_HCA	Switch	"Replacing the Switch" on page 141
/SYS/MB/T_IBSWITCH	Switch	"Replacing the Switch" on page 141
/SYS/MB/T_OUT	Switch	"Replacing the Switch" on page 141
/SYS/MB/V_VBAT	Battery	"Replacing the Switch" on page 141
/SYS/OK	Switch	"Replacing the Switch" on page 141
/SYS/PSx	Power supply *x*	"Servicing Power Supplies" on page 129
/SYS/PSx/INPUT_POWER	Power cord	*Oracle Fabric Interconnect F2-12 Installation Guide*
/SYS/PSx/I_IN	Power supply *x*	"Servicing Power Supplies" on page 129
/SYS/PSx/I_OUT	Power supply *x*	"Servicing Power Supplies" on page 129
/SYS/PSx/OUTPUT_POWER	Power supply *x*	"Servicing Power Supplies" on page 129
/SYS/PSx/PRSNT	Power supply *x*	"Servicing Power Supplies" on page 129
/SYS/PSx/PWROK	Power supply *x*	"Servicing Power Supplies" on page 129
/SYS/PSx/V_IN	Power cord	*Oracle Fabric Interconnect F2-12 Installation Guide*
/SYS/PSx/V_OUT	Power supply *x*	"Servicing Power Supplies" on page 129
/SYS/PS_3V3	Power supplies	"Servicing Power Supplies" on page 129
/SYS/SERVICE	Switch	"Replacing the Switch" on page 141
/SYS/SP	Switch	"Replacing the Switch" on page 141
/SYS/SP/OK	Switch	"Replacing the Switch" on page 141

Related Information

- "Oracle ILOM /HOST and /SP Target Replaceable Components" on page 29
- "Oracle ILOM /System Target Replaceable Components" on page 29
- "Faulted Item Replaceable Components" on page 31

Faulted Item Replaceable Components

Faulted Item	Component	Links
Battery	Battery	"Replacing the Switch" on page 141

Faulted Item	Component	Links
Battery voltage	Battery	"Replacing the Switch" on page 141
Cables	Cables	"Servicing Data Cables" on page 71
Chassis LEDs	Switch	"Replacing the Switch" on page 141
Date	Battery	"Replacing the Switch" on page 141
Ethernet switch chip	Switch	"Replacing the Switch" on page 141
Fan module	Fan module	"Servicing Fan Modules" on page 99
Fan module Attention LED	Fan module	"Servicing Fan Modules" on page 99
Fan module fan speed	Fan module	"Servicing Fan Modules" on page 99
Fan module presence	Fan module	"Servicing Fan Modules" on page 99
Filler panel	Filler panel	"Servicing Filler Panels" on page 123
IB switch chip	Switch	"Replacing the Switch" on page 141
I/O module	I/O module	"Servicing I/O Modules" on page 109
Link LEDs	Switch	"Replacing the Switch" on page 141
	Cable	"Servicing Data Cables" on page 71
Main board	Switch	"Replacing the Switch" on page 141
Main board LEDs	Switch	"Replacing the Switch" on page 141
Main board temperatures	Switch	"Replacing the Switch" on page 141
Main board voltages	Switch	"Replacing the Switch" on page 141
PrizmMT cable	Cable	"Servicing Data Cables" on page 71
Power consumption	Power supply	"Servicing Power Supplies" on page 129
	Power cord	*Oracle Fabric Interconnect F2-12 Installation Guide*
	Switch	"Replacing the Switch" on page 141
Power supply	Power supply	"Servicing Power Supplies" on page 129
Power supply Attention LED	Power supply	"Servicing Power Supplies" on page 129
Power supply current	Power supply	"Servicing Power Supplies" on page 129
Power supply fan	Power supply	"Servicing Power Supplies" on page 129
Power supply output voltage	Power supply	"Servicing Power Supplies" on page 129
Power supply presence	Power supply	"Servicing Power Supplies" on page 129
RJ-45 cable	Cable	"Servicing Data Cables" on page 71
SFP+ cable	Cable	"Servicing Data Cables" on page 71
SP	Switch	"Replacing the Switch" on page 141
SP LED	Switch	"Replacing the Switch" on page 141
Time	Battery	"Replacing the Switch" on page 141

Related Information

- "Oracle ILOM `/HOST` and `/SP` Target Replaceable Components" on page 29
- "Oracle ILOM `/System` Target Replaceable Components" on page 29
- "Oracle ILOM Legacy Target Replaceable Components" on page 30

Diagnostic Tools

Tool	Links
Status LEDs – Indicate the condition or state of the chassis and components. ■ Chassis ■ Fan module ■ Power supply ■ SP ■ I/O module	"Troubleshooting (LEDs)" on page 33
Oracle ILOM `/SP` **targets** – Provide information about services, sessions, and configuration parameters for Oracle ILOM.	"Troubleshooting (Oracle ILOM `/SP` Targets)" on page 40
Oracle ILOM logs – Provide an accounting of events that happened with the switch hardware.	"Display Oracle ILOM Log Entries" on page 41
Oracle ILOM`/System` **targets** – Provide information about the hardware of the switch.	"Troubleshooting (Oracle ILOM `/System` Targets)" on page 45
Oracle ILOM legacy targets – Provide detailed component and environmental information about the switch.	"Troubleshooting (Oracle ILOM Legacy Targets)" on page 50

Related Information

- "Troubleshooting the Switch" on page 17
- "Identifying Components of Faulted Targets" on page 28
- "Diagnostic Tools" on page 33
- "Troubleshooting (LEDs)" on page 33
- "Accessing the SP" on page 37
- "Troubleshooting (Oracle ILOM `/SP` Targets)" on page 40
- "Troubleshooting (Oracle ILOM `/System` Targets)" on page 45
- "Troubleshooting (Oracle ILOM Legacy Targets)" on page 50

Troubleshooting (LEDs)

These topics enable you to visually inspect the state of the switch.

- "Inspect the LEDs" on page 34
- "Front Panel LEDs" on page 34
- "RJ-45 Link LEDs" on page 36

- "Component LEDs" on page 37

Related Information

- "Troubleshooting the Switch" on page 17
- "Identifying Components of Faulted Targets" on page 28
- "Diagnostic Tools" on page 33
- "Accessing the SP" on page 37
- "Troubleshooting (Oracle ILOM `/SP` Targets)" on page 40
- "Troubleshooting (Oracle ILOM `/System` Targets)" on page 45
- "Troubleshooting (Oracle ILOM Legacy Targets)" on page 50

▼ Inspect the LEDs

1. **At the switch, observe and record the state of each LED.**

2. **Compare your observations with the status descriptions.**

   See:

   - "Front Panel LEDs" on page 34
   - "RJ-45 Link LEDs" on page 36
   - "Component LEDs" on page 37

3. **If the information provided is sufficient to justify a service operation, perform service on that component.**

   See "Faulted Item Replaceable Components" on page 31 for links to service tasks.

   Related Information

   - "Front Panel LEDs" on page 34
   - "RJ-45 Link LEDs" on page 36
   - "Component LEDs" on page 37

Front Panel LEDs

The front panel LEDs display status of the overall switch. Front panel LEDs, also called chassis status LEDs, are located above the power supplies on the switch's front panel.

No.	LED	Description

1		This white LED indicates these conditions:
		
		■ **Fast blink** – Switch is identifying itself. To turn on a Locate LED, at the Oracle ILOM CLI type:
		
		`set /SYS/LOCATE value=Fast_Blink`
		
		■ **Off** – Switch is not identifying itself. To turn off a Locate LED, at the Oracle ILOM CLI type:
		
		`set /SYS/LOCATE value=Off`

2		This amber LED indicates these conditions: ■ **On** – Service is required. Oracle ILOM can detect a fault or failure resulting in this indication. The Oracle ILOM `/System/Open_Problems` target provides details about any faults that cause this indicator to light. Under some fault conditions, individual component fault LEDs are turned on in addition to the Attention LED. ■ **Off** – Switch is running in its normal state. There are no faults.
3	OK	This green LED indicates these conditions: ■ **On** – Switch is powered on and is running in its normal operating state. No service actions are required. ■ **Off** – Switch is not running in its normal state. Switch power might be off. The SP might be booting.
4	SP	This green LED indicates these conditions: ■ **On** – SP is powered on and is running in its normal operating state. No service actions are required. ■ **Slow blink** – The SP is booting. ■ **Off** – SP is not running in its normal state. Power is off or the SP has faulted.

Related Information

- "Inspect the LEDs" on page 34
- "Power Supply LEDs" on page 129
- "Component LEDs" on page 37

RJ-45 Link LEDs
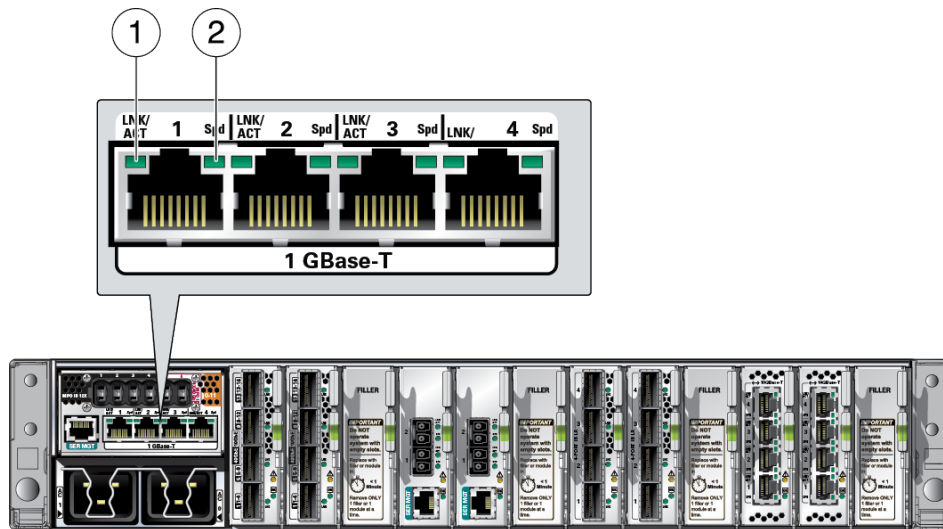
No.	LED	Description
1	RJ-45 Link/Activity LED (left of connector, green)	Indicates these conditions: ■ **On** – A link is established and up. ■ **Flashing** – There is activity on the link. ■ **Off** – No link is established or the link is down.
2	RJ-45 Speed LED (right of connector, green)	Indicates these conditions: ■ **On** – Speed is 1Gbps. ■ **Flashing** – Speed is 100Mbps. ■ **Off** – Speed is 10Mbps.

Related Information

- "Inspect the LEDs" on page 34
- "Component LEDs" on page 37

Component LEDs

For the I/O module LED descriptions, refer to the I/O module documentation.

Component	Links
Fan module	"Fan Module LED" on page 99
Power supply	"Power Supply LEDs" on page 129

Related Information

- "Inspect the LEDs" on page 34
- "Front Panel LEDs" on page 34
- "RJ-45 Link LEDs" on page 36

Accessing the SP

These topics describe how to access the SP for switch chassis management.

- "Access the SP (1GBase-T RJ-45 Port)" on page 37
- "Access the SP (SER MGT Port)" on page 38
- "Configure and Enable Network Management (SER MGT Port)" on page 39

Related Information

- "Troubleshooting the Switch" on page 17
- "Identifying Components of Faulted Targets" on page 28
- "Diagnostic Tools" on page 33
- "Troubleshooting (LEDs)" on page 33
- "Troubleshooting (Oracle ILOM `/SP` Targets)" on page 40
- "Troubleshooting (Oracle ILOM `/System` Targets)" on page 45
- "Troubleshooting (Oracle ILOM Legacy Targets)" on page 50

▼ Access the SP (1GBase-T RJ-45 Port)

1. **Access a network terminal device that is connected to the SP through the management network.**

2. **Using an SSH session, log in to the Oracle ILOM interface.**

   % **ssh** *user*@*IP_address*

   where:

   - *user* is the user name that manages the SP. The default user is root.
   - *IP_address* is the IP address or host name of the SP.

3. **At the prompt, type the password for the user.**

   The default password is changeme.

   The Oracle ILOM CLI prompt is displayed, and you can now manage the SP.

4. **If you performed this task as part of a troubleshooting operation, return to the troubleshooting process.**

   See "Perform Diagnostics Remotely" on page 23.

   Related Information

   - "Access the SP (SER MGT Port)" on page 38
   - "Configure and Enable Network Management (SER MGT Port)" on page 39

▼ Access the SP (SER MGT Port)

1. **Access a terminal server or serial interface connected to the SER MGT port.**

2. **Ensure that the serial device is configured with correct parameters.**

   - **Baud** – 9600
   - **Data bits** – 8
   - **Parity** – N
   - **Stop bits** – 1
   - **Flow control** – None

3. **Press the Return or Enter key on the serial device several times to synchronize the connection.**

   Hostname login:
   ->

   where *Hostname* is the host name of the SP.

4. **Log in to the Oracle ILOM interface with the user name that manages the SP, and its password.**

The default user name is root, and the password is changeme.

The CLI prompt is displayed, and you can now manage the SP.

5. **If you performed this task as part of a troubleshooting operation, return to the troubleshooting process.**

   See "Perform Diagnostics Remotely" on page 23.

   Related Information

   - "Access the SP (1GBase-T RJ-45 Port)" on page 37
   - "Configure and Enable Network Management (SER MGT Port)" on page 39

▼ Configure and Enable Network Management (SER MGT Port)

Note - In some situations, this task can be performed from the network management interface at through the 1GBase-T RJ-45 ports. Upon completion of the task, the connection is severed and you must re-access the SP for continued management.

1. **Access the Oracle ILOM CLI from the SER MGT port.**

   See "Access the SP (SER MGT Port)" on page 38.

2. **Configure the network management parameters.**

   -> **set /SP/network** *property*=*value* *property*=*value* ...

   where:

   - *property* is the parameter of the network to configure.
   - *value* is the value of the *property* being configured.

   These properties are supported:

   - pendingipdiscovery – *value* is the method of IP discovery to be configured, either static or dhcp.

     Note - If the value is dhcp, you must know how your DHCP server assigns an IP address and host name to the SP.

   - pendingipaddress – *value* is the IP address of the SP to be configured. Not needed for DHCP.

- `pendingipgateway` – *value* is the IP address of the routing gateway of the management network. Not needed for DHCP.
- `pendingipnetmask` – *value* is the netmask for the management network. Not needed for DHCP.

> **Note -** You can configure one to all properties on one command line.

3. **Enable network management by IPv4.**

   `-> set /SP/network state=ipv4-only`

4. **Enable secure connections to the SP.**

   a. **For the CLI interface and SSL, type:**

      `-> set /SP/services/ssh state=enabled`

   b. **For the web interface and HTTPS, type:**

      `-> set /SP/services/https servicestate=enabled`

5. **Commit the network management configuration.**

   `-> set /SP/network commitpending=true`

   The new configuration parameters take effect immediately.

6. **If you performed this task as part of a troubleshooting operation, return to the troubleshooting process.**

   See "Perform Diagnostics Remotely" on page 23.

   Related Information

   - "Access the SP (1GBase-T RJ-45 Port)" on page 37
   - "Access the SP (SER MGT Port)" on page 38

Troubleshooting (Oracle ILOM `/SP` Targets)

These topics display logs, check network management parameters, display user sessions, and verify firmware versions.

- "Display Oracle ILOM Log Entries" on page 41
- "Oracle ILOM Log Entry Filters" on page 42

- "Display Network Management Configuration Properties" on page 43
- "Display User Session Information" on page 43
- "Display the SP Firmware Version" on page 44

Related Information

- "Troubleshooting the Switch" on page 17
- "Identifying Components of Faulted Targets" on page 28
- "Diagnostic Tools" on page 33
- "Troubleshooting (LEDs)" on page 33
- "Accessing the SP" on page 37
- "Troubleshooting (Oracle ILOM `/System` Targets)" on page 45
- "Troubleshooting (Oracle ILOM Legacy Targets)" on page 50

▼ Display Oracle ILOM Log Entries

1. Access the Oracle ILOM CLI.

See "Accessing the SP" on page 37.

2. Display the Oracle ILOM event log.

```
-> show /SP/logs/event/list Class==class Type==type
```

where *class* and *type* are chosen from the table in "Oracle ILOM Log Entry Filters" on page 42.

For example, to display log entries pertaining to faults, type:

```
-> show /SP/logs/event/list Class==Fault Type==Fault
Event
ID     Date/Time               Class     Type      Severity
-----  ----------------------  --------  --------  --------
1741   Tue Mar  6 20:13:05 2012  Fault     Fault     critical
  Fault detected at time = Tue Mar  6 20:13:05 2012. The suspect component:
  /SYS/PS1 has fault.chassis.power.ext-fail with probability=100. Refer to
  ...
->
```

For this example, power supply 1 has had a fault. A URL is provided for more information about the fault.

Related Information

- "Oracle ILOM Log Entry Filters" on page 42

- "Display Network Management Configuration Properties" on page 43
- "Display User Session Information" on page 43
- "Display the SP Firmware Version" on page 44

Oracle ILOM Log Entry Filters

When you display the Oracle ILOM log, you can filter the output to specific classes and types of entries using combinations of the `Class` and `Type` parameters. See "Display Oracle ILOM Log Entries" on page 41. This table describes the combinations and entries that are displayed.

Parameters	Entries Displayed
`Class==Audit Type==Log`	Commands that result in a configuration change. Description includes user, command, command parameters, and success or failure.
`Class==IPMI Type==Log`	Any event that is placed in the IPMI system event log is also put into the management log.
`Class==Chassis Type==State`	Changes to the component inventory and general switch state.
`Class==Chassis Type==Action`	Shutdown events for switch chassis, hot-insert, and hot-removal of components.
`Class==Fault Type==Fault`	Fault management faults. Description gives the time the fault was detected and the suspect component.
`Class==Fault Type==Repair`	Fault management repairs. Description gives the component name.

The output can be further filtered with the `Severity` parameter, which has one of five values:

- `Debug`
- `Down`
- `Critical`
- `Major`
- `Minor`

For example, to display only log entries indicating a minor change to the switch inventory, type:

```
-> show /SP/logs/event/list Class==Chassis Type==State Severity==Minor
```

Related Information

- "Display Oracle ILOM Log Entries" on page 41
- "Display Network Management Configuration Properties" on page 43
- "Display User Session Information" on page 43

- ■ "Display the SP Firmware Version" on page 44

▼ Display Network Management Configuration Properties

1. Access the Oracle ILOM CLI.

See "Accessing the SP" on page 37.

2. Display the parameters configured for the SP to communicate over the network.

```
-> show -d properties /SP/network
 /SP/network
  Properties:
   commitpending = (Cannot show property)
   dhcp_clientid = none
   dhcp_server_ip = none
   ipaddress = 10.153.113.85
   ipdiscovery = static
   ipgateway = 10.153.113.1
   ipnetmask = 255.255.255.0
.
.
.
   state = ipv4-only
  vland_id - (none)
->
```

Related Information

- ■ "Display Oracle ILOM Log Entries" on page 41
- ■ "Oracle ILOM Log Entry Filters" on page 42
- ■ "Display User Session Information" on page 43
- ■ "Display the SP Firmware Version" on page 44

▼ Display User Session Information

1. Access the Oracle ILOM CLI.

See "Accessing the SP" on page 37.

2. Display the user session numbers.

```
-> show -d targets /SP/sessions
```

```
 /SP/sessions
  Targets:
    4 (current)
->
```

In this example, there is only one user session, number 4.

3. **Display information about a particular session.**

   -> **show -d properties /SP/sessions/***x*

   where *x* is the session number. For example:

   ```
   -> show -d properties /SP/sessions/4
    /SP/sessions/4
     Properties:
      username = root
      role = aucro
      starttime = Wed Sep 16 20:15:36 2015
      type = shell
      mode = normal
   ->
   ```

   ### Related Information

   - "Display Oracle ILOM Log Entries" on page 41
   - "Oracle ILOM Log Entry Filters" on page 42
   - "Display Network Management Configuration Properties" on page 43
   - "Display the SP Firmware Version" on page 44

▼ Display the SP Firmware Version

When referencing external resources, it might be helpful to know the firmware versions for bug fixes or upgrades.

1. **Access the Oracle ILOM CLI.**

   See "Accessing the SP" on page 37.

2. **Display the SP firmware version and build time.**

   ```
   -> version /SP
   SP firmware 3.2.6.64
   SP firmware build number: 111969
   SP firmware date: Thu Sep  1 00:27:42 PDT 2016
   SP filesystem version: 0.2.10
   ->
   ```

Related Information

- "Display Oracle ILOM Log Entries" on page 41
- "Oracle ILOM Log Entry Filters" on page 42
- "Display Network Management Configuration Properties" on page 43
- "Display User Session Information" on page 43

Troubleshooting (Oracle ILOM /System Targets)

These topics display the health state of various systems and components.

- "Display Problematic Components" on page 45
- "Open Problem Faults" on page 46
- "Display the General Health of Components and Systems" on page 47
- "Oracle ILOM Target Health States" on page 49
- "Display Active Power Consumption" on page 49

Related Information

- "Troubleshooting the Switch" on page 17
- "Identifying Components of Faulted Targets" on page 28
- "Diagnostic Tools" on page 33
- "Troubleshooting (LEDs)" on page 33
- "Accessing the SP" on page 37
- "Troubleshooting (Oracle ILOM /SP Targets)" on page 40
- "Troubleshooting (Oracle ILOM Legacy Targets)" on page 50

▼ Display Problematic Components

1. **Access the Oracle ILOM CLI.**

   See "Accessing the SP" on page 37.

2. **Display problematic components.**

   ```
   -> show /System/Open_Problems
   Open Problems (0)
   Date/Time                 Subsystems          Component
   ```

```
----------------------- ----------------- ------------
Thu Dec 17 05:17:11 2015 Power             PS1 (Power Supply 1)
fault.chassis.device.psu.fail (Probability:100, UUID:b516a939-23c2-ee8b-e997-
d915ca03d044, Resource:/SYS/PS1,
Part Number:7065505-01, Serial Number:BS2517, Reference Document:http://support.oracle.
com/msg/---)
->
```

In this example, a power supply has failed as identified by the text following the words `fault.chassis.`

3. **Compare the output with the examples in "Open Problem Faults" on page 46.**

4. **Consider your next step.**

- **Replace the component identified in the output.**

    See "Oracle ILOM Legacy Target Replaceable Components" on page 30 and "Faulted Item Replaceable Components" on page 31 for links to service tasks.

- **Perform further troubleshooting.**

    See "Display the General Health of Components and Systems" on page 47 and "Display Status for Specific Components" on page 51.

Related Information

- "Open Problem Faults" on page 46
- "Display the General Health of Components and Systems" on page 47
- "Oracle ILOM Target Health States" on page 49
- "Display Active Power Consumption" on page 49

Open Problem Faults

In the output of the `/System/Open_Problems` target, the string of text that begins with `fault.chassis.` identifies the faulty component. Additionally, the text that follows `Resource` is the Oracle ILOM target of the component that faulted. This table provides example output for various component faults. Once you identify the component that has faulted, see "Oracle ILOM Legacy Target Replaceable Components" on page 30 and "Faulted Item Replaceable Components" on page 31 for links to service tasks.

Component Faulted	`/System/Open_Problems` Output
Ambient temperature	`Date/Time Subsystems Component ----------------------- ----------------- ----------- Thu Dec 17 05:11:35 2015 System MB (Motherboard) fault.chassis.env.temp.over-fail (Probability:`

Component Faulted	/System/Open_Problems Output
	100, UUID:4c4bdfa1-f7d5-c7a7-e59e-f9a8ce4fab21, Resource:/SYS/MB, Part Number:7092577, Serial Number:BS00329231, Reference Document:http://support.oracle.com/msg/---)
Battery	Date/Time Subsystems Component ------------------------ ------------------ ------------ Thu Dec 17 05:00:01 2015 System MB (Motherboard) fault.chassis.battery.fail (Probability:100, UUID:76a2179a-51bd-c836-a7f1-af62953577fa, Resource:/SYS/MB, Part Number:7092577, Serial Number:BS00329231, Reference Document:http://support.oracle.com/msg/---)
Fan module	Date/Time Subsystems Component ------------------------ ------------------ ------------ Thu Dec 17 05:18:44 2015 System FM*x* (Fan Module) fault.chassis.device.fan.fail (Probability: 100, UUID:0ebf1655-8700-c90e-fa53-ea6c3b2b25a0, Resource:/SYS/FM*x*, Part Number:N/A, Serial Number:N/A, Reference Document:http://support.oracle.com/msg/---)
Main board temperature	Date/Time Subsystems Component ------------------------ ------------------ ------------ Thu Dec 17 05:04:16 2015 System MB (Motherboard) fault.chassis.temp.shutdown (Probability:50, UUID:01bacc0f-986e-e346-94aa-84e41a1c1595, Resource:/SYS/MB, Part Number:7092577, Serial Number:BS00329231, Reference Document:http://support.oracle.com/msg/---)
Main board voltage	Date/Time Subsystems Component ------------------------ ------------------ ------------ Thu Dec 17 05:13:26 2015 System SP (Service Processor) fault.chassis.voltage.fail (Probability: 100, UUID:0a408985-6011-ccd7-c3a1-e01c7254ea87, Resource:/SYS/SP, Part Number:7096151, Serial Number:BS9089M+15306P00M0, Reference Document:http://support.oracle.com/msg/---)
Power supply	Date/Time Subsystems Component ------------------------ ------------------ ------------ Thu Dec 17 05:17:11 2015 Power PS*x* (Power Supply 1) fault.chassis.device.psu.fail (Probability: 100, UUID:b516a939-23c2-ee8b-e997-d915ca03d044, Resource:/SYS/PS*x*, Part Number:7065505-01, Serial Number:BS2517, Reference Document:http://support.oracle.com/msg/---)

Related Information

-
-
-
-

▼ Display the General Health of Components and Systems

1. Access the Oracle ILOM CLI.

See .

2. Display the health of the switch components.

```
-> show /System -t health
Target                                      | Property | Value
--------------------------------------------+----------+-------
/System                                     | health   | OK
```

```
/System/Power                             | health   | OK
/System/Power/Power_Supplies/Power_Supply_0 | health | OK
/System/Power/Power_Supplies/Power_Supply_1 | health | OK
/System/Cooling                           | health   | OK
/System/Cooling/Fans/Fan_0                | health   | OK
/System/Cooling/Fans/Fan_1                | health   | OK
/System/Cooling/Fans/Fan_2                | health   | OK
/System/Cooling/Fans/Fan_3                | health   | OK
/System/Cooling/Fans/Fan_4                | health   | OK
/System/Cooling/Fans/Fan_5                | health   | OK
/System/Cooling/Fans/Fan_6                | health   | OK
/System/Cooling/Fans/Fan_7                | health   | OK
/System/Networking                        | health   | OK
/System/Networking/Switches/Switch_0      | health   | OK
/System/Networking/Switches/Switch_1      | health   | OK
/System/Networking/Modules/Module_0       | health   | OK
/System/Networking/Modules/Module_1       | health   | OK
->
```

3. **In the output, identify the health state from the `value` column.**

See "Oracle ILOM Target Health States" on page 49.

Use this table to help identify unhealthy components.

Target	Component
`/System`	Switch
`/System/Cooling`	Fan elements
`/System/Networking`	Switch chips and I/O modules
`/System/Power`	Power supplies

4. **Consider your next step.**

■ **Perform further troubleshooting.**

See "Display Status for Specific Components" on page 51.

■ **Replace the component.**

See "Oracle ILOM `/System` Target Replaceable Components" on page 29 or "Faulted Item Replaceable Components" on page 31 for links to service tasks.

Related Information

- "Display Problematic Components" on page 45
- "Open Problem Faults" on page 46
- "Oracle ILOM Target Health States" on page 49
- "Display Active Power Consumption" on page 49

Oracle ILOM Target Health States

Use this table to clarify health states as seen in the `health` property of Oracle ILOM `/System` targets.

Health state	Description
`OK`	Switch or hardware component is fully functional.
`Not Available`	Oracle ILOM is unable to provide health status for this hardware component. Oracle ILOM might require HMP to be installed. See the Oracle HMP documentation library at `http://docs.oracle.com/cd/E20451_01/`.
`Service Required`	Oracle ILOM has detected a problem with the component that requires a service action to resolve the issue. If this health status appears at the system level, view the `/System/Open_Problems` target. See "Display Problematic Components" on page 45. If the health status appears in the Open Problems table, refer to the URL provided in the table for further details.

Related Information

- "Display Problematic Components" on page 45
- "Open Problem Faults" on page 46
- "Display the General Health of Components and Systems" on page 47
- "Display Active Power Consumption" on page 49

▼ Display Active Power Consumption

1. Access the Oracle ILOM CLI.

See "Accessing the SP" on page 37.

2. Display the power consumed in real time.

```
-> show /System/Power actual_power_consumption
 /System/Power
  Properties:
   actual_power_consumption = 188 watts
->
```

The power is displayed in watts.

Related Information

- "Display Problematic Components" on page 45

- "Open Problem Faults" on page 46
- "Display the General Health of Components and Systems" on page 47
- "Oracle ILOM Target Health States" on page 49

Troubleshooting (Oracle ILOM Legacy Targets)

These topics describe how to display measured values for component parameters.

- "Enable Oracle ILOM Legacy Targets" on page 50
- "Display Status for Specific Components" on page 51
- "Clear a Fault Manually" on page 52
- "Oracle ILOM Legacy Targets for Fault State and FRUID" on page 53
- "Oracle ILOM Legacy Targets for Power Consumption" on page 55
- "Oracle ILOM Legacy Targets for Voltage" on page 55
- "Oracle ILOM Legacy Targets for Temperature" on page 56
- "Oracle ILOM Legacy Targets for Fan Speeds" on page 57
- "Oracle ILOM Legacy Targets for LED States" on page 58
- "Resettable Targets" on page 58

Related Information

- "Troubleshooting the Switch" on page 17
- "Identifying Components of Faulted Targets" on page 28
- "Diagnostic Tools" on page 33
- "Troubleshooting (LEDs)" on page 33
- "Accessing the SP" on page 37
- "Troubleshooting (Oracle ILOM `/SP` Targets)" on page 40
- "Troubleshooting (Oracle ILOM `/System` Targets)" on page 45

▼ Enable Oracle ILOM Legacy Targets

Oracle ILOM legacy targets are not available or functional until you perform this task.

1. **Access the Oracle ILOM CLI.**

See "Accessing the SP" on page 37.

2. Enable the Oracle ILOM legacy targets.

```
-> set /SP/cli legacy_targets=enabled
Set 'legacy_targets' to 'enabled'
->
```

3. You can now perform diagnostics with Oracle ILOM legacy targets.
See "Display Status for Specific Components" on page 51.

Related Information

- "Display Status for Specific Components" on page 51
- "Clear a Fault Manually" on page 52
- "Oracle ILOM Legacy Targets for Fault State and FRUID" on page 53
- "Oracle ILOM Legacy Targets for Power Consumption" on page 55
- "Oracle ILOM Legacy Targets for Voltage" on page 55
- "Oracle ILOM Legacy Targets for Temperature" on page 56
- "Oracle ILOM Legacy Targets for Fan Speeds" on page 57
- "Oracle ILOM Legacy Targets for LED States" on page 58
- "Resettable Targets" on page 58

▼ Display Status for Specific Components

1. Access the Oracle ILOM CLI.
See "Accessing the SP" on page 37.

2. If not already done, enable Oracle ILOM legacy targets.
See "Enable Oracle ILOM Legacy Targets" on page 50.

3. For the type of component status, type the appropriate command.

- **For fault state, type:**

  ```
  -> show target fault_state
  ```

  where *target* is from the table in "Oracle ILOM Legacy Targets for Fault State and FRUID" on page 53.

- **For FRUID, type:**

  ```
  -> show target -d properties
  ```

where the *target* capable of displaying FRUID is from the table in "Oracle ILOM Legacy Targets for Fault State and FRUID" on page 53.

■ **For power, voltage, temperature, fan speed, or LED state of a component, type:**

-> **show** *target* **value**

where *target* is from the tables in:

- "Oracle ILOM Legacy Targets for Power Consumption" on page 55
- "Oracle ILOM Legacy Targets for Voltage" on page 55
- "Oracle ILOM Legacy Targets for Temperature" on page 56
- "Oracle ILOM Legacy Targets for Fan Speeds" on page 57
- "Oracle ILOM Legacy Targets for LED States" on page 58

4. **If the output of the command indicates a fault or displays values outside normal operating parameters, replace the component indicated by the respective table.**

See "Oracle ILOM Legacy Target Replaceable Components" on page 30 or "Faulted Item Replaceable Components" on page 31 for a link to the service task for that component.

Related Information

- "Enable Oracle ILOM Legacy Targets" on page 50
- "Clear a Fault Manually" on page 52
- "Oracle ILOM Legacy Targets for Fault State and FRUID" on page 53
- "Oracle ILOM Legacy Targets for Power Consumption" on page 55
- "Oracle ILOM Legacy Targets for Voltage" on page 55
- "Oracle ILOM Legacy Targets for Temperature" on page 56
- "Oracle ILOM Legacy Targets for Fan Speeds" on page 57
- "Oracle ILOM Legacy Targets for LED States" on page 58
- "Resettable Targets" on page 58

▼ Clear a Fault Manually

Faults can be detected by Oracle ILOM or the native OS of the SP. The native OS communicates the faults it has discovered to Oracle ILOM.

If Oracle ILOM detects a fault and subsequent component replacement, Oracle ILOM automatically clears the fault. However, if the native OS detects a fault, you might need to manually clear the fault from Oracle ILOM after resolution.

If the fault persists after a replacement operation with a known good component, use this procedure to clear the fault.

1. **Access the Oracle ILOM CLI.**

   See "Accessing the SP" on page 37.

2. **Reset the component to clear the fault manually.**

   -> **set** *target* **clear_fault_action=true**

   where *target* is the Oracle ILOM target of the faulted component. See "Resettable Targets" on page 58 for a list of targets.

   For example, to reset and clear a fault with power supply 0, type:

   ```
   -> set /SYS/PS0 clear_fault_action=true
   Are you sure you want to clear /SYS/PS0 (y/n)? y
   Set 'clear_fault_action' to 'true'
   ->
   ```

   ### Related Information

   - "Enable Oracle ILOM Legacy Targets" on page 50
   - "Display Status for Specific Components" on page 51
   - "Oracle ILOM Legacy Targets for Fault State and FRUID" on page 53
   - "Oracle ILOM Legacy Targets for Power Consumption" on page 55
   - "Oracle ILOM Legacy Targets for Voltage" on page 55
   - "Oracle ILOM Legacy Targets for Temperature" on page 56
   - "Oracle ILOM Legacy Targets for Fan Speeds" on page 57
   - "Oracle ILOM Legacy Targets for LED States" on page 58
   - "Resettable Targets" on page 58

Oracle ILOM Legacy Targets for Fault State and FRUID

This table lists components that might be in a fault state, or have FRUID information. See "Oracle ILOM Legacy Target Replaceable Components" on page 30 or "Faulted Item Replaceable Components" on page 31 for a link to the service task for that component.

Faulted Sensor	Oracle ILOM Target	Component to Be Replaced
Exhaust air temperature	/SYS/MB/T_OUT	Switch

Faulted Sensor	Oracle ILOM Target	Component to Be Replaced
Fan module *x* fan *y* speed	`/SYS/FMx/FANy/TACH`	Fan module *x*
Fan module *x* presence	`/SYS/FMx/PRSNT`	Fan module *x*
HCA temperature	`/SYS/MB/T_HCA`	Switch
IB switch chip temperature	`/SYS/MB/T_IBSWITCH`	Switch
Intake air temperature	`/SYS/MB/T_AMB`	Switch
Main board fault and FRUID	`/SYS/MB`	Switch
Power supply *x* fault and FRUID	`/SYS/PSx`	Power supply *x*
Power supply *x* input current	`/SYS/PSx/I_IN`	Power supply *x*
Power supply *x* input power consumed	`/SYS/PSx/INPUT_POWER`	Power supply *x*
Power supply *x* input voltage	`/SYS/PSx/V_IN`	Power supply *x*
Power supply *x* OK state	`/SYS/PSx/PWROK`	Power supply *x*
Power supply *x* output current	`/SYS/PSx/I_OUT`	Power supply *x*
Power supply *x* output power delivered	`/SYS/PSx/OUTPUT_POWER`	Power supply *x*
Power supply *x* output voltage	`/SYS/PSx/V_OUT`	Power supply *x*
Power supply *x* presence	`/SYS/PSx/PRSNT`	Power supply *x*
RTC backup battery	`/SYS/MB/V_VBAT`	Battery
SP fault and FRUID	`/SYS/SP`	Switch
Standby voltage	`/SYS/PS_3V3`	Power supplies
I/O module	`/SYS/MODULES/MODULEx`	I/O modules
I/O module boot state	`/SYS/MODULES/MODULEx/BOOTED`	I/O modules
I/O module fault	`/SYS/MODULES/MODULEx/FAULT`	I/O modules
I/O module temperature	`/SYS/MODULES/MODULEx/T_CRITICAL`	I/O modules
Voltage received by I/O modules	■ `/SYS/MODULES/MODULEx/0V85_OK` ■ `/SYS/MODULES/MODULEx/1V0_OK` ■ `/SYS/MODULES/MODULEx/1V2_OK` ■ `/SYS/MODULES/MODULEx/1V8_OK` ■ `/SYS/MODULES/MODULEx/2V5_OK` ■ `/SYS/MODULES/MODULEx/3V3_OK`	I/O modules

Related Information

- "Enable Oracle ILOM Legacy Targets" on page 50
- "Display Status for Specific Components" on page 51
- "Clear a Fault Manually" on page 52
- "Oracle ILOM Legacy Targets for Power Consumption" on page 55
- "Oracle ILOM Legacy Targets for Voltage" on page 55
- "Oracle ILOM Legacy Targets for Temperature" on page 56
- "Oracle ILOM Legacy Targets for Fan Speeds" on page 57
- "Oracle ILOM Legacy Targets for LED States" on page 58

- "Resettable Targets" on page 58

Oracle ILOM Legacy Targets for Power Consumption

This table lists power consumption sensors. An excessive or negligible value might indicate a faulted component. See "Oracle ILOM Legacy Target Replaceable Components" on page 30 or "Faulted Item Replaceable Components" on page 31 for a link to the service task for that component.

Power Parameter	Oracle ILOM Target	Component to Be Replaced
Power supply 0 input power consumed	/SYS/PS0/INPUT_POWER	Power supply 0
Power supply 0 output power delivered	/SYS/PS0/OUTPUT_POWER	Power supply 0
Power supply 1 input power consumed	/SYS/PS1/INPUT_POWER	Power supply 1
Power supply 1 output power delivered	/SYS/PS1/OUTPUT_POWER	Power supply 1

Related Information

- "Enable Oracle ILOM Legacy Targets" on page 50
- "Display Status for Specific Components" on page 51
- "Clear a Fault Manually" on page 52
- "Oracle ILOM Legacy Targets for Fault State and FRUID" on page 53
- "Oracle ILOM Legacy Targets for Voltage" on page 55
- "Oracle ILOM Legacy Targets for Temperature" on page 56
- "Oracle ILOM Legacy Targets for Fan Speeds" on page 57
- "Oracle ILOM Legacy Targets for LED States" on page 58
- "Resettable Targets" on page 58

Oracle ILOM Legacy Targets for Voltage

This table lists voltage sensors. An out-of-range value might indicate a faulted component. See "Oracle ILOM Legacy Target Replaceable Components" on page 30 or "Faulted Item Replaceable Components" on page 31 for a link to the service task for that component.

Voltage Sensor	Oracle ILOM Target	value Range	Component to Be Replaced
Line voltage into PS 0	/SYS/PS0/V_IN	100 to 252 volts	Power source or power cord

Voltage Sensor	Oracle ILOM Target	`value` Range	Component to Be Replaced
Line voltage into PS 1	`/SYS/PS1/V_IN`	100 to 252 volts	Power source or power cord
RTC backup battery	`/SYS/MB/V_VBAT`	> 2.548 volts	Battery
Standby voltage	`/SYS/PS_3V3`	2.944 to 3.685 volts	Power supplies
Supplied voltage out of PS 0	`/SYS/PS0/V_OUT`	10 to 14 volts	Power supply 0
Supplied voltage out of PS 1	`/SYS/PS1/V_OUT`	10 to 14 volts	Power supply 1

Related Information

- "Enable Oracle ILOM Legacy Targets" on page 50
- "Display Status for Specific Components" on page 51
- "Clear a Fault Manually" on page 52
- "Oracle ILOM Legacy Targets for Fault State and FRUID" on page 53
- "Oracle ILOM Legacy Targets for Power Consumption" on page 55
- "Oracle ILOM Legacy Targets for Temperature" on page 56
- "Oracle ILOM Legacy Targets for Fan Speeds" on page 57
- "Oracle ILOM Legacy Targets for LED States" on page 58
- "Resettable Targets" on page 58

Oracle ILOM Legacy Targets for Temperature

This table lists temperature sensors. An out-of-range value might indicate a faulted component. See "Oracle ILOM Legacy Target Replaceable Components" on page 30 or "Faulted Item Replaceable Components" on page 31 for a link to the service task for that component.

Temperature Sensor	Oracle ILOM Target	`value` Range	Component to Be Replaced
Exhaust air temperature	`/SYS/MB/T_OUT`	0 to 65 degrees C	Switch
HCA temperature	`/SYS/MB/T_HCA`	0 to 100 degrees C	Switch
IB switch chip temperature	`/SYS/MB/T_IBSWITCH`	0 to 100 degrees C	Switch
Intake air temperature	`/SYS/MB/T_AMB`	0 to 40 degrees C	Switch
I/O module temperature	`/SYS/MODULES/MODULEx/T_MOD`	0 to 100 degrees C	I/O modules

Related Information

- "Enable Oracle ILOM Legacy Targets" on page 50

- "Display Status for Specific Components" on page 51
- "Clear a Fault Manually" on page 52
- "Oracle ILOM Legacy Targets for Fault State and FRUID" on page 53
- "Oracle ILOM Legacy Targets for Power Consumption" on page 55
- "Oracle ILOM Legacy Targets for Voltage" on page 55
- "Oracle ILOM Legacy Targets for Fan Speeds" on page 57
- "Oracle ILOM Legacy Targets for LED States" on page 58
- "Resettable Targets" on page 58

Oracle ILOM Legacy Targets for Fan Speeds

This table lists speed sensors. An out-of-range value might indicate a faulted component. See "Oracle ILOM Legacy Target Replaceable Components" on page 30 or "Faulted Item Replaceable Components" on page 31 for a link to the service task for that component.

Speed Sensor	Oracle ILOM Target	value Range	Component to Be Replaced
Fan 0 speed of fan module 0	/SYS/FM0/FAN0/TACH	6000 to 24000 RPM	Fan module 0
Fan 1 speed of fan module 0	/SYS/FM0/FAN1/TACH	6000 to 24000 RPM	Fan module 0
Fan 0 speed of fan module 1	/SYS/FM1/FAN0/TACH	6000 to 24000 RPM	Fan module 1
Fan 1 speed of fan module 1	/SYS/FM1/FAN1/TACH	6000 to 24000 RPM	Fan module 1
Fan 0 speed of fan module 2	/SYS/FM2/FAN0/TACH	6000 to 24000 RPM	Fan module 2
Fan 1 speed of fan module 2	/SYS/FM2/FAN1/TACH	6000 to 24000 RPM	Fan module 2
Fan 0 speed of fan module 3	/SYS/FM3/FAN0/TACH	6000 to 24000 RPM	Fan module 3
Fan 1 speed of fan module 3	/SYS/FM3/FAN1/TACH	6000 to 24000 RPM	Fan module 3

Related Information

- "Enable Oracle ILOM Legacy Targets" on page 50
- "Display Status for Specific Components" on page 51
- "Clear a Fault Manually" on page 52
- "Oracle ILOM Legacy Targets for Fault State and FRUID" on page 53
- "Oracle ILOM Legacy Targets for Power Consumption" on page 55
- "Oracle ILOM Legacy Targets for Voltage" on page 55
- "Oracle ILOM Legacy Targets for Temperature" on page 56
- "Oracle ILOM Legacy Targets for LED States" on page 58
- "Resettable Targets" on page 58

Oracle ILOM Legacy Targets for LED States

This table lists components with LEDs, the `value` property of which might indicate a fault state. See "Oracle ILOM Legacy Target Replaceable Components" on page 30 or "Faulted Item Replaceable Components" on page 31 for a link to the service task for that component.

Component LED	Oracle ILOM Target	Component to Be Replaced
Attention LED	`/SYS/SERVICE`	Switch (in some circumstances, but not all)
Locate LED	`/SYS/LOCATE`	Switch
OK LED	`/SYS/OK`	Switch
SP LED	`/SYS/SP/OK`	Switch

Related Information

- "Enable Oracle ILOM Legacy Targets" on page 50
- "Display Status for Specific Components" on page 51
- "Clear a Fault Manually" on page 52
- "Oracle ILOM Legacy Targets for Fault State and FRUID" on page 53
- "Oracle ILOM Legacy Targets for Power Consumption" on page 55
- "Oracle ILOM Legacy Targets for Voltage" on page 55
- "Oracle ILOM Legacy Targets for Temperature" on page 56
- "Oracle ILOM Legacy Targets for Fan Speeds" on page 57
- "Resettable Targets" on page 58

Resettable Targets

This table lists Oracle ILOM targets that are resettable through their `clear_fault_action` property and the related components with manual reset capability. Use this table for the task "Clear a Fault Manually" on page 52.

Target	Component
`/SYS`	Switch
`/SYS/MB`	Main board
`/SYS/MB/FM`*x*	Fan module *x*, where *x* is `0` to 3
`/SYS/MB/FM`*x*`/FAN`*y*	Fan unit *y* installed in module *x*, where *y* is either `0` or `1` and *x* is `0` to 3

Target	Component
`/SYS/PSx`	Power supply *x*, where *x* is either `0` or 1
`/SYS/SP`	SP
`/SYS/MODULES/MODULEx`	I/O module *x*, where *x* is `0` to 11

Related Information

- "Enable Oracle ILOM Legacy Targets" on page 50
- "Display Status for Specific Components" on page 51
- "Clear a Fault Manually" on page 52
- "Oracle ILOM Legacy Targets for Fault State and FRUID" on page 53
- "Oracle ILOM Legacy Targets for Power Consumption" on page 55
- "Oracle ILOM Legacy Targets for Voltage" on page 55
- "Oracle ILOM Legacy Targets for Temperature" on page 56
- "Oracle ILOM Legacy Targets for Fan Speeds" on page 57
- "Oracle ILOM Legacy Targets for LED States" on page 58

Preparing for Service

These topics describe how to prepare the switch for servicing.

Step	Description	Link
1.	Review safety and handling information.	"Safety Information" on page 62
2.	Gather the tools for service.	"Service Tools" on page 63
3.	Read the switch serial number through Oracle ILOM.	"Read the Switch Serial Number (Oracle ILOM)" on page 64
4.	Identify the switch to be serviced.	"Locate the Switch" on page 64
5.	Locate the component service information.	"Faulted Item Replaceable Components" on page 31
6.	Take antistatic precautions.	"Prevent ESD Damage" on page 65
	You can now service the PrizmMT, QSFP, LC, and RJ-45 cables.	"Servicing Data Cables" on page 71
	You can now service these components:	"Servicing Fan Modules" on page 99
	■ Fan modules	"Servicing I/O Modules" on page 109
	■ I/O modules	
	■ Filler panels	"Servicing Filler Panels" on page 123
	■ Power supplies	"Servicing Power Supplies" on page 129
7.	Power off the power supplies.	"Prepare to Power Off the Switch" on page 66
		"Power Off the Switch" on page 67
	You can now service these components:	"Replacing the Switch" on page 141
	■ Switch	

Related Information

- "Identifying Components" on page 11
- "Detecting and Managing Faults" on page 17
- "Servicing Data Cables" on page 71
- "Servicing Fan Modules" on page 99
- "Servicing I/O Modules" on page 109
- "Servicing Power Supplies" on page 129
- "Replacing the Switch" on page 141

Safety Information

For your protection, observe these safety precautions when setting up your equipment:

- Follow all cautions and instructions marked on the equipment and described in the documentation shipped with your switch.
- Follow all cautions and instructions marked on the equipment and described in the switch's safety and compliance guide.
- Ensure that the voltage and frequency of your power source match the voltage and frequency inscribed on the equipment's electrical ratings label.
- Follow the electrostatic discharge safety practices as described here.

Safety Symbols

Note the meanings of these symbols that might appear in this document.

Caution - There is a risk of personal injury or equipment damage. To avoid personal injury and equipment damage, follow the instructions.

Caution - Hot surface. Avoid contact. Surfaces are hot and might cause personal injury if touched.

Caution - Hazardous voltages are present. To reduce the risk of electric shock and danger to personal health, follow the instructions.

ESD Measures

Some ESD-sensitive devices require special handling.

Caution - Circuit boards contain electronic components that are extremely sensitive to static electricity. Ordinary amounts of static electricity from clothing or the work environment can destroy the components located on these boards. Do not touch the components along their connector edges.

Antistatic Wrist Strap Use

Wear an antistatic wrist strap and use an antistatic mat when handling components such as power supplies and fan modules. When servicing or removing switch components, attach an antistatic strap to your wrist and then to a metal area on the chassis. Following this practice equalizes the electrical potentials between you and the switch.

Antistatic Mat

Place ESD-sensitive components on an antistatic mat. These items can be used as an antistatic mat:

- Antistatic bag used to wrap a replacement part
- ESD mat
- Disposable ESD mat (shipped with some replacement parts)

Related Information

- "Service Tools" on page 63
- "Read the Switch Serial Number (Oracle ILOM)" on page 64
- "Locate the Switch" on page 64
- "Prevent ESD Damage" on page 65
- "Prepare to Power Off the Switch" on page 66

Service Tools

You need these tools for most service operations:

- Antistatic wrist strap
- Antistatic mat
- No. 1 Phillips screwdriver
- No. 2 Phillips screwdriver
- Paper clip
- PrizmMT ferrule cleaner - USConec part number 16899

Related Information

- "Safety Information" on page 62
- "Read the Switch Serial Number (Oracle ILOM)" on page 64
- "Locate the Switch" on page 64
- "Prevent ESD Damage" on page 65
- "Prepare to Power Off the Switch" on page 66

▼ Read the Switch Serial Number (Oracle ILOM)

If you require technical support for your switch, you will be asked to provide the chassis serial number. You can read the chassis serial number from a RFID tag located on the front of the switch, to the left of the fan modules. See "Switch Front Components" on page 12 the location of the serial number.

If it is not convenient to read the strip or the RFID tag, you can use Oracle ILOM to obtain the chassis serial number.

1. Access the Oracle ILOM CLI.

See "Accessing the SP" on page 37.

2. Display the serial number.

```
-> show /SYS product_serial_number

/SYS
  Properties:
    product_serial_number = 1133BDN082
->
```

Related Information

- "Safety Information" on page 62
- "Service Tools" on page 63
- "Locate the Switch" on page 64
- "Prevent ESD Damage" on page 65
- "Prepare to Power Off the Switch" on page 66

▼ Locate the Switch

You can use the Locate LED to pinpoint the location of a switch. This task is helpful when you need to identify one particular switch from many other rack components.

> **Note -** The Locate LED does not have button functionality. You control the Locate LED through Oracle ILOM.

1.   Access the Oracle ILOM CLI.

See "Accessing the SP" on page 37.

2.   Set the Locate LED to blink.

-> **set /SYS/LOCATE value=Fast_Blink**

The white Locate LED blinks.

3.   After servicing the switch with the blinking Locate LED, turn the LED off.

-> **set /SYS/LOCATE value=off**

Related Information

- "Safety Information" on page 62
- "Service Tools" on page 63
- "Read the Switch Serial Number (Oracle ILOM)" on page 64
- "Prevent ESD Damage" on page 65
- "Prepare to Power Off the Switch" on page 66

▼   Prevent ESD Damage

Many components housed within the chassis can be damaged by electrostatic discharge. To protect these components from damage, perform these steps before opening the chassis for service. See "Safety Information" on page 62.

1.   Prepare an antistatic surface to set parts on during the removal, installation, or replacement process.

Place ESD-sensitive components, such as printed circuit boards, on an antistatic mat.

2.   Attach an antistatic wrist strap.

When servicing or removing switch components, attach an antistatic strap to your wrist and then to a metal area on the chassis.

3.   Consider your next task.

- **If you are servicing a data cable, return to "Remove a Data Cable" on page 79.**

- **If you are servicing a fan module, return to "Remove a Fan Module" on page 103.**

- **If you are servicing an I/O module, return to "Remove an I/O Module" on page 113.**

- **If you are servicing a filler panel, return to "Remove a Filler Panel" on page 123.**

- **If you are servicing a power supply, return to "Remove a Power Supply" on page 133**

- **If you are replacing the switch itself, continue to "Prepare to Power Off the Switch" on page 66.**

Related Information

- "Safety Information" on page 62
- "Service Tools" on page 63
- "Read the Switch Serial Number (Oracle ILOM)" on page 64
- "Locate the Switch" on page 64
- "Prepare to Power Off the Switch" on page 66

▼ Prepare to Power Off the Switch

Perform this task before powering off the switch.

Note - The following task lists the basic steps for preparing to power off the switch. For more thorough instructions, refer to *Oracle Fabric Manager 5.0.2 Administration Guide* and the *Oracle Fabric OS 1.0.2 Administration Guide*.

---

1. **Notify affected users that the switch is to be shut down.**

2. **Set the priority of the switch to be removed to the lowest.**

   Wait for any handover to complete.

3. **Create a backup of the switch configuration for the switch to be removed.**

   Refer to "Performing Backups" in *Oracle Fabric Manager 5.0.2 Administration Guide*.

4. **Disconnect the power cords at the rear of the switch to power it off.**

See .

Related Information

-
-
-
-
-

▼ Power Off the Switch

The switch does not have a central power switch, and each power supply does not have its own power switch either. Power can be controlled through Oracle ILOM if needed. Otherwise, removing both power cords will power off the switch and disconnect it from facility power.

1. Locate the power cords at the rear of the switch.

See .

2. Lower the retaining wire securing the power cords.

In this illustration, AC1 is the left power cord, and AC0 is the right power cord.
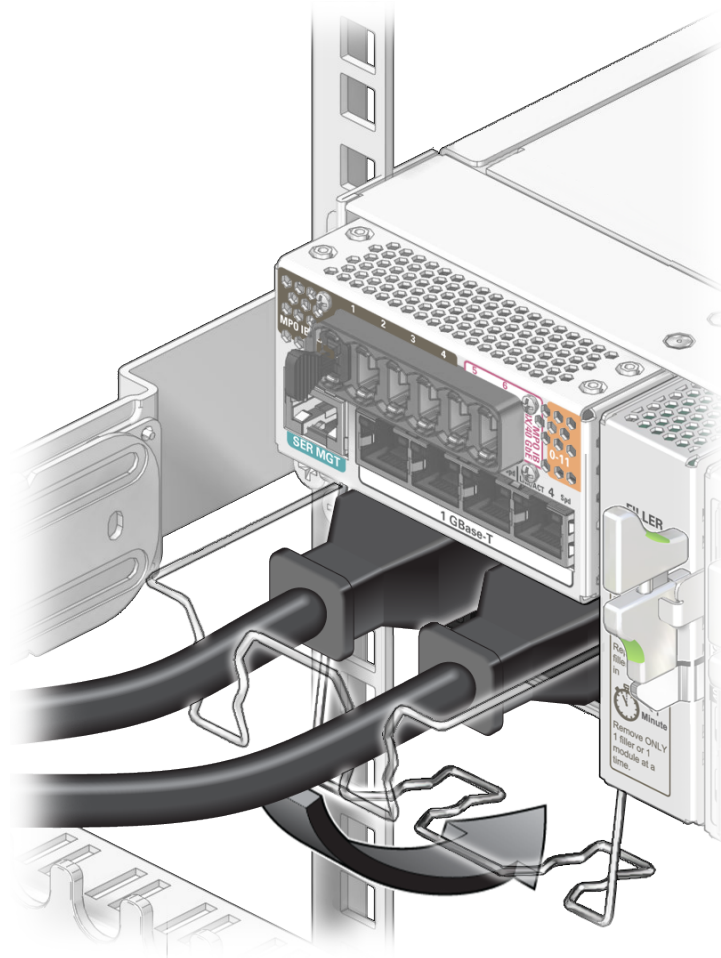
3.   Grasp a power cord and remove it with a slow wiggling motion.
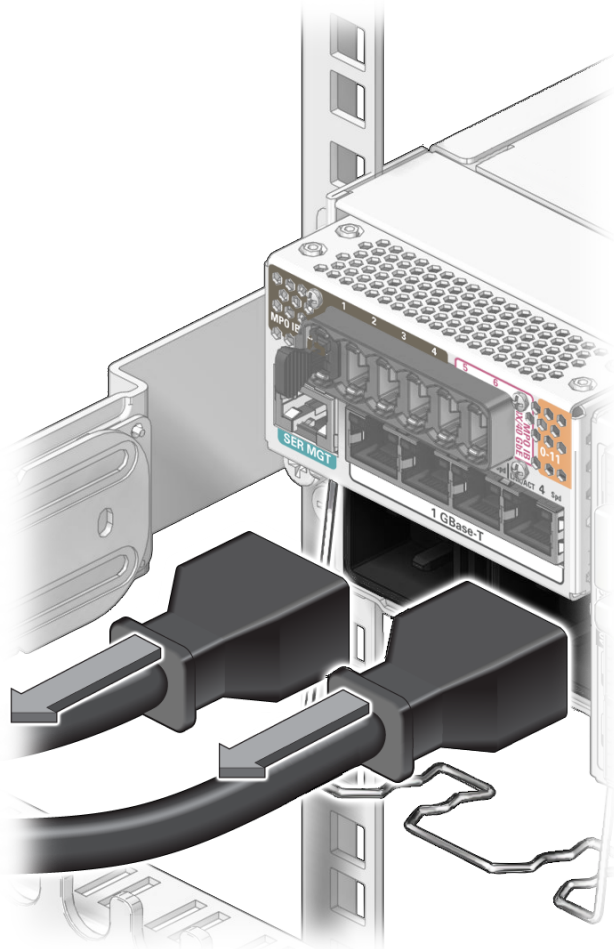
4.   Remove the other power cord with a slow wiggling motion.

After removing both power cords, the switch will power off.

5.   Consider your next step.

- ■   **If you powered off the switch to replace the switch chassis, go to "Remove the Switch" on page 146.**

- ■   **If you are powering off the switch to connect the data cables to the switch, go to "Install a Data Cable" on page 90.**

- **If you powered off the switch as part of another service task, return to that task now.**

Related Information

- "Safety Information" on page 62
- "Service Tools" on page 63
- "Read the Switch Serial Number (Oracle ILOM)" on page 64
- "Locate the Switch" on page 64
- "Prevent ESD Damage" on page 65
- "Prepare to Power Off the Switch" on page 66

Servicing Data Cables

Data cables provide a conduit for high-speed Ethernet network and IB fabric communication. The data cables are located across the rear of the switch. See .

Description	Links
Familiarize yourself with the three cable types.	"Identifying Data Cable Types" on page 72
Replace a faulty data cable.	"Locate a Faulty Data Cable" on page 75
	"Remove a Data Cable" on page 79
	"Install a Data Cable" on page 90
	"Verify a Data Cable" on page 97
Remove a data cable as part of another component's service operation.	"Remove a Data Cable" on page 79
Install a data cable as part of another component's service operation.	"Install a Data Cable" on page 90
	"(Optional) Clean the PrizmMT Receptacle or Connector Ferrule" on page 97
Add additional data cables.	"Install a Data Cable" on page 90
	"(Optional) Clean the PrizmMT Receptacle or Connector Ferrule" on page 97
	"Verify a Data Cable" on page 97
Decrease the number of existing data cables.	"Remove a Data Cable" on page 79
Identify a faulty data cable.	"Locate a Faulty Data Cable" on page 75
	"Detecting and Managing Faults" on page 17

Related Information

- "Identifying Components" on page 11
- "Detecting and Managing Faults" on page 17
- "Preparing for Service" on page 61
- "Servicing Fan Modules" on page 99
- "Servicing I/O Modules" on page 109

- "Servicing Power Supplies" on page 129
- "Replacing the Switch" on page 141

Identifying Data Cable Types

The virtualization switch requires various cables types to support physical connections for the switch's on-board ports as well as the Oracle F2 I/O modules required for your deployment.
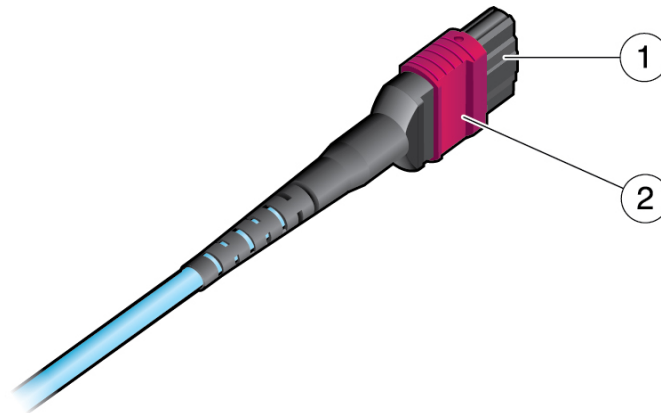
For more information about these cables, including part numbers, refer to the Oracle EDR Infiniband Fabric Connectivity Guide - Solutions for Interfacing with Oracle EDR Infiniband Fabric Products (`https://community.oracle.com/docs/DOC-1006347`) white paper. This paper outlines the Oracle EDR InfiniBand Fabric connectivity solutions for building cloud fabrics and integrating clouds with the data center network and storage infrastructure.

- "PrizmMT Cables" on page 73
- "QSFP Cables and Transceivers" on page 74
- "RJ-45 Cables" on page 74
- "LC Cables" on page 75
- Oracle EDR InfiniBand Fabric Topology Guide - Best Practices for Deploying Business-Critical Network Infrastructure

Related Information

- "Locate a Faulty Data Cable" on page 75
- "Remove a Data Cable" on page 79
- "Install a Data Cable" on page 90
- "Verify a Data Cable" on page 97

PrizmMT Cables

No.	Description
1	PrizmMT ferrule
2	Magenta-colored housing (4x technology)
	Black-colored housing (12x technology)

Related Information

- "Remove a Data Cable" on page 79
- "Install a Data Cable" on page 90
- Oracle EDR Infiniband Fabric Connectivity Guide - Solutions for Interfacing with Oracle EDR Infiniband Fabric Products
- Oracle EDR InfiniBand Fabric Topology Guide - Best Practices for Deploying Business-Critical Network Infrastructure

QSFP Cables and Transceivers
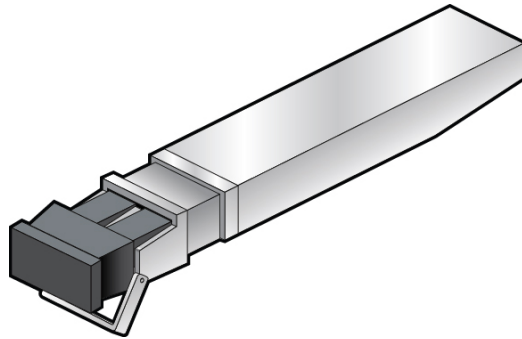
Related Information

-
-
- Oracle EDR Infiniband Fabric Connectivity Guide - Solutions for Interfacing with Oracle EDR Infiniband Fabric Products
- Oracle EDR InfiniBand Fabric Topology Guide - Best Practices for Deploying Business-Critical Network Infrastructure

RJ-45 Cables

RJ-45 cables should be of Category 6, 6e, or 7 specifications.

Related Information

- "Remove a Data Cable" on page 79
- "Install a Data Cable" on page 90
- Oracle EDR Infiniband Fabric Connectivity Guide - Solutions for Interfacing with Oracle EDR Infiniband Fabric Products
- Oracle EDR InfiniBand Fabric Topology Guide - Best Practices for Deploying Business-Critical Network Infrastructure

LC Cables

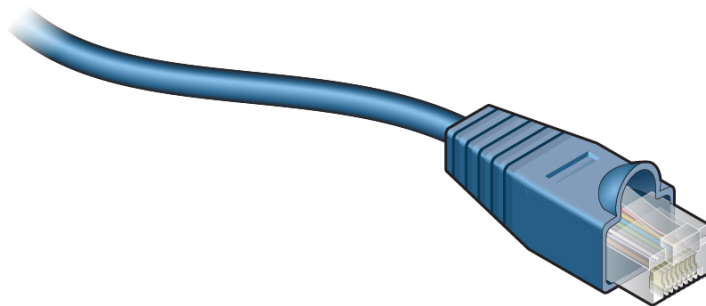**Related Information**

- "Remove a Data Cable" on page 79
- "Install a Data Cable" on page 90
- Oracle EDR Infiniband Fabric Connectivity Guide - Solutions for Interfacing with Oracle EDR Infiniband Fabric Products
- Oracle EDR InfiniBand Fabric Topology Guide - Best Practices for Deploying Business-Critical Network Infrastructure
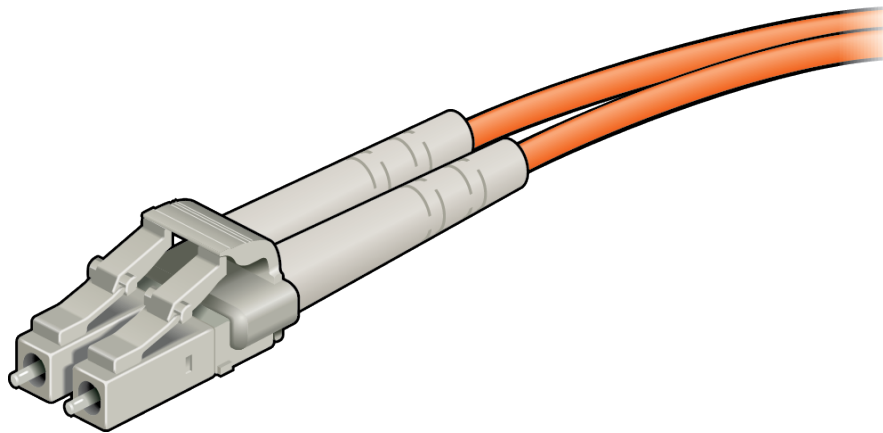
▼ Locate a Faulty Data Cable

You must determine which data cable is faulty before you replace it.

1. **Consider your first step.**

   - **If you are at the switch, go to Step 2.**

   - **If you are remote to the switch, go to Step 3.**

2. **At the rear of the switch, check the Link LEDs of the SFP+ and RJ-45 connectors.**

   For each cable connected to a known functional host, the Link LED should be on. See and "RJ-45 Link LEDs" on page 36.

   - **If the Link LED of the data cable is off, replace that cable.**

     See "Remove a Data Cable" on page 79.

   - **If you cannot determine if a cable is faulty, go to Step 3.**

3. **Access the Oracle ILOM CLI.**

   See "Accessing the SP" on page 37.

4. **Verify Ethernet connectivity.**

   a. **Start the EMS console.**

   ```
   -> start /System/Networking/Switches/Switch_0/fs_cli
   Are you sure you want to start /System/Networking/Switches/Switch_0/fs_cli
   (y/n)? y
                    Management Switch for Oracle Fabric Interconnect F2-12
   SEFOS login:
   ```

   b. **Log in to SEFOS.**

   ```
   SEFOS login: root
   Password: password
   SEFOS#
   ```

   The default password is admin123.

   c. **Display the state of the Ethernet ports.**

   ```
   SEFOS# show interfaces status

   Port       Status        Duplex   Speed      Negotiation    Capability
   ----       ------        ------   -----      -----------    ----------
   Gi0/1      not connected Half     -          Auto           Auto-MDIX on
   Gi0/2      connected     Full     1 Gbps     Auto           Auto-MDIX on
   Gi0/3      connected     Full     1 Gbps     Auto           Auto-MDIX on
   Gi0/4      not connected Half     -          Auto           Auto-MDIX on
   Gi0/5      not connected Half     -          Auto           Auto-MDIX on
   ```

```
Gi0/6        connected      Full    1 Gbps     Auto           Auto-MDIX on
Gi0/7        not connected  Half    -          Auto           Auto-MDIX on
...
Gi0/13       connected      Full    1 Gbps     Auto           Auto-MDIX on
...
Gi0/23       not connected  Half    -          Auto           Auto-MDIX on
Gi0/23       connected      Full    1 Gbps     Auto           Auto-MDIX on
Gi0/25       connected      Full    1 Gbps     Auto           Auto-MDIX on
Gi0/26       connected      Full    1 Gbps     Auto           Auto-MDIX on
Ex0/1        not connected  Full    10 Gbps    No-Negotiation Auto-MDIX on
Ex0/2        not connected  Full    10 Gbps    No-Negotiation Auto-MDIX on
SEFOS#
```

In the output, `Port` is the port as seen on the rear panel. Ports `Gi0/25` and `Gi0/26` are internal to the switch architecture. Ports `Ex0/1` and `Ex0/2` are the two SFP+ uplink ports. The `Status` is the state of the port. The `Duplex`, `Speed`, and `Negotiation` are the parameters of the link. The `Capability` indicates if auto-crossover capability is on.

d. **If the status of a known-connected port is anything other than `connected`, replace the cable attached to that port.**

See "Remove a Data Cable" on page 79.

e. **Exit the EMS console.**

```
SEFOS# exit
Connection closed by foreign host

Entering character mode
Escape character is '^]'.
start: The session with /System/Networking/Switches/Switch_0/fs_cli has ended.
->
```

5. **Verify IB and gateway connectivity.**

a. **Start the host.**

```
-> start /HOST/console
Are you sure you want to start /HOST/console (y/n)? y

Serial console started.  To stop, type ESC (
```

b. **Press Enter.**

[*user@hostname* ~]#

where:

- *user* is the current username.
- *hostname* is the host name of the SCP.

c. **Switch to user `admin` with password `admin`.**

```
[user@hostname ~]# su admin
 Welcome to IBOS Controller
 Copyright (c) 2012-2015 Oracle Corp.  All rights reserved.
 Enter "help" for information on available commands.
 Enter the command "show system copyright" for licensing information
admin@hostname[OFOS]
```

Note - From here forward in this document, the admin@*hostname*[OFOS] prompt is replaced with simply [OFOS].

If this is the first time OFOS is accessed, the OFOS configuration wizard might start. If this happens, refer to "Run the Oracle Fabric OS Configuration Wizard" in *Oracle Fabric Interconnect F2-12 Installation Guide*.

d. **Display the state of the gateway ports.**

```
[OFOS] show ioports
name    type                state             descr    v-resources
--------------------------------------------------------------------------------
0/1     gwEthernet10GbPort   up/indeterminate           0
0/2     gwEthernet10GbPort   up/indeterminate           0
0/3     gwEthernet10GbPort   up/indeterminate           0
0/4     gwEthernet10GbPort   up/indeterminate           0
0/5     gwEthernet10GbPort   up/indeterminate           0
0/6     gwEthernet10GbPort   up/indeterminate           0
0/7     gwEthernet10GbPort   up/indeterminate           0
0/8     gwEthernet10GbPort   up/indeterminate           0
8 records displayed
[OFOS]
```

In the output, the `name` is the port number as seen on the rear panel. The `state` is of the local port/peer port. The `descr` is the node descriptor of the peer port. The `v-resources` are the number of VLANs and VNICs supported on that port.

e. **Display the state of the IB ports.**

```
[OFOS] show infiniband-port
name            state           mode_state          guid
--------------------------------------------------------------------------------
0/1             up/down         switching           0
0/2             up/down         switching           0
0/3             up/down         switching           0
0/4             up/down         switching           0
.
.
.
```

```
0/27              up/down             switching           0
0/28              up/down             switching           0
0/29              up/down             switching           0
0/30              up/down             switching           0
30 records displayed
[OFOS]
```

In the output, the `name` is the port number as seen on the rear panel. The `state` is of the local port/peer port. The `mode_state` is the condition of the link. The `guid` is the GUID of the peer port.

f. **If in the output of these commands a port is identified as being in a `down` state, or if a link `mode_state` is other than `switching`, replace the cable attached to that port.**

See "Remove a Data Cable" on page 79.

g. **Exit the host console.**

Type `exit` and press the Enter key, then press the Esc key and type `(`.

```
[OFOS] exit
[root@nsn156-168 ~]#
Serial console stopped.
->
```

6. **If you are unable to determine if a data cable is faulty, seek further information.**

See "Detecting and Managing Faults" on page 17.

Related Information

- "Identifying Data Cable Types" on page 72
- "Remove a Data Cable" on page 79
- "Install a Data Cable" on page 90
- "Verify a Data Cable" on page 97
- "(Optional) Clean the PrizmMT Receptacle or Connector Ferrule" on page 97

▼ Remove a Data Cable

Removing a single data cable is a hot-swap operation. If you are removing all data cables as part of a switch replacement, the switch must be powered off.

This task describes how to remove the cables from the switch, so that the cable can be replaced. Whenever possible, label each end of the cable with the port number and location. If you are removing all cables for switch replacement, start removing the cables from the left side of the switch, working your way to the right.

> **Note -** These instructions are valid for both IB and Ethernet data cables.

1. **Determine which data cable to remove.**

    See "Locate a Faulty Data Cable" on page 75.

2. **Consider your next step.**

    ■   **If you have not performed the tasks as directed in "Preparing for Service" on page 61, you must do so now.**

        See "Preparing for Service" on page 61.

    ■   **If you have completed those prerequisite tasks, continue to the next step.**

3. **Locate the cable to be removed.**

4. **(Optional) If necessary, label that cable so that its corresponding port, its peer, or both, are identified.**

5. **Consider your next steps.**

    If you are removing all cables for switch replacement, start with the PrizmMT cables.

    ■   **If you are removing a PrizmMT cable, go to Step 6.**

    ■   **If you are removing an assembled fiber optic QSFP cable, go to Step 7.**

    ■   **If you are removing an LC cable, go to Step 8.**

    ■   **If you are removing an RJ-45 cable, go to Step 9.**

6. **Remove a PrizmMT cable.**

    a. **Pinch the PrizmMT cable connector housing between your thumb and forefinger.**

        The housing is either magenta or black colored.

From the chassis.
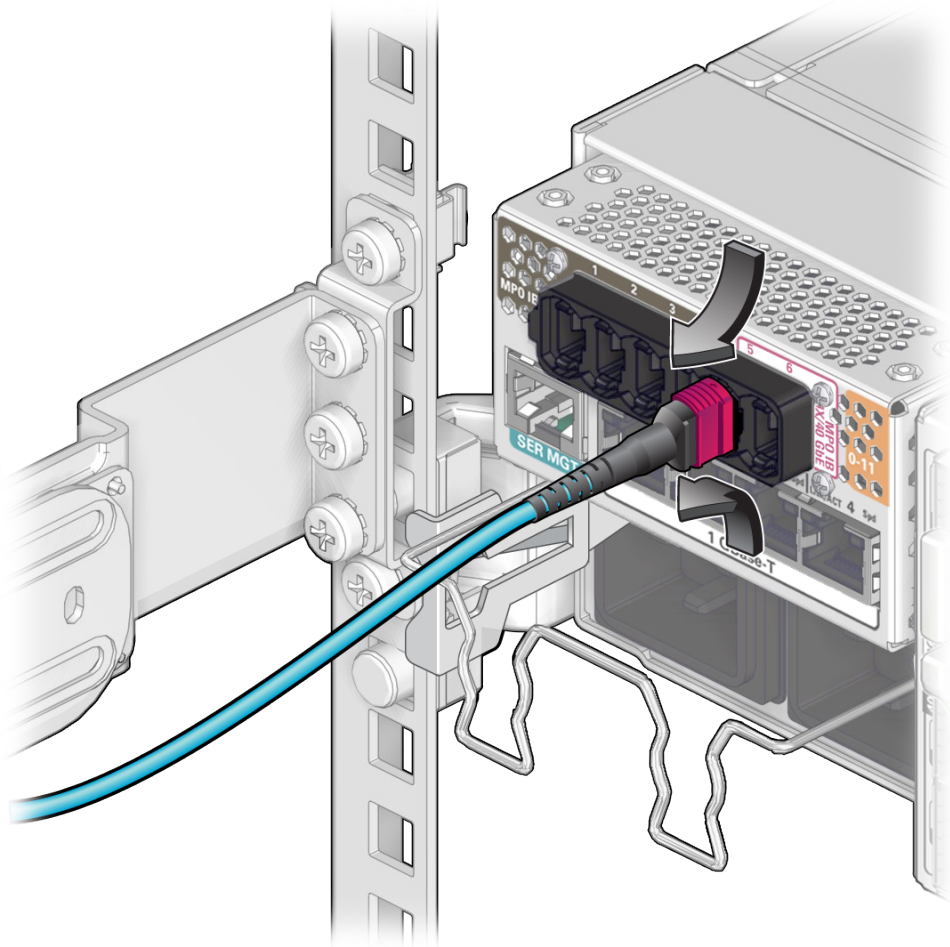
b. **With a steady force, pull the PrizmMT connector straight out of the receptacle.**

c. **Insert a filler plug into the receptacle.**

d. **Go to Step 10.**

7. **Remove an assembled fiber optic QSFP cable.**

a. Grasp the release collar on the MTP connector and pull back.
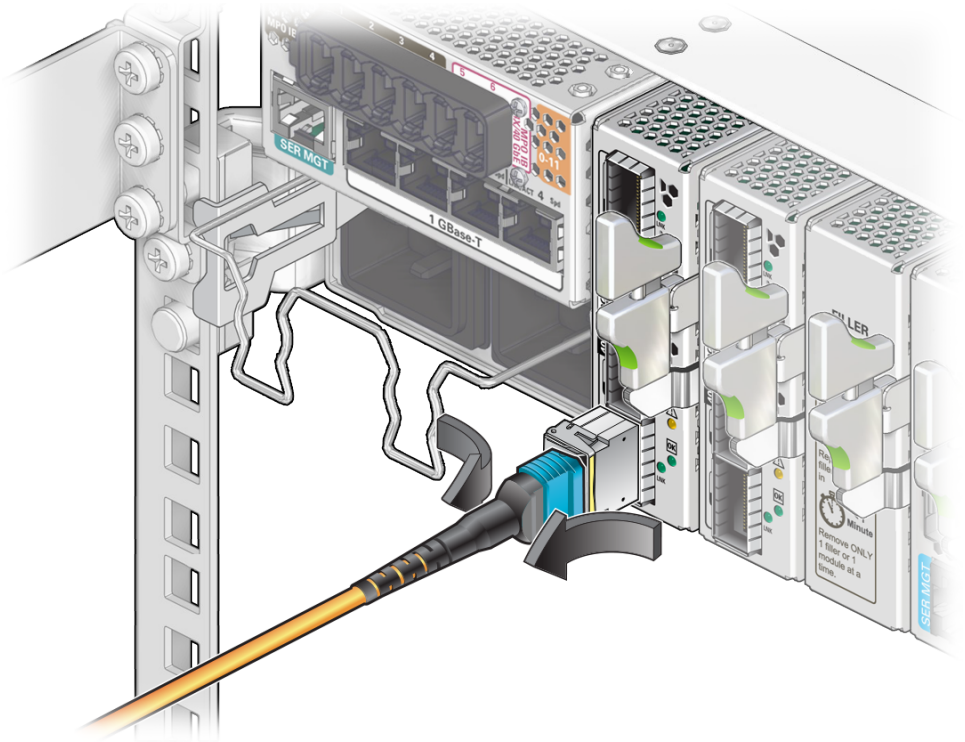
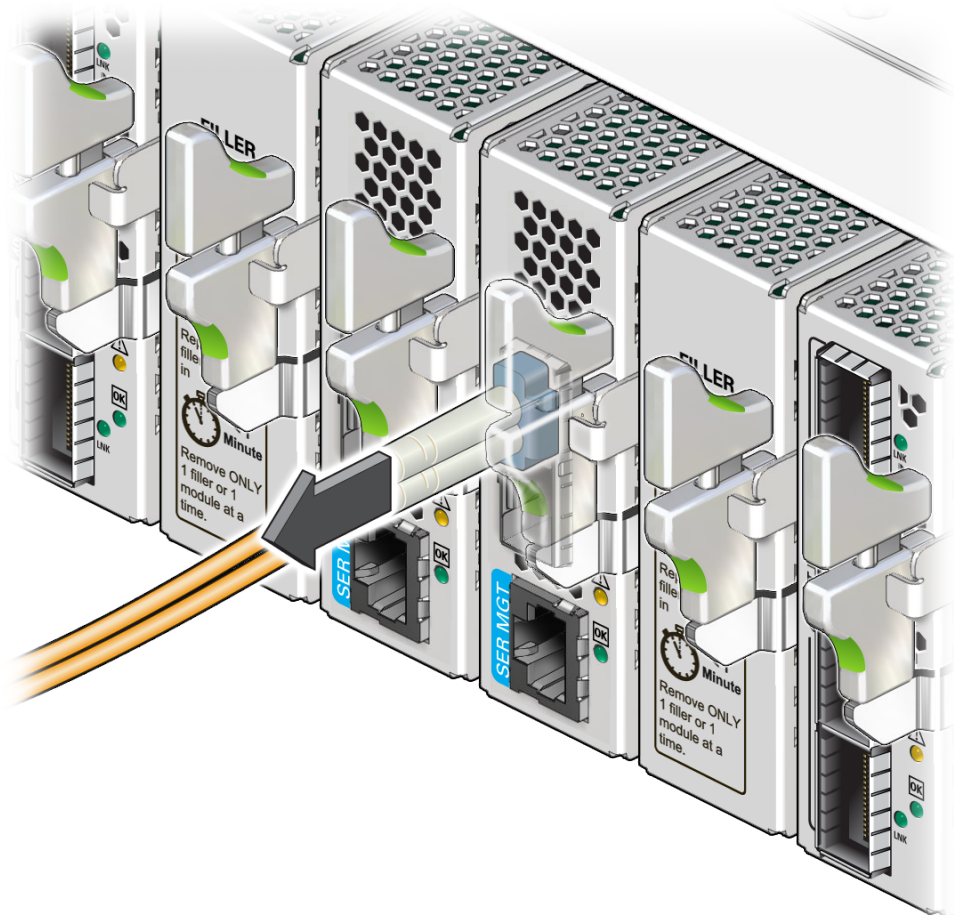The LC connector and fiber optic cable come free of the transceiver.

b. **Release the latch on the QSFP transceiver and pull on the latch to remove the transceiver.**
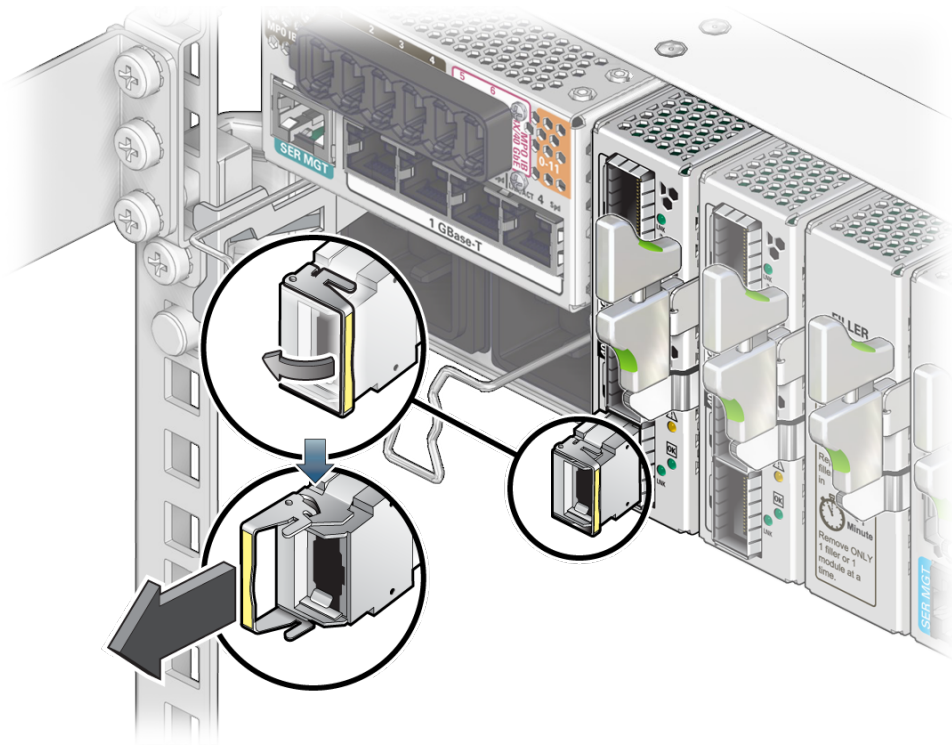
The transceiver comes free.

c. **Set the transceiver aside.**

d. **Go to Step 10.**

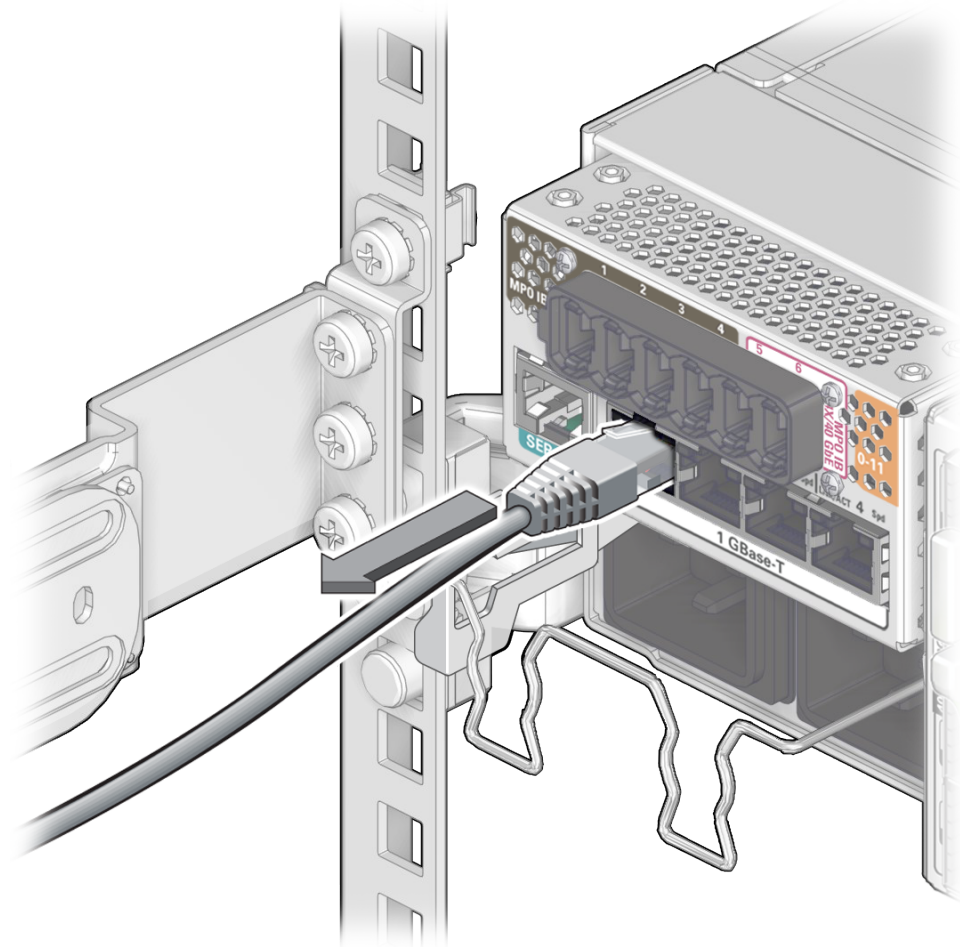**8.** **Remove an LC cable.**

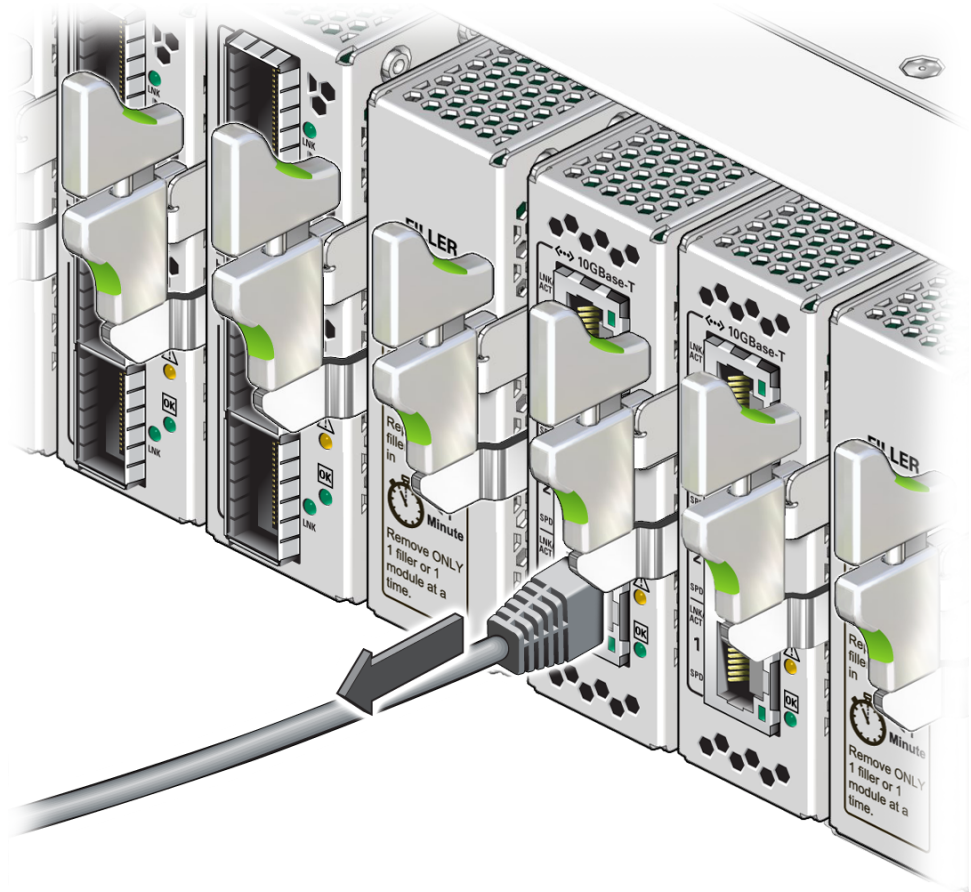a.   **Press the release tab on the LC connector and pull back.**

The LC connector and fiber optic cable come free of the transceiver.

b.   **Go to Step 10.**

9.   **Remove an RJ-45 cable.**

a.   **Pinch the tab and opposite side of the RJ-45 connector between your thumb and forefinger.**

Use either your thumb or forefinger to depress the release tab.

From the Oracle F2 Quad Port 10GBASE-T module.

b. **Pull the RJ-45 connector straight out of the receptacle.**

10. **Carefully move the cable out of the cable management comb.**

11. **Cap the end of the cable if possible.**

12. **Repeat Step 3 to Step 11 for any additional cables to be removed.**

13. **Consider your next steps.**

- **If you removed a data cable as part of a replacement operation, disconnect the other end of the cable, and install a new data cable.**

  See "Install a Data Cable" on page 90.

- **If you removed all of the data cables as part of another service task, return to that task now.**

Related Information

- "Identifying Data Cable Types" on page 72
- "Locate a Faulty Data Cable" on page 75
- "Install a Data Cable" on page 90
- "Verify a Data Cable" on page 97
- "(Optional) Clean the PrizmMT Receptacle or Connector Ferrule" on page 97

# ▼ (Optional) Assemble the QSFP and SFP+ Cables

If the optical QSFP or SFP+ cables are unassembled, you must assemble the cables before attaching them to the switch.

Note - The ends of the optical fiber cable and the receptacles of the transceivers must be clean and optically clear before assembly. Do not remove the protective caps from the optical fiber cable or the plugs from the transceivers until instructed to do so.

---

1. **Identify the prerequisite and subsequent installation tasks that you must perform in conjunction with this task.**

   See:

   - **"Identifying Data Cable Types" on page 72**

   - **"Locate a Faulty Data Cable" on page 75**

   - **"Remove a Data Cable" on page 79**

2. **Remove the QSFP optical transceivers, SFP+ optical transceivers, and fiber optic cables from their packaging.**

3. **Sort the components into groupings ready for assembly.**

   - **If you are to assemble an Infiniband cable or Ethernet pass-through cable, you will need two QSFP optical transceivers and a fiber optic cable.**

- **If you are to assemble an Ethernet splitter cable, you will need one QSFP optical transceiver, four SFP+ optical transceivers, and an optical splitter cable.**

4. **Remove the plug from the QSFP optical transceiver.**

5. **Remove the cap from the MTP connector of the fiber optic cable.**

6. **Holding the shaft of the MTP connector, insert the MTP connector into the receptacle of the QSFP optical transceiver.**

   Note - The MTP connector and QSFP transceiver receptacle are keyed for proper fitting.
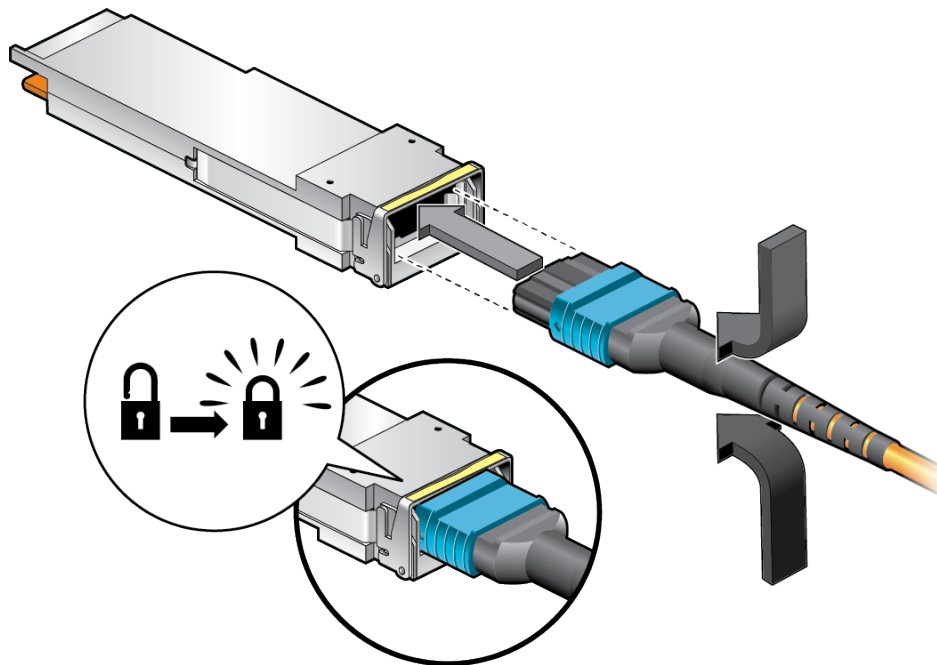
7. **Push the connector into the transceiver until it clicks.**

8. **Consider your next step.**

   - **If you are assembling an InfiniBand cable or Ethernet pass-through cable, repeat Step 4 to Step 7 for the other end of the cable, and then go to Step 9.**

   - **If you are assembling an Ethernet splitter cable, go to Step 9.**

9. **Remove the plug from an SFP+ optical transceiver.**

10. **Remove the caps from an LC connector of the fiber optic cable.**

11. **Holding the shafts of the LC connector, insert the LC connector into the receptacles of the SFP+ optical transceiver.**

    Note - The LC connector and SFP+ receptacles are keyed for proper fitting.
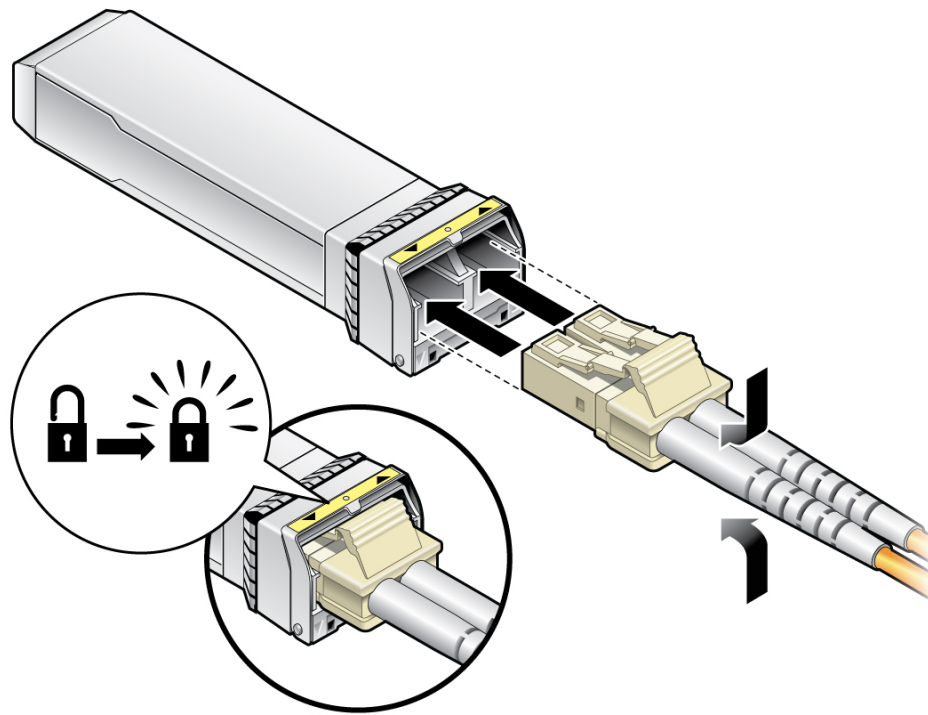
12. **Push the connector into the transceiver until it clicks.**

13. **Repeat from Step 9 for all SFP+ optical transceivers and LC connectors.**

14. **Repeat from Step 3 for all data cables to be assembled.**

15. **Install the cable or return to that task.**

    See "Install a Data Cable" on page 90.

Related Information

- "Identifying Data Cable Types" on page 72
- "Remove a Data Cable" on page 79
- "Install a Data Cable" on page 90

▼ Install a Data Cable

Installing a single data cable is a hot-swap operation. If you are installing all data cables at one time, the switch should be in a powered off state.

1. **Consider your first steps.**

   ■ **If you are replacing a data cable, remove the faulty or obsolete data cable first, then return to Step 2 of this task.**

     See "Remove a Data Cable" on page 79.

   ■ **If you are installing a replacement cable, go to Step 2.**

   ■ **If you are adding an additional data cable, see "Preparing for Service" on page 61, and then go to Step 2.**

   ■ **If you are installing a data cable as part of a switch installation task, go to Step 5.**

2. **If you are installing an optical fiber QSFP cable that needs assembly, assemble the cable now.**

   See "(Optional) Assemble the QSFP and SFP+ Cables" on page 87.

3. **Connect the replacement cable to the remote location, and route it to the switch.**

   See "Route the Cables" in *Oracle Fabric Interconnect F2-12 Installation Guide*.

4. **Bring the cable to the switch and remove its protective cap, if installed.**

5. **Consider your next steps.**

   If you are installing all cables as part of a switch replacement, start with the RJ-45 cables.

   ■ **If you are installing an RJ-45 cable, go to Step 6.**

   ■ **If you are installing an LC cable, go to Step 7.**

   ■ **If you are installing a QSFP cable, go to Step 8.**

■ **If you are installing a PrizmMT cable, go to Step 9.**

6. **Install an RJ-45 cable.**

   a. **Align the RJ-45 connector to where it will install into the receptacle.**

   For the chassis, the tab on the connector is up.
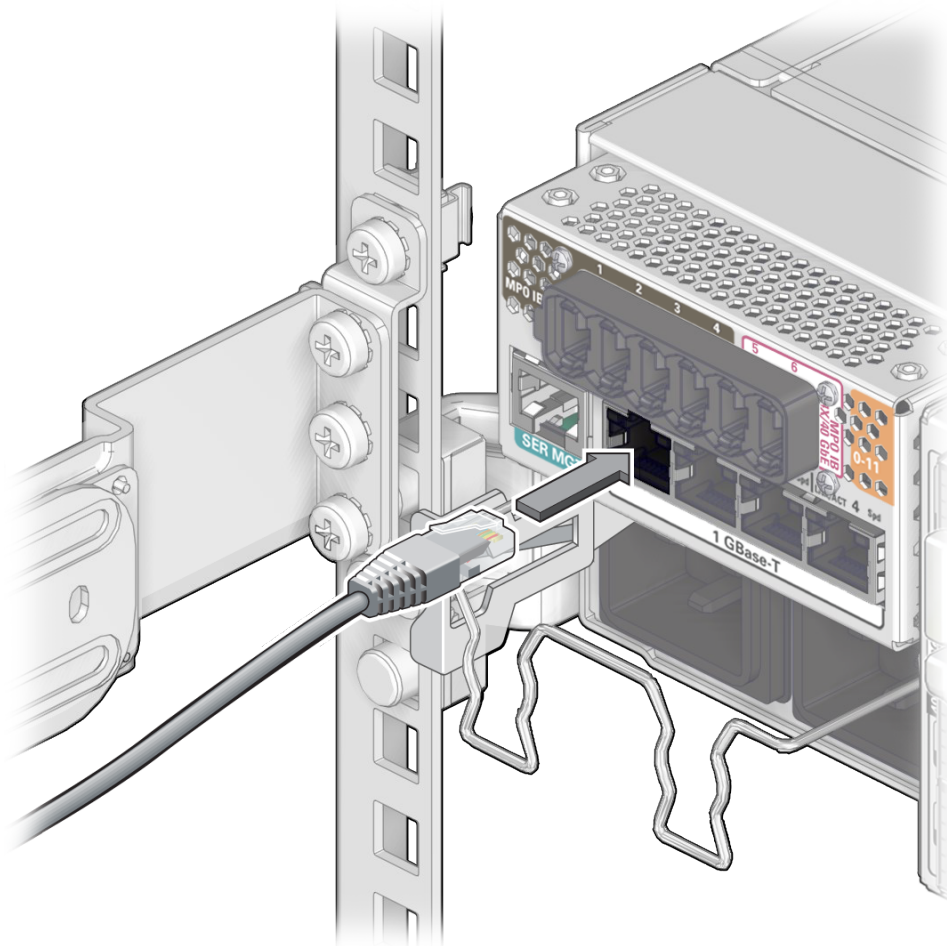
For the Oracle F2 Quad Port 10GBASE-T module, the tab on the connector is to the right.
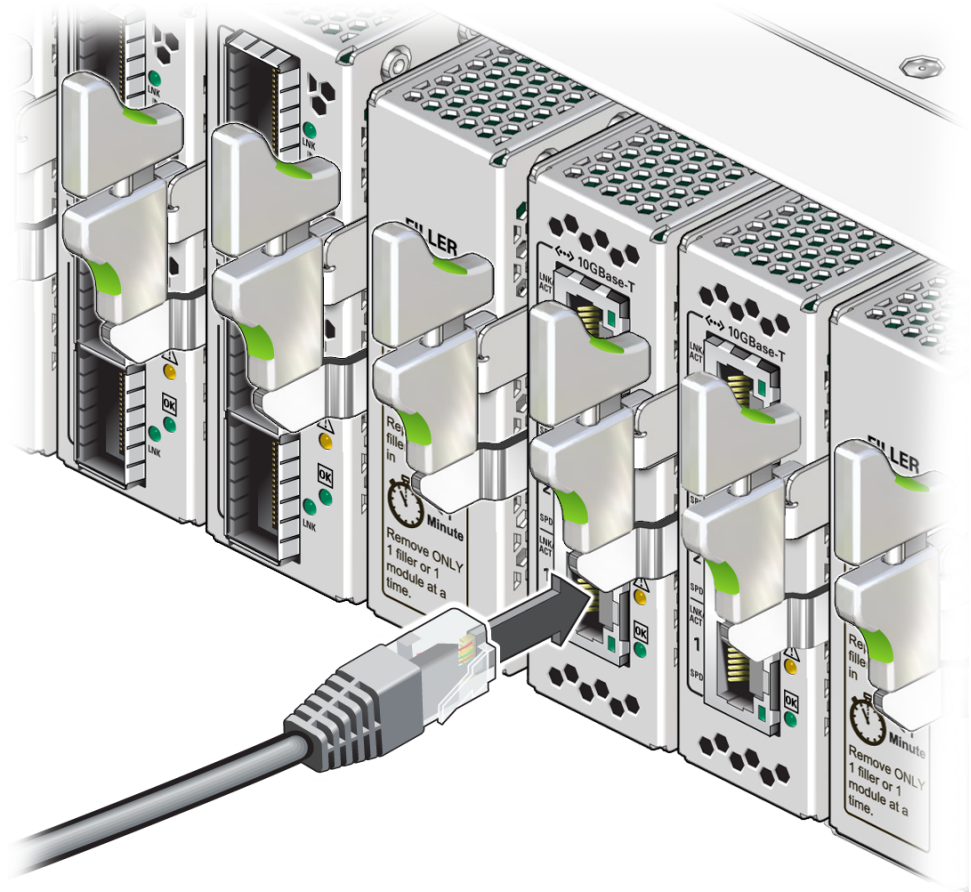
    b. **Firmly press the RJ-45 connector into the receptacle until you hear a click.**

    c. **Go to** **Step 10.**

7. **Install an LC cable.**

    a. **Remove the protective caps from the LC connector.**

    b. **Orient the cable connector to the LC receptacle squarely and vertically.**

Ensure that the release tabs are to the right.
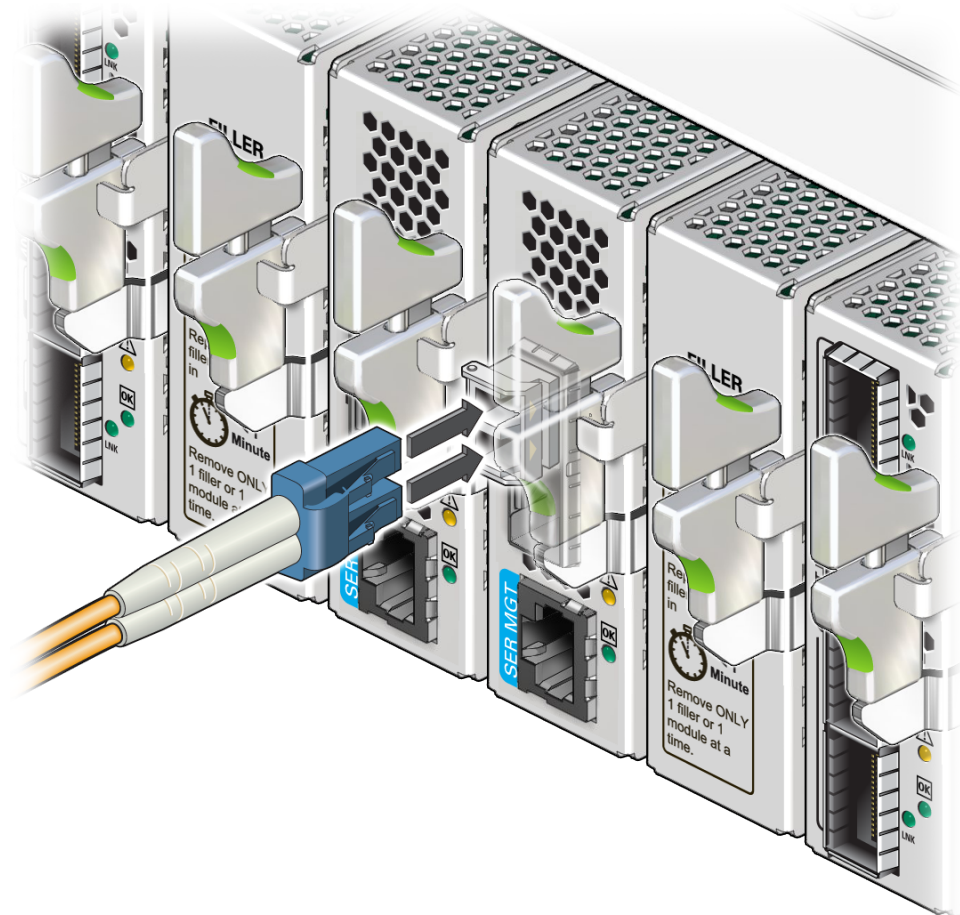
      c. **Push the connector in until you feel a click.**

      d. **Go to Step 10.**

8. **Install a QSFP cable.**

      a. **Remove the protective cap from the connector or transceiver and visually inspect the cable connector.**

The shell should not be bent and should be parallel to the inner boards. If the connector is bent or damaged, use a different cable.

b. **Ensure that the retraction strap is folded back against the cable.**

c. **Orient the cable connector to the QSFP receptacle squarely and vertically.**

For the Oracle F2 10 Gb and 40 Gb Ethernet module and Oracle F2 InfiniBand Long Range module:
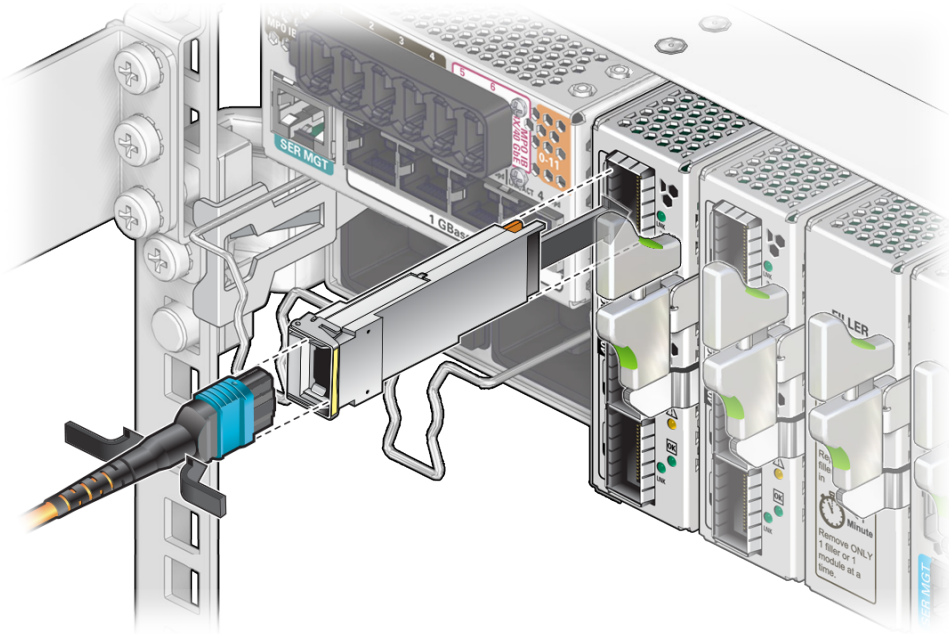
d. **Slowly move the connector in and continue to push until you feel it click into place or completely seat into the module.**

e. **Go to Step 10.**

9. **Install a PrizmMT cable.**

Note - Only PrizmMT receptacles labeled 5 and 6 are for 4x magenta-colored housing PrizmMT cables. All other PrizmMT receptacles are for 12x black-colored housing PrizmMT cables.

a. **Remove any filler plug (if installed) from the PrizmMT receptacle where you are installing the cable and visually inspect the receptacle.**

The receptacle should be clean and free of dirt or debris. If the receptacle is dirty, clean it. See "(Optional) Clean the PrizmMT Receptacle or Connector Ferrule" on page 97.

b. **Remove the protective cap from the cable connector and visually inspect the connector.**

The connector should be clean and free of dirt or debris. If the connector is dirty, clean it. See "(Optional) Clean the PrizmMT Receptacle or Connector Ferrule" on page 97.

c. **Align the PrizmMT connector to where it will connect.**

For the chassis, the connector is vertical.
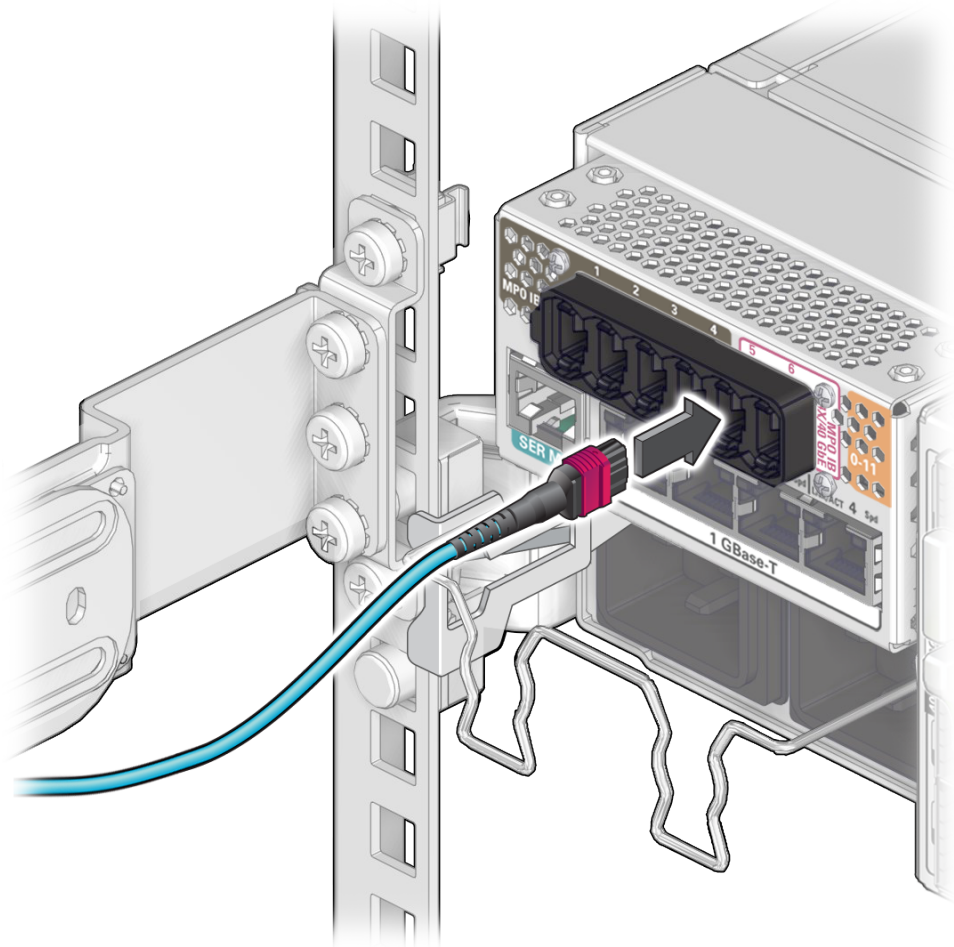
d. Firmly press the PrizmMT connector into the receptacle until you feel it click into place or completely seat into the port receptacle.

10. Lay the cable into the cable management comb.

11. If you installed a data cable as part of a switch configuration, return to that task.

See "Configure the Replacement Switch" on page 157.

12. Repeat Step 2 through Step 10 for any additional cables to be installed.

13. **Consider your next steps.**

- **If you installed a data cable as part of a replacement operation, or if you have installed a new data cable, verify the data cable.**
  See "Verify a Data Cable" on page 97.

- **If you have installed data cables as part of another task, return to that task.**

Related Information

- "Identifying Data Cable Types" on page 72
- "Locate a Faulty Data Cable" on page 75
- "Remove a Data Cable" on page 79
- "Verify a Data Cable" on page 97
- "(Optional) Clean the PrizmMT Receptacle or Connector Ferrule" on page 97

▼ Verify a Data Cable

After you install a data cable, you can verify its functionality.

1. **Verify that the data cable is no longer considered faulty.**
   See "Locate a Faulty Data Cable" on page 75, then return to this task.

2. **If the known good replacement data cable is still identified as faulty, check the cable's connection remote from the switch.**
   See "Detecting and Managing Faults" on page 17 for assistance.

3. **If you are verifying the data cable as part of another task, return to that task.**

Related Information

- "Identifying Data Cable Types" on page 72
- "Locate a Faulty Data Cable" on page 75
- "Remove a Data Cable" on page 79
- "Install a Data Cable" on page 90
- "(Optional) Clean the PrizmMT Receptacle or Connector Ferrule" on page 97

▼ (Optional) Clean the PrizmMT Receptacle or Connector Ferrule

Perform this procedure when you install a PrizmMT cable.

1. **Determine your first step.**

   - **If you are cleaning a receptacle, go to Step 2.**

   - **If you are cleaning a connector, go to Step 9.**

2. **Remove the adapter from the end of the PrizmMT cleaner.**

3. **Insert the cleaner tip into the receptacle.**

4. **Advance the feeder wheel one-eighth turn in the direction of the arrow.**

5. **Remove the cleaner from the receptacle and check cleanliness by looking for any contaminants in the receptacle.**

6. **Repeat from Step 3 if the fibers are still dirty.**

7. **Replace the adapter onto the end of the PrizmMT cleaner.**

8. **Return to "Install a Data Cable" on page 90.**

9. **Open the lid of the adapter on the end of the PrizmMT cleaner.**

10. **Insert the connector into the adapter.**

11. **Advance the feeder wheel one-eighth turn in the direction of the arrow.**

12. **Remove the connector from the adapter and verify cleanliness.**

13. **Repeat from Step 10 if the fibers are still dirty.**

14. **Close the lid of the adapter on the end of the PrizmMT cleaner.**

15. **Return to "Install a Data Cable" on page 90.**

Related Information

- "Identifying Data Cable Types" on page 72
- "Locate a Faulty Data Cable" on page 75
- "Remove a Data Cable" on page 79
- "Install a Data Cable" on page 90
- "Verify a Data Cable" on page 97

Servicing Fan Modules

Fan modules contain two redundant fan units that are variable speed. The four fan modules are located across the front of the switch chassis. See "Identifying Components" on page 11.

![Caution icon]

Caution - To maintain proper temperature within the switch chassis, install the replacement fan module within 30 seconds of removing the faulty fan module.

| Description	Links
Identify a faulty fan module.	"Fan Module LED" on page 99
	"Locate a Faulty Fan Module" on page 100
Replace a faulty fan module.	"Remove a Fan Module" on page 103
	"Install a Fan Module" on page 104
	"Verify a Fan Module" on page 106

Related Information

- "Identifying Components" on page 11
- "Detecting and Managing Faults" on page 17
- "Preparing for Service" on page 61
- "Servicing Data Cables" on page 71
- "Servicing I/O Modules" on page 109
- "Servicing Power Supplies" on page 129
- "Replacing the Switch" on page 141

Fan Module LED

The status of each fan module is represented by an amber Attention LED. The LED is located on the fan's front at the lower right corner. This illustration and table describe the

functionality of the fan module LED. Use this information for the task "Locate a Faulty Fan Module" on page 100.
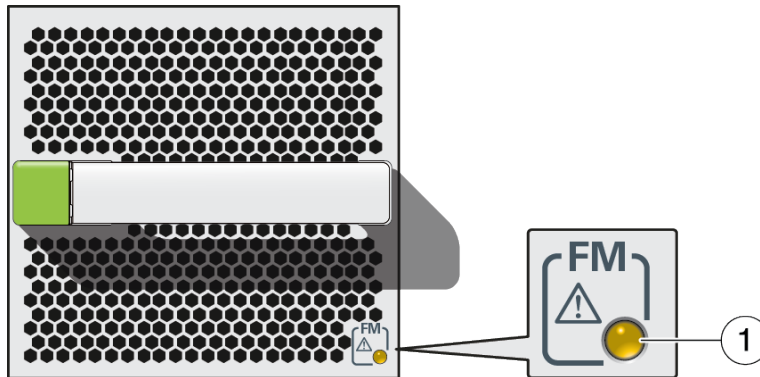
No.	Icon	Name	Color	State and Meaning
1	⚠	Attention Service Required	Amber	Indicates these conditions: ■ **On** – Fault detected. ■ **Off** – No faults detected.

Related Information

- "Locate a Faulty Fan Module" on page 100
- "Remove a Fan Module" on page 103
- "Install a Fan Module" on page 104
- "Verify a Fan Module" on page 106

▼ Locate a Faulty Fan Module

You must determine which fan module is faulty before you replace it.

1. **Consider your first step.**

   - **If you are at the switch, go to Step 2.**

   - **If you are remote to the switch, go to Step 4.**

2. **Check to see if the Service Action Required LED at the bottom front corner of the fan is on.**

See "Front Panel LEDs" on page 34.

3. **Visually inspect the fan module Attention LEDs to see if any are on.**

See "Fan Module LED" on page 99.

- **If a fan module is faulty, replace it.**

   Start at "Remove a Fan Module" on page 103.

- **If you cannot determine if a fan module is faulty, go to Step 4.**

4. **Access the Oracle ILOM CLI.**

See "Accessing the SP" on page 37.

5. **Determine if a fan module has become problematic.**

```
-> show /System/Open_Problems
Open Problems (1)
Date/Time                  Subsystems         Component
------------------------   ------------------   ------------
Thu Dec 17 05:18:44 2015  System             FMx (Fan Module)
 fault.chassis.device.fan.fail (Probability:100, UUID:0ebf1655-8700-c90e-fa53-ea6c3b2b25a0, Resource:/
SYS/FMx, Part
 Number:N/A, Serial Number:N/A, Reference Document:http://support.oracle.com/msg/---)
->
```

where x is 0 to 3.

- **If you see the word `fan` and Oracle ILOM target `/SYS/FMx` in the output, then replace that fan module.**

   Start at "Remove a Fan Module" on page 103.

- **If you see a different component identified in the output, then service that component.**

   See "Open Problem Faults" on page 46 and "Oracle ILOM Legacy Target Replaceable Components" on page 30.

6. **Display the health status of the cooling system.**

```
-> show /System/Cooling -t health
Target                     | Property  | Value
---------------------------+-----------+------
/System/Cooling            | health    | OK
/System/Cooling/Fans/Fan_0 | health    | Service Required
/System/Cooling/Fans/Fan_1 | health    | OK
```

```
/System/Cooling/Fans/Fan_2  | health     | OK
/System/Cooling/Fans/Fan_3  | health     | OK
/System/Cooling/Fans/Fan_4  | health     | OK
/System/Cooling/Fans/Fan_5  | health     | OK
/System/Cooling/Fans/Fan_6  | health     | OK
/System/Cooling/Fans/Fan_7  | health     | OK
->
```

If any fan's health has a value other than OK, replace that fan module. See "Oracle ILOM /System Target Replaceable Components" on page 29 to determine which fan module to replace. Then, start at "Remove a Fan Module" on page 103.

7. **Within the Oracle ILOM interface, display the fault state of the fan modules.**

```
-> show /SYS -t fault_state
Target             | Property              | Value
-------------------+-----------------------+-------
/SYS               | fault_state           | OK
/SYS/FM0           | fault_state           | Faulted
/SYS/FM0/FAN0      | fault_state           | Faulted
/SYS/FM0/FAN1      | fault_state           | OK
/SYS/FM1           | fault_state           | OK
/SYS/FM1/FAN0      | fault_state           | OK
/SYS/FM1/FAN1      | fault_state           | OK
/SYS/FM2           | fault_state           | OK
/SYS/FM2/FAN0      | fault_state           | OK
/SYS/FM2/FAN1      | fault_state           | OK
/SYS/FM3           | fault_state           | OK
/SYS/FM3/FAN0      | fault_state           | OK
/SYS/FM3/FAN1      | fault_state           | OK
.
.
.
->
```

In the output, look for the rows beginning with /SYS/FM.

If a fan module's fault states are anything other than OK, replace the fan module. Start at "Remove a Fan Module" on page 103.

8. **If you are unable to determine if a fan module is faulty, seek further information.**

See "Detecting and Managing Faults" on page 17.

Related Information

- "Fan Module LED" on page 99
- "Remove a Fan Module" on page 103
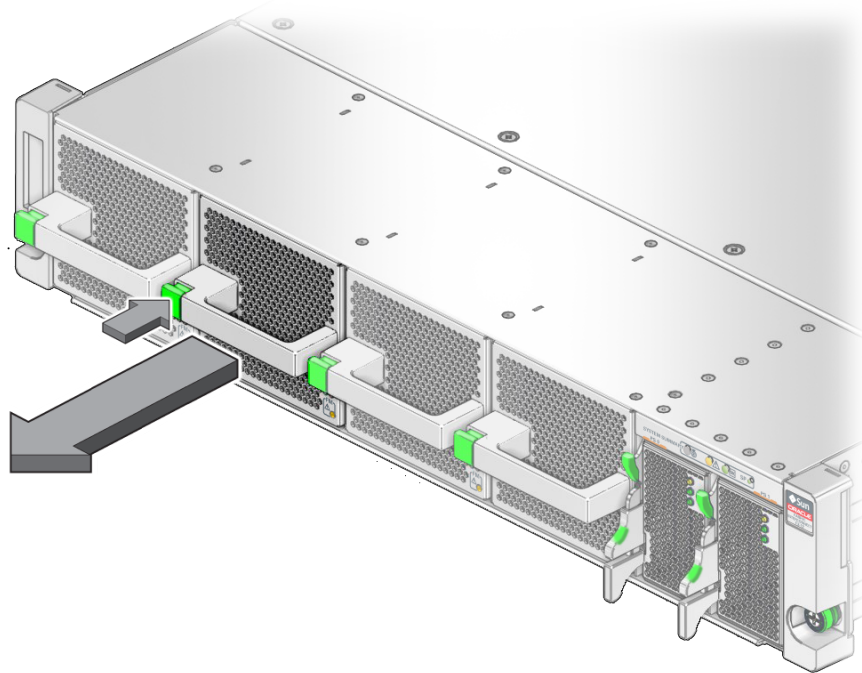- "Install a Fan Module" on page 104
- "Verify a Fan Module" on page 106

▼ Remove a Fan Module

Removing a fan module is a hot-swap operation. You do not need to power off the switch before you remove the fan module.

⚠️ **Caution -** To maintain proper temperature within the switch chassis, install the replacement fan module within 30 seconds of removing the faulty fan module.

1. **Determine which fan module to remove.**
   See "Locate a Faulty Fan Module" on page 100.

2. **Consider your next step.**

   ■ **If you have not prepared for service, you must do so now.**
     See "Preparing for Service" on page 61.

   ■ **If you have completed those prerequisite tasks, continue to Step 3.**

3. **Grasp the handle, press the release button, and pull the fan module straight out.**

4.   **Set the fan module aside.**

5.   **Consider your next step:**

■   **If you removed the fan module as part of another service task, return to that task.**

■   **If you are replacing a faulty fan module, continue to "Install a Fan Module" on page 104.**

Related Information

▼   Install a Fan Module

Installing a fan module is a hot-swap operation. You do not need to power off the switch before installing the fan module.

1.   **If you are replacing a fan module, remove the faulty or obsolete fan module first, then return to this task.**
See .

2.   **Align the fan module to the opening in the switch chassis with the release button on the left.**
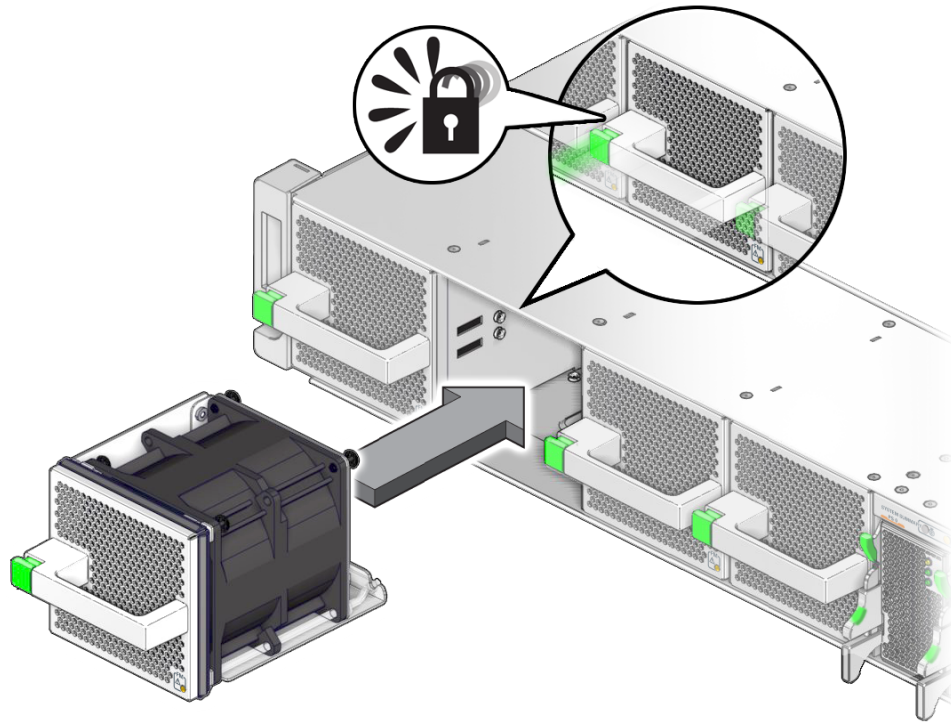
3.   **Firmly slide the fan module into the chassis until the fan module seats with a click.**

If the switch is powered on, the fan module immediately powers on.

4.   **Consider your next step:**

   ■   **If you installing a fan module as part of another task, return to that task.**

   ■   **If you are installing a new fan module, continue to the next step.**

5.   **Verify that the fan module Attention LED goes out.**

   ■   **If the Attention LED stays on, go to "Verify a Fan Module" on page 106.**

   ■   **If the Attention LED goes out, go to "Returning the Switch to Operation" on page 161.**

Related Information

-
-
-
-

▼ Verify a Fan Module

After you install a fan module, you can verify its functionality.

1. **From the Oracle ILOM CLI, reset the fan module.**

   ```
   -> set /SYS/FMx clear_fault_action=true
   ```

   where x is 0 to 3. For example, to reset fan module FM1, type:

   ```
   -> set /SYS/FM1 clear_fault_action=true
   Are you sure you want to clear /SYS/FM1 (y/n)? y
   Set 'clear_fault_action' to 'true'

   ->
   ```

2. **Verify that the fan module is no longer considered faulty.**

   See , then return to this task.

3. **Check the fan speed.**

   ```
   -> show /SYS/FMx/FANy/TACH value
   ```

   where x is 0 to 3 and y is 0 or 1. For example, to check the fan speed of FAN1 inside of fan module FM1, type:

   ```
   -> show /SYS/FM1/FAN1/TACH value
    /SYS/FM1/FAN1/TACH
     Properties:
       value = 21040 rpm
   ->
   ```

   Properly functioning fans should be operating at speeds between 6000 and 24000 RPM.

Related Information

-
-
-

-

Servicing I/O Modules

These topics describe how to replace an I/O module installed in the switch. If you are installing a new I/O module, refer to the I/O module documentation (`http://www.oracle.com/goto/f2-io-mod/docs)` for instructions.

⚠️ **Caution -** To maintain the proper air flow when the switch is powered on, all filler panels and I/O modules must remain in the switch unless you are in the process of installing or servicing an I/O module or filler panel.

⚠️ **Caution -** Remove only one filler panel or I/O module at a time, and replace the filler panel or I/O module within one minute.

Description	Links
Identify a faulty I/O module.	"I/O Module LEDs" on page 110
	"Locate a Faulty I/O Module" on page 110
Replace a faulty I/O module.	"Disconnect the I/O Module From the Switch Fabric" on page 113
	"Remove an I/O Module" on page 113
	"Install an I/O Module" on page 117
	"Verify an I/O Module" on page 121
	"Add the I/O Module to the Switch Fabric" on page 122

Related Information

- "Switch Rear Components" on page 12
- "Rear Panel Components" on page 15
- "Servicing Filler Panels" on page 123
- I/O module documentation

Preparing I/O Modules for Service

All Oracle F2 I/O modules are hot-swappable. If you remove an I/O module, but do not insert a replacement module within a small amount of time, install a filler panel to ensure proper airflow and prevent contaminants from entering the chassis.

Use these topics to identify a faulty I/O module and disconnect it from the switch fabric.

- "I/O Module LEDs" on page 110
- "Locate a Faulty I/O Module" on page 110
- "Disconnect the I/O Module From the Switch Fabric" on page 113

Related Information

- "Rear Panel Components" on page 15
- I/O module documentation

I/O Module LEDs

Each I/O module has it own set of front panel LEDs that inform you when the I/O module is operating correctly and if it requires service. For the descriptions of the I/O module LEDs, refer to the I/O module documentation at: `http://www.oracle.com/goto/f2-io-mod/docs`.

Related Information

- "Locate a Faulty I/O Module" on page 110
- "Disconnect the I/O Module From the Switch Fabric" on page 113

▼ Locate a Faulty I/O Module

You must determine which I/O module is faulty before you replace it.

Note - This task documents using Oracle ILOM to locate a faulty I/O module. If you are in Oracle Fabric OS, you can also use the `show iocard` *slot-number*, `show fc-ports`, or `show ethernet-ports` commands to query the identify a faulty module.

1. **Consider your first step.**

   - **If you are at the switch, go to Step 2.**

   - **If you are remote to the switch, go to Step 4.**

2. **Check to see if the Attention LED is on.**

   Each I/O module has an amber Attention LED on its front panel. Refer to the I/O module documentation (`http://www.oracle.com/goto/f2-io-mod/docs`) for more information about the I/O module LEDs.

3. **Visually inspect the Link LEDs to see if any are any issues with the I/O module ports.**

   Refer to the I/O module documentation (`http://www.oracle.com/goto/f2-io-mod/docs`) for more information about the I/O module LEDs.

   - **If an I/O module is faulty, replace it.**

     Start at "Disconnect the I/O Module From the Switch Fabric" on page 113.

   - **If you cannot determine if an I/O module is faulty, go to Step 4.**

4. **Access the Oracle ILOM CLI.**

   See "Accessing the SP" on page 37.

5. **Issue show `/System/Open_Problems` to determine if an I/O module has become problematic.**

   If the output contains the strings, `MODULE` or `/SYS/MODULES/MODULE`*x* where *x* is a number from 0 to 11, then that I/O module is faulty. Start at "Disconnect the I/O Module From the Switch Fabric" on page 113.

6. **(Optional) Locate the module.**

   ```
   → show /System/Networking/Modules/Module_5/ location

     /System/Networking/Modules/Module_5
       Properties:
           location = MODULE5 (Network Module 5)
   ```

7. **Display the health status of the I/O modules.**

   ```
   -> show /System/Networking/MODULES/ -t health
   Target             | Property               | Value
   -------------------+-----------------------+---------------------------------
   /System/           | health                | OK
    Networking/        |                       |
   ```

```
 Modules/Module_0  |                        |
/System/           | health                 | OK
 Networking/        |                        |
 Modules/Module_1  |                        |
/System/           | health                 | OK
 Networking/        |                        |
 Modules/Module_3  |                        |
/System/           | health                 | OK
 Networking/        |                        |
 Modules/Module_5  |                        |
/System/           | health                 | Service Required
 Networking/        |                        |
 Modules/Module_6  |                        |
/System/           | health                 | OK
 Networking/        |                        |
 Modules/          |                        |
 Module_10         |                        |
->
```

If any I/O module's health has a value other than `OK`, replace that I/O module. Start at .

8. Display the fault state of the I/O modules.

```
-> show /SYS -t fault_state
Target             | Property               | Value
-------------------+------------------------+----------------------------------
/SYS               | fault_state            | OK
.
.
.
/SYS/MODULES/      | fault_state            | OK
 MODULE0           |                        |
/SYS/MODULES/      | fault_state            | OK
 MODULE1           |                        |
/SYS/MODULES/      | fault_state            | OK
 MODULE3           |                        |
/SYS/MODULES/      | fault_state            | OK
 MODULE5           |                        |
/SYS/MODULES/      | fault_state            | Faulted
 MODULE6           |                        |
/SYS/MODULES/      | fault_state            | OK
 MODULE10          |                        |
.
.
.
->
```

In the output, look for the rows beginning with `/SYS/MODULES`.

9. After identifying a faulty module, do either of the following:

- **If a module's fault state has a value other than OK, replace that I/O module.**

  Start at "Disconnect the I/O Module From the Switch Fabric" on page 113.

- **If you are unable to determine if an I/O module is faulty, seek further information.**

  See "Detecting and Managing Faults" on page 17.

Related Information

- "Rear Panel Components" on page 15
- "Disconnect the I/O Module From the Switch Fabric" on page 113
- "Remove an I/O Module" on page 113

▼ Disconnect the I/O Module From the Switch Fabric

Before you can physically remove an I/O module from the switch, first disconnect it from the Oracle Fabric virtualization switch and then delete the I/O card information from the database. Refer to the Oracle Fabric OS documentation for the specific procedures.

1. **Follow the instructions in the *Oracle Fabric OS 1.0.2 Administration Guide* to disconnect the I/O module from the switch fabric.**

   Refer to "Remove a Module" in *Oracle Fabric OS 1.0.2 Administration Guide*.

2. **Continue to "Remove an I/O Module" on page 113.**

   ### Related Information

   - "Remove an I/O Module" on page 113
   - "Add the I/O Module to the Switch Fabric" on page 122
   - "Configuring the Virtualization Switch and I/O Modules" in *Oracle Fabric OS 1.0.2 Administration Guide*
   - I/O module documentation

▼ Remove an I/O Module

While I/O modules are hot-swappable components, you must first prepare the I/O modules for server.

> **Note -** This task provides generic instructions for removing an I/O module. Refer to the I/O module documentation for instructions specific to your I/O module.

1. **If you have not already prepared for service, do so now.**

   See "Preparing for Service" on page 61.

2. **Prepare the I/O module for service.**

   See the "Preparing I/O Modules for Service" on page 110.

3. **Label and remove any I/O cables from the I/O module.**

   For specific instructions on removing cables, refer to the I/O module documentation and see "Servicing Data Cables" on page 71.

4. **Squeeze the upper and lower halves of the release lever together, and pull the lever in a downward motion.**

   Pulling the release lever downward unseats the I/O module from the slot.

Note - While the illustrations in this task show the Oracle F2 10 Gb and 40 Gb Ethernet module, all I/O modules are removed from the switch using this same procedure.
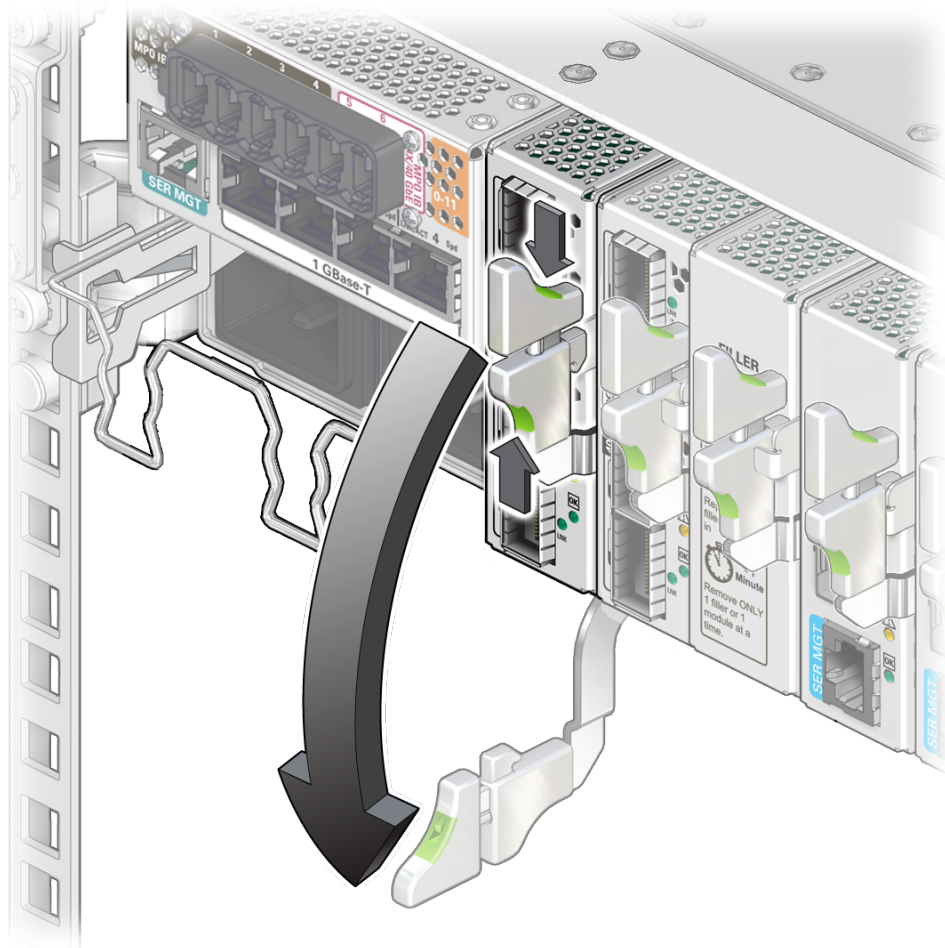
5. Use the release lever to pull the I/O module from the switch chassis.
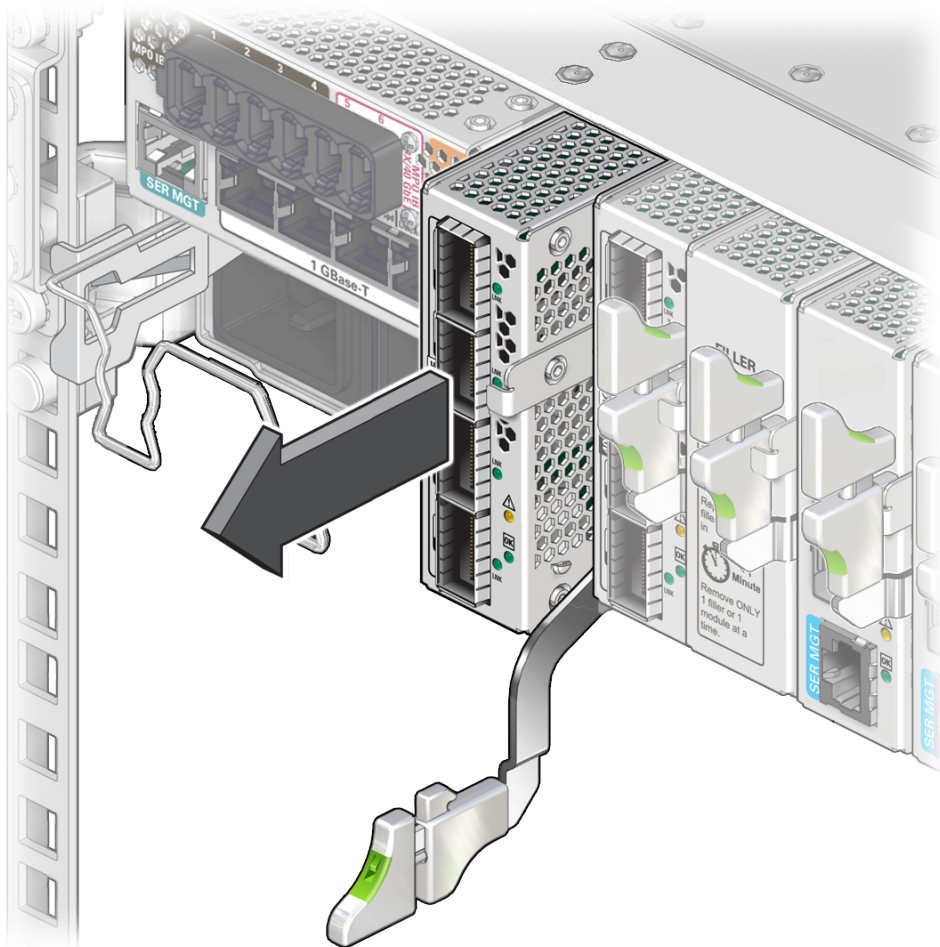
6. Use your free hand to support the weight of the I/O module as you pull it free of the chassis.

Set the I/O module aside on an ESD-safe mat or work surface.

⚠️ **Caution -** To maintain proper airflow, replace the I/O module or install a filler panel in the empty slot within one minute of removing the I/O module.

7. Determine your next step:

- **If you will be replacing the I/O module, or installing a new I/O module, continue to "Install an I/O Module" on page 117.**

- **If you removed this I/O module as part of another service task, return to that task.**

Related Information

- "Switch Rear Components" on page 12
- "Rear Panel Components" on page 15
- I/O module documentation

▼ Install an I/O Module

> **Note -** This task assumes that you are replacing an I/O module. If you are installing a new I/O module in the switch, refer to the I/O module documentation (`http://www.oracle.com/goto/f2-io-mod/docs`).

1. **If you are replacing a I/O module, remove the faulty component first, then return to this task.**

   See "Remove an I/O Module" on page 113.

2. **Locate the slot where you will install the I/O module.**

   For the I/O module slot locations, see "Rear Panel Components" on page 15.

3. **Depress the top of the release lever, and lower the release lever to the fully open position.**

> **Note -** While the illustrations in this task show the Oracle F2 10 Gb and 40 Gb Ethernet module, all I/O modules are installed in the switch using this same procedure.

4. **Align the I/O module to the slot.**

   The release lever should be to the lower right.

5.   Slide the I/O module into the chassis.
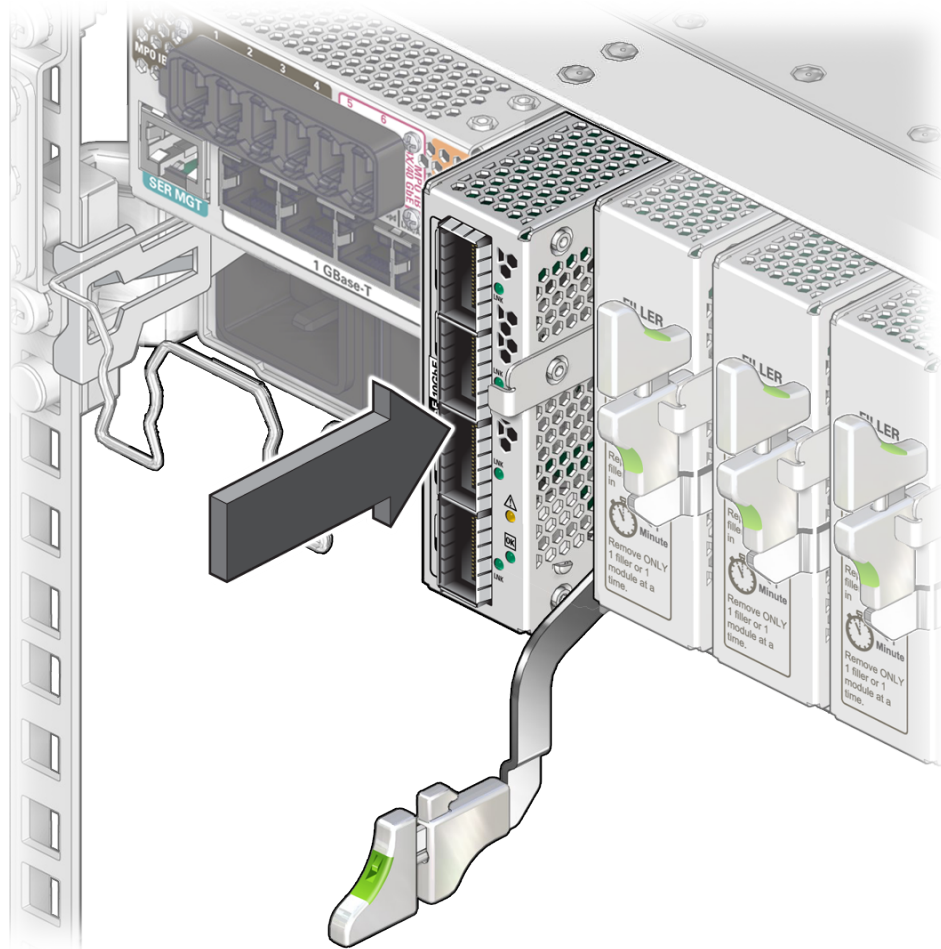
6.   When the I/O module is almost completely seated in the slot and the release lever begins to rise, press down slightly on the top of the I/O module to ensure

that the notch at the end of the release lever catches on to the slot's groove and secures the I/O module.
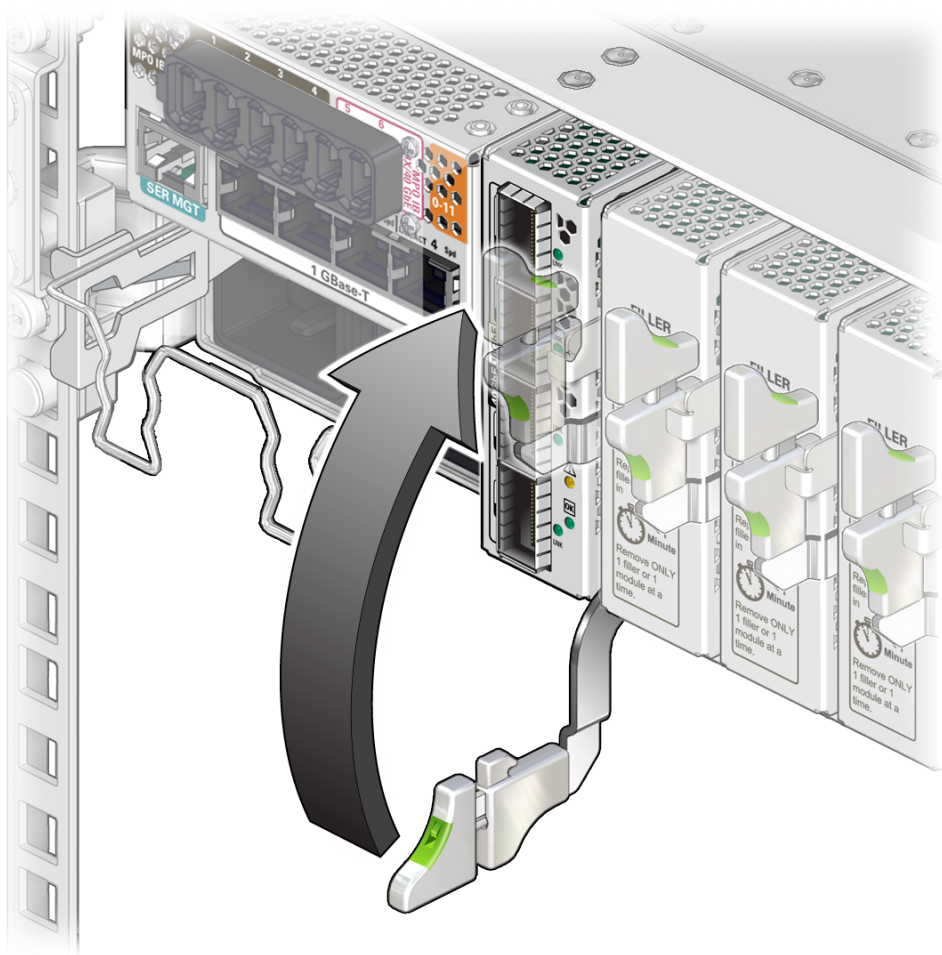
7. **Lift the release lever until it locks the I/O module in the slot.**

8. **Allow the module to power on, then check the operational state indicated by its LEDs.**

   See the "I/O Modules Status LEDs" topics in the corresponding I/O Module user guides.

9. **Attach I/O cables to the I/O module.**

   For specific instructions, refer to the I/O module documentation and see "Servicing Data Cables" on page 71.

10. **Determine your next step:**

   - If you have installed a replacement I/O module, go to "Verify an I/O Module" on page 121.
   - If you have installed a new I/O module, refer to the *Oracle Fabric OS 1.0.2 Administration Guide* for configuration instructions for features available to the module.
   - If you installed this I/O module as part of another service task, return to that task.

   Related Information

   - "Switch Rear Components" on page 12
   - "Rear Panel Components" on page 15
   - I/O module documentation

▼ Verify an I/O Module

After you install an I/O module, it should automatically be recognized in the virtualization switch and boot up successfully. You can use this task to verify the module's functionality.

1. **From the Oracle ILOM CLI, check the module status.**

   ```
   -> show /SYS/MODULES/MODULEx fault_state
   ```

   where *x* is `0` to `11`. For example, to display the module status for I/O module `MODULE0`, type:

   ```
   -> show /SYS/MODULES/MODULE0 fault_state

     /SYS/MODULES/MODULE0
       Properties:
           fault_state = OK
   ```

2. **If the module is not in state `OK`, reset the I/O module.**

   ```
   -> reset /SYS/MODULES/MODULEx
   ```

   where *x* is `0` to `11`. For example, to reset I/O module `MODULE0`, type:

   ```
   -> reset /SYS/MODULES/MODULE0
   Are you sure you want to reset /SYS/MODULES/MODULE0 (y/n)? y
   Performing reset on /SYS/MODULES/MODULE0
   ->
   ```

3. **Wait for a few minutes for the module to complete its reset.**

4. **Verify that the I/O module is no longer considered faulty.**

   See "Locate a Faulty I/O Module" on page 110, then return to this task.

5. **Verify that all data cables connected to the I/O module are not faulty.**

    See "Locate a Faulty Data Cable" on page 75, then return to this task.

6. **Enable I/O module functionality.**

    Refer to the *Oracle Fabric OS 1.0.2 Administration Guide*.

7. **Continue to "Add the I/O Module to the Switch Fabric" on page 122.**

    Related Information

    - "Locate a Faulty I/O Module" on page 110
    - "Configuring the Virtualization Switch and I/O Modules" in *Oracle Fabric OS 1.0.2 Administration Guide*
    - I/O module documentation

▼ Add the I/O Module to the Switch Fabric

After installing and verifying the replacement I/O module, add it to the Oracle Fabric virtualization switch. Refer to the Oracle Fabric OS documentation for the specific procedures.

●   **Follow the instructions in the *Oracle Fabric OS 1.0.2 Administration Guide* to add the I/O module to the switch fabric.**

    Refer to "Add a Module" in *Oracle Fabric OS 1.0.2 Administration Guide*.

    Related Information

    - "Configuring the Virtualization Switch and I/O Modules" in *Oracle Fabric OS 1.0.2 Administration Guide*
    - "Disconnect the I/O Module From the Switch Fabric" on page 113
    - "Install an I/O Module" on page 117
    - I/O module documentation

Servicing Filler Panels

Unused I/O module slots ship with installed filler panels. These filler panels do not contain active components, so you can replace them while the switch is powered on.

⚠ **Caution -** To maintain the proper air flow when the switch is powered on, all filler panels and I/O modules must remain in the switch unless you are in the process of installing or servicing an I/O module or filler panel.

⚠ **Caution -** Remove only one filler panel or I/O module at a time, and replace the filler panel or I/O module within one minute.

- "Remove a Filler Panel" on page 123
- "Install a Filler Panel" on page 126

Related Information

- "Identifying Components" on page 11
- "Detecting and Managing Faults" on page 17
- "Preparing for Service" on page 61
- "Servicing Data Cables" on page 71
- "Servicing Fan Modules" on page 99
- "Servicing I/O Modules" on page 109
- "Servicing Power Supplies" on page 129
- "Replacing the Switch" on page 141

▼ Remove a Filler Panel

I/O module filler panels have no active components. You can remove a filler panel without first powering down the switch.

1. **If you have not already prepared for service, do so now.**

See "Preparing for Service" on page 61.

2. **Locate the filler panel that you will remove.**

   For the I/O module slot locations, see "Rear Panel Components" on page 15.

3. **Squeeze the upper and lower halves of the release lever together, and pull the lever in a downward motion.**

   The filler panel is unseated from the slot connection.
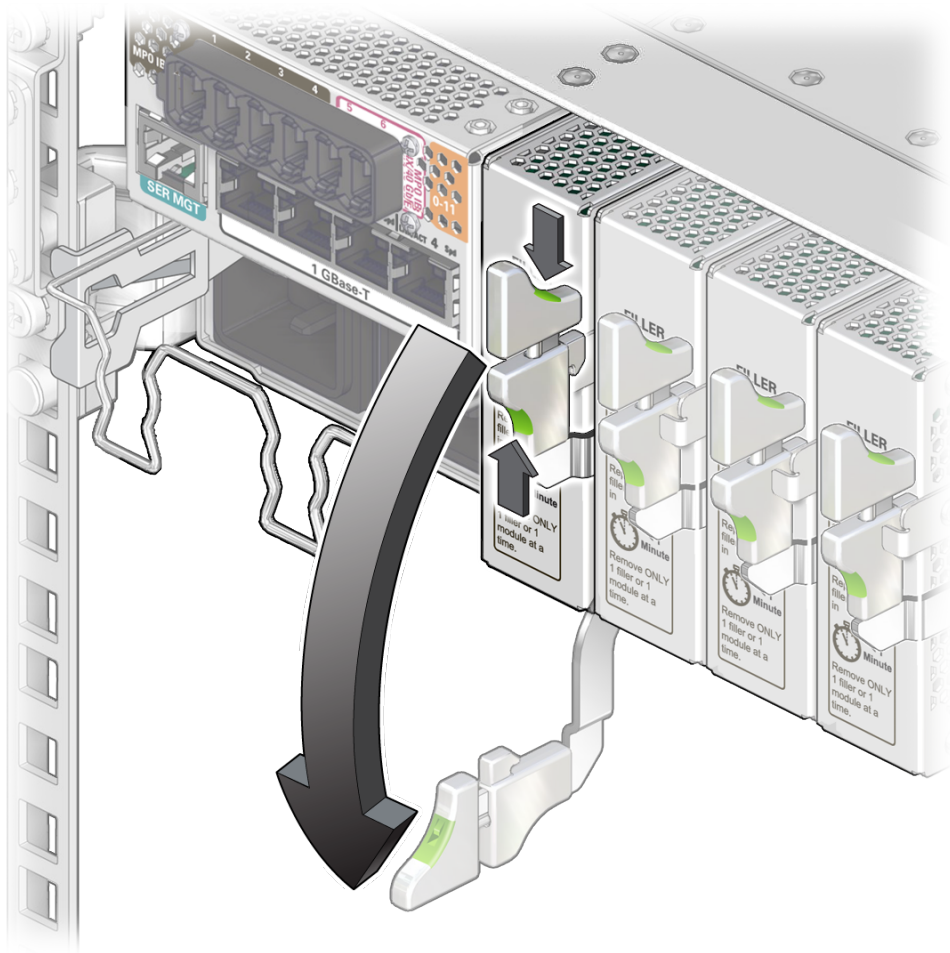
4.   Use the release lever to pull the filler panel from the switch chassis.
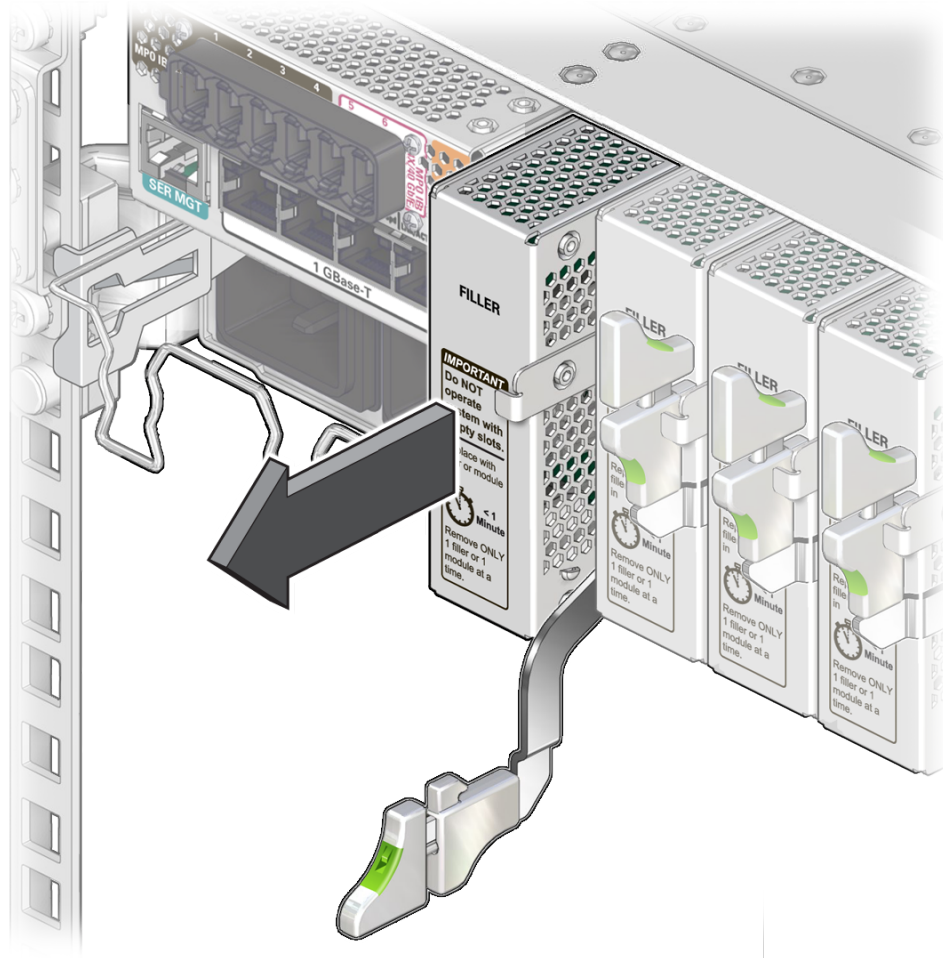
5.   Use your free hand to take the weight of the filler panel, as it comes free of the chassis.

Set the filler panel aside.

6.   Determine your next step:

   ■   **If you will be installing an I/O module into the empty slot, continue to "Install an I/O Module" on page 117.**

- **If you removed this filler panel as part of another service task, return to that task.**

- **If you will be installing a new filler panel, continue to "Install a Filler Panel" on page 126.**

Related Information

- "Switch Rear Components" on page 12
- "Rear Panel Components" on page 15
- "Servicing I/O Modules" on page 109

▼ Install a Filler Panel

I/O module filler panels have no active components. You can install a filler panel without first powering down the switch.

1. **If you are replacing a filler panel or I/O module with a new filler panel, remove the faulty component first, then return to of this task.**

   - **To remove an filler panel, go to "Remove an I/O Module" on page 113, and then continue to the next step.**

   - **To remove an I/O module, go to "Remove a Filler Panel" on page 123, and then continue to the next step.**

2. **Locate the I/O module slot where you will install the filler panel.**

   For the I/O module slot locations, see "Rear Panel Components" on page 15.

3. **Depress the top of the release lever, and lower the release lever to the fully open position.**

4. **Align the filler panel to the slot where you are installing it.**

   The release lever should be to the lower right.

5.   Slide the filler panel into the chassis.
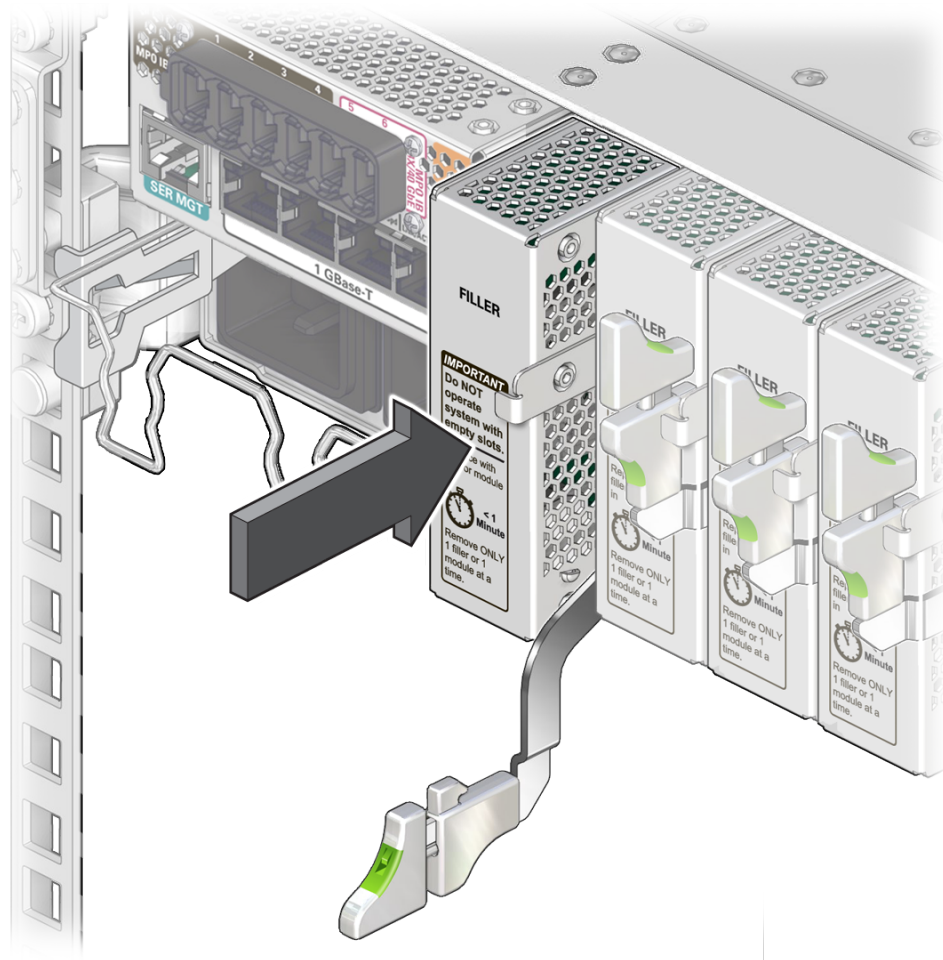
6.   When the filler panel is almost completely seated in the slot and the release lever begins to rise, press down slightly on the top of the filler panel to ensure that the

notch at the end of the release lever catches on to the slot's groove and secures the filler panel.
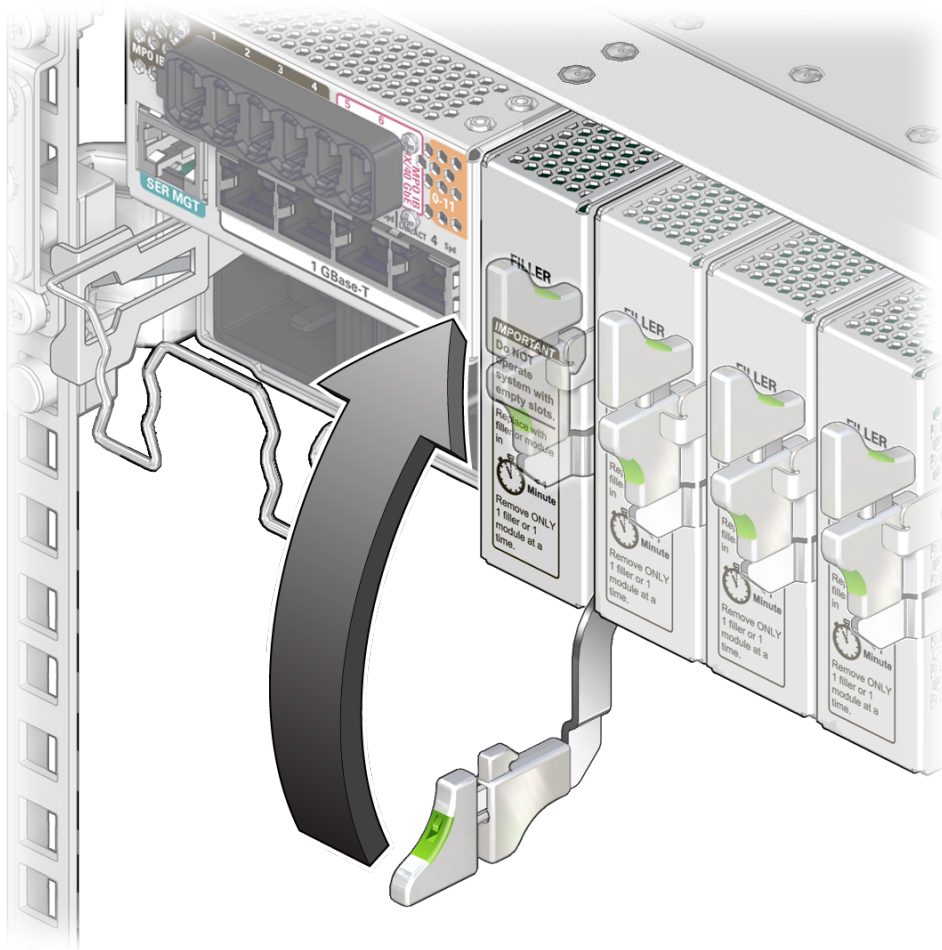
7. **Lift the release lever until the it locks the filler panel in the slot.**

   If you installed this filler panel as part of another service task, return to that task.

   Related Information

   - "Switch Rear Components" on page 12
   - "Rear Panel Components" on page 15
   - "Servicing I/O Modules" on page 109

Servicing Power Supplies

The switch has two power supplies, `PS0` and `PS1`, which provide the 12 VDC necessary to power the switch. The power supplies are located at the right side of the front panel. See "Identifying Components" on page 11.

Description	Links
Identify a faulty power supply.	"Power Supply LEDs" on page 129
	"Locate a Faulty Power Supply" on page 131
Replace a faulty power supply.	"Remove a Power Supply" on page 133
	"Install a Power Supply" on page 136
	"Verify a Power Supply" on page 139

Related Information

- "Identifying Components" on page 11
- "Detecting and Managing Faults" on page 17
- "Preparing for Service" on page 61
- "Servicing Data Cables" on page 71
- "Servicing Fan Modules" on page 99
- "Servicing I/O Modules" on page 109
- "Replacing the Switch" on page 141

Power Supply LEDs

The status of each power supply is represented by three LEDs. The LEDs are located on the front of each PS, at the top right corner. This illustration and table describe the functionality of the power supply LEDs. Use this information for the task "Locate a Faulty Power Supply" on page 131.
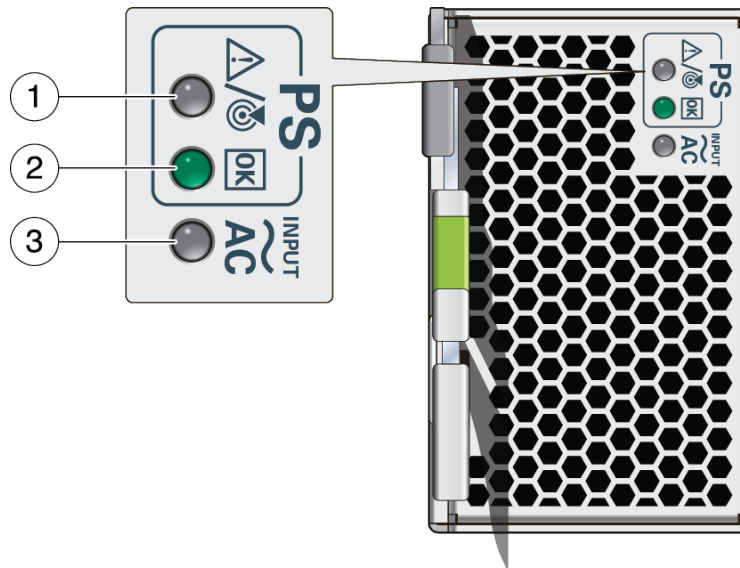
No.	Icon	Location	Name	Color	State and Meaning
1	⚠	Top	Attention	Amber	In *Attention* mode, the LED is in a solid glowing state and indicates these conditions: ■ **On** – Fault detected. ■ **Off** – No faults detected.
	⬙		Service Required		In *Service Required* mode, the LED is in a fast blink state to locate and identify the PS that needs service.
2	OK	Middle	OK	Green	Indicates these conditions: ■ **On** – Power supply is functional without fault. ■ **Off** – Power supply is off or initializing, or there is no output power.
3	~ AC	Bottom	AC	Green	Indicates these conditions: ■ **On** – Input power present and good. ■ **Off** – Input power not present.

Related Information

- "Locate a Faulty Power Supply" on page 131
- "Remove a Power Supply" on page 133
- "Install a Power Supply" on page 136
- "Verify a Power Supply" on page 139

▼ Locate a Faulty Power Supply

You must determine which power supply is faulty before you replace it. As you look at the
power supplies, PS0 is on the left and PS1 is on the right.

Tip - An easy way to remember the power supply slots is that PS0 is always the "inside" power
supply, closest to the fans.

---

1. **Consider your first step.**

   - **If you are at the switch, go to Step 2.**

   - **If you are remote to the switch, go to Step 4.**

2. **Check to see if the Service Action Required LED is on.**
   See "Front Panel LEDs" on page 34.

3. **Visually inspect the power supply LEDs to see which LEDs are on.**
   See "Power Supply LEDs" on page 129.

   - **If a power supply is faulty, replace it.**
     Start at "Remove a Power Supply" on page 133.

   - **If you cannot determine if a power supply is faulty, go to Step 4.**

4. **Access the Oracle ILOM CLI.**
   See "Accessing the SP" on page 37.

5. **Determine if a power supply has become problematic.**

```
-> show /System/Open_Problems
Open Problems (1)
Date/Time                Subsystems        Component
-----------------------  ----------------  ------------
Thu Dec 17 05:17:11 2015  Power            PSx (Power Supply 1)
 fault.chassis.device.psu.fail (Probability:100, UUID:b516a939-23c2-ee8b-e997-d915ca03d044, Resource:/
SYS/PSx, Part
 Number:7065505-01, Serial Number:C92517, Reference Document:http://support.oracle.com/msg/---)
->
```

where *x* is 0 or 1.

   - **If you see psu and Oracle ILOM target /SYS/PS*x* in the output, then replace
     that power supply.**

Start at .

- **If you see a different component identified in the output, then service that component.**

  See and .

6. **Display the health status of the power system.**

```
-> show /System/power -t health
Target                                     | Property  | Value
-------------------------------------------+-----------+------
/System/Power                              | health    | OK
/System/Power/Power_Supplies/Power_Supply_0 | health    | OK
/System/Power/Power_Supplies/Power_Supply_1 | health    | Service Required
->
```

If any power supply's health has a value other than `OK`, replace that power supply. Start at .

7. **Within the Oracle ILOM interface, display the fault state of the power supplies.**

```
-> show /SYS -t fault_state
Target             | Property              | Value
-------------------+-----------------------+-------
/SYS               | fault_state           | OK
.
.
.
/SYS/PS0           | fault_state           | OK
/SYS/PS1           | fault_state           | Faulted
/SYS/SP            | fault_state           | OK
->
```

In the output, look for the rows beginning with `/SYS/PS`.

If any power supply's fault state has a value other than `ok`, replace that power supply. Start at .

8. **If you are unable to determine if a power supply is faulty, seek further information.**

See .

Related Information

-
-
-

- "Verify a Power Supply" on page 139

▼ Remove a Power Supply

Removing a power supply is a hot-swap operation. You do not need to power off the switch before you remove the power supply.

1. **Determine which power supply to remove.**

   See "Locate a Faulty Power Supply" on page 131.

2. **Consider your next step.**

   - **If you have not prepared for service, you must do so now.**

     See "Preparing for Service" on page 61.

   - **If you have completed those prerequisite tasks, go to Step 3.**

3. **Squeeze the upper and lower halves of the release lever together, and pull the lever in an upward motion.**
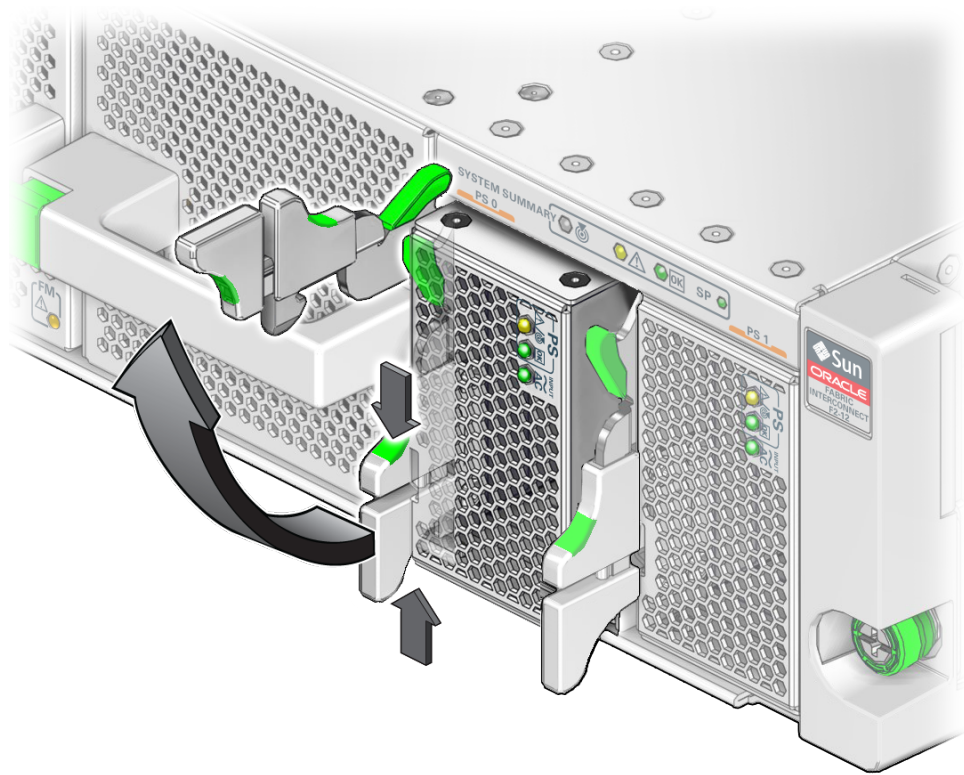
4. **Use the release lever to pull the power supply from the switch chassis.**
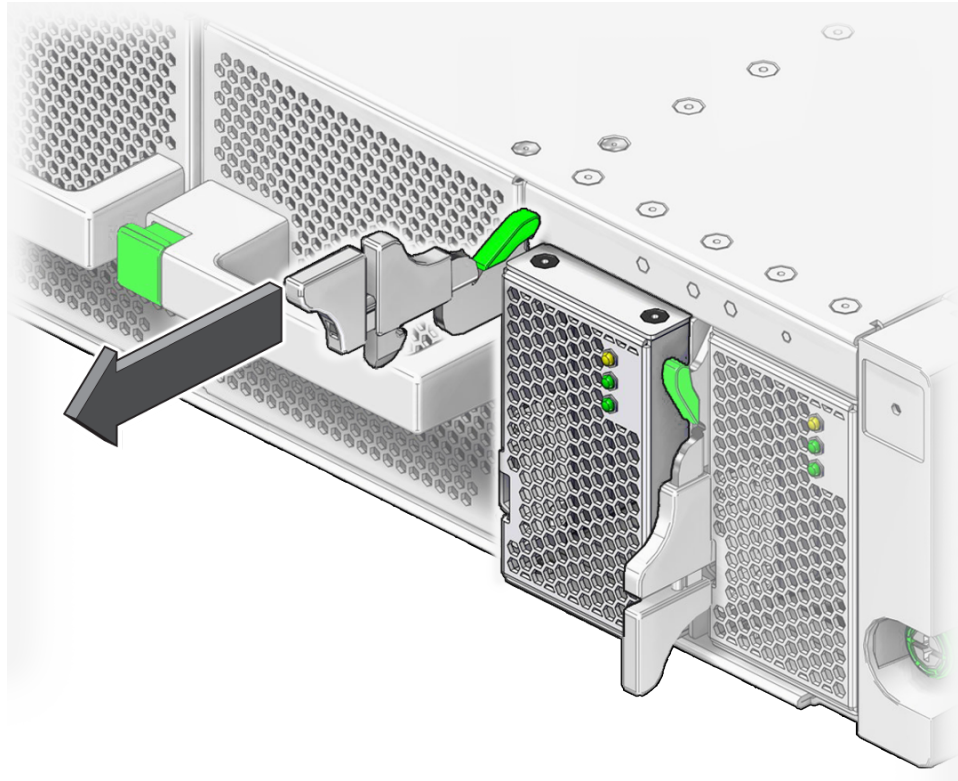
5. **Use your other hand to take the weight of the power supply as it exits the chassis.**

6. **Set the power supply aside.**

7. **Determine your next step:**

   ■ **If you removed the power supply as part of another service task, return to that task.**

   ■ **If you will be installing a new power supply, continue to "Install a Power Supply" on page 136.**

   ### Related Information

   ■ "Power Supply LEDs" on page 129

-
-
-

▼ Install a Power Supply

Installing a power supply is a hot-swap operation. You do not need to power off the switch before installing the power supply.

1. **If you are replacing a power supply, remove the faulty or obsolete power supply first, then return to of this task.**

   See .

2. **Squeeze the upper and lower halves of the release lever together, and pull the lever in an upward motion.**

3. **Align the power supply to the opening in the switch chassis with the release lever on the left and the status LEDs in the upper right corner.**
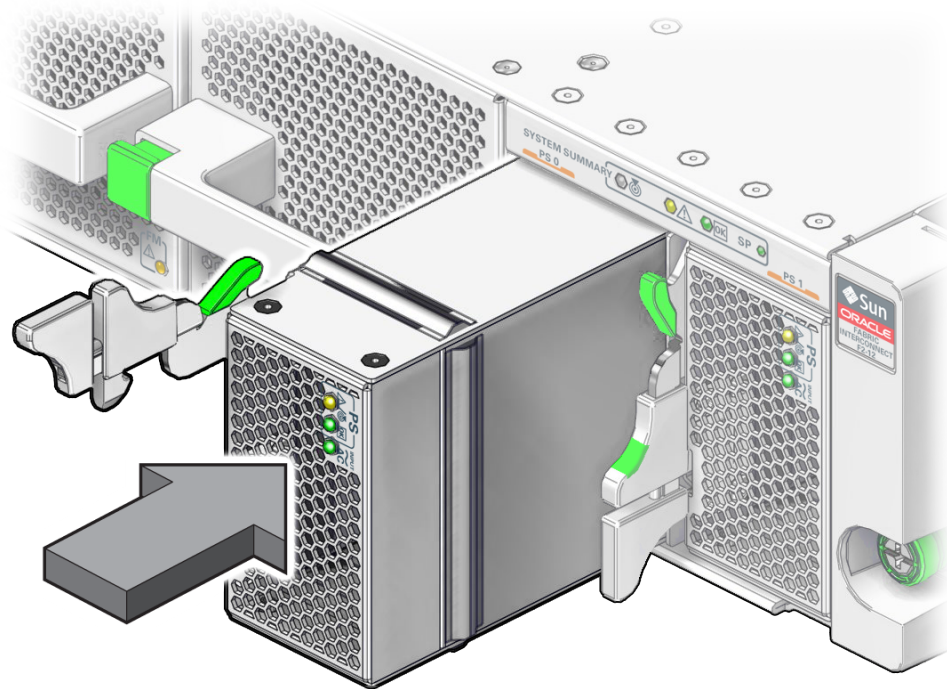
4. **Slide the power supply into the chassis until the release lever begins to lower, then close the release lever to secure the power supply in the slot.**
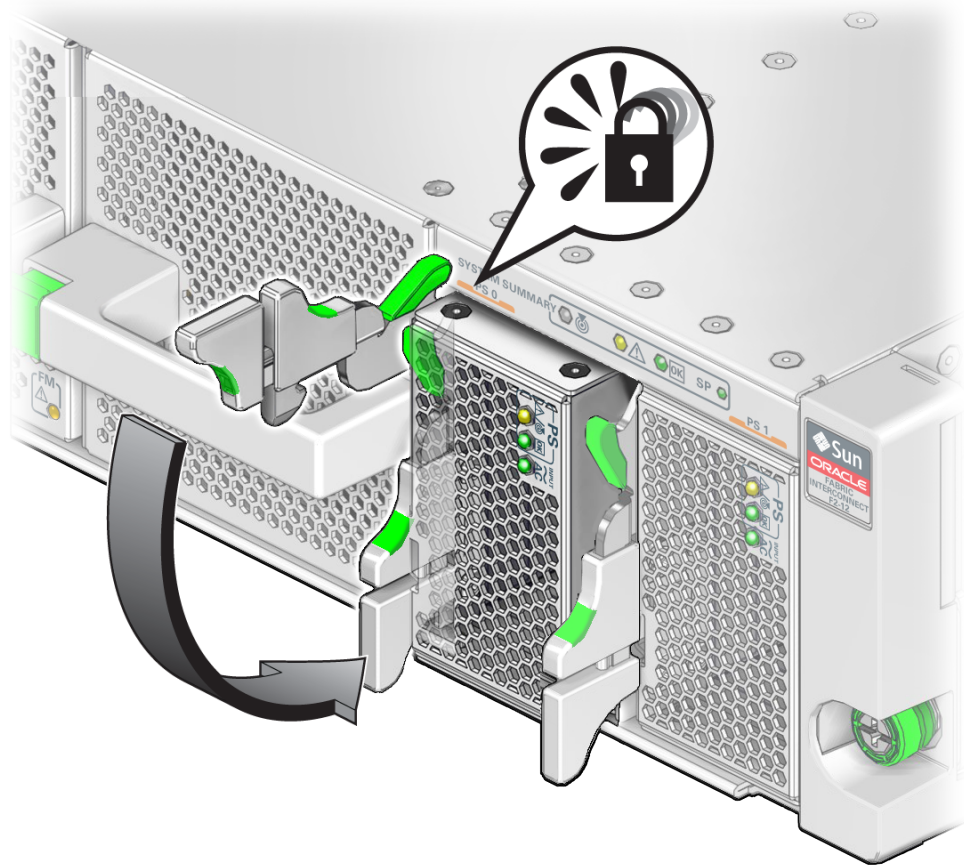
5. **Consider your next step:**

- **If you installed a power supply as part of another task, return to that task.**

- **If you installed a replacement power supply, continue to "Verify a Power Supply" on page 139.**

Related Information

- "Power Supply LEDs" on page 129

-

▼ Verify a Power Supply

After you install a power supply, you can verify its functionality.

1. From the Oracle ILOM CLI, reset the power supply.

```
-> set /SYS/PSx clear_fault_action=true
```

where *x* is 0 or 1. For example, to reset power supply PS0, type:

```
-> set /SYS/PS0 clear_fault_action=true
Are you sure you want to clear /SYS/PS0 (y/n)? y
Set 'clear_fault_action' to 'true'

->
```

2. Verify that the power supply is no longer considered faulty.

See "Locate a Faulty Power Supply" on page 131, then return to this task.

3. Check the output voltage.

```
-> show /SYS/PSx/V_OUT value
```

where *x* is 0 or 1. For example, to check the output voltage of power supply PS0, type:

```
-> show /SYS/PS0/V_OUT value
 /SYS/PS0/V_OUT
  Properties:
   value = 11.875 Volts
->
```

Voltage output should be between 10 and 14 volts.

Related Information

-

Replacing the Switch

These topics describe how to replace the entire switch.

Description	Links
Determine if the switch is faulty.	"Switch LEDs" on page 141
	"Determine if the Switch Is Faulty" on page 143
Replace the faulty switch.	"Remove the SER MGT Cable" on page 144
	"Remove the Switch" on page 146
	"Install the Switch" on page 149
	"Install the SER MGT Cable" on page 153
	"Power On the Switch" on page 161
	"Verify the Switch" on page 154
	"Configure the Replacement Switch" on page 157

Related Information

- "Identifying Components" on page 11
- "Detecting and Managing Faults" on page 17
- "Preparing for Service" on page 61
- "Servicing Data Cables" on page 71
- "Servicing Fan Modules" on page 99
- "Servicing I/O Modules" on page 109
- "Servicing Power Supplies" on page 129

Switch LEDs

The status of the switch is represented by four LEDs located on the front right side of the switch. This illustration and table describe the functionality of the switch LEDs. Use this information for the task "Determine if the Switch Is Faulty" on page 143.
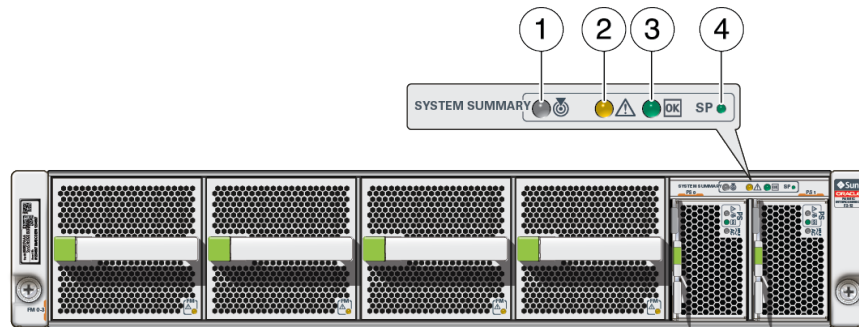
No.	Icon	Location	Name	Color	State and Meaning
1		Top	Locate	White	Indicates these conditions: ■ **Fast blinking** – The switch is identifying itself. ■ **Off** – Disabled.
2		Middle	Attention	Amber	Indicates these conditions: ■ **On** – Fault detected. ■ **Off** – No faults detected.
3	OK	Middle	OK	Green	Indicates these conditions: ■ **On** – Switch is functional without fault. ■ **Off** – Switch is off or initializing.
4	SP	Bottom	SP	Green	Indicates these conditions: ■ **On** – SP is ready. ■ **Slow blinking** – SP is booting up. ■ **Off** – SP powered off, resetting, or at fault.

Related Information

- "Front Panel LEDs" on page 34
- "Determine if the Switch Is Faulty" on page 143
- "Remove the Switch" on page 146
- "Install the Switch" on page 149
- "Verify the Switch" on page 154

▼ Determine if the Switch Is Faulty

You must determine if the switch is faulty before you replace it.

1. **Consider your first step.**

   - **If you are at the switch, go to Step 2.**

   - **If you are remote to the switch, go to Step 3.**

2. **Check to see if the Service Action Required LED is on.**
   See "Front Panel LEDs" on page 34.

   - **If the SP LED is off, replace the switch.**

     Start at "Remove the Switch" on page 146.

   - **If you cannot determine if the switch is faulty, go to Step 3.**

3. **Access the Oracle ILOM CLI.**
   See "Accessing the SP" on page 37.

4. **Determine if the switch has become problematic.**

   -> **show /System/Open_Problems**

   The output of the command might be:

```
Open Problems (1)
Date/Time                 Subsystems         Component
------------------------  -----------------  ------------
Thu Dec 17 05:11:35 2015  System             MB (Motherboard)
 fault.chassis.env.temp.over-fail (Probability:100, UUID:4c4bdfa1-f7d5-c7a7-e59e-f9a8ce4fab21, Resource:/
SYS/MB, Part
 Number:7092577, Serial Number:AK00329231, Reference Document:http://support.oracle.com/msg/---)
->
```

Or:

```
Open Problems (1)
Date/Time                 Subsystems         Component
------------------------  -----------------  ------------
Thu Dec 17 05:13:26 2015  System             SP (Service Processor)
 fault.chassis.voltage.fail (Probability:100, UUID:0a408985-6011-ccd7-c3a1-e01c7254ea87, Resource:/SYS/
SP, Part
 Number:7096151, Serial Number:489089M+15306P00M0, Reference Document:http://support.oracle.com/msg/---)
->
```

■ **If you see the words `temp` and `fail`, or `voltage` and `fail`, and either Oracle ILOM targets `/SYS/MB` or `/SYS/SP` in the output, then replace the switch.**

Start at "Remove the Switch" on page 146.

■ **If you see a different component identified in the output, then service that component.**

See "Open Problem Faults" on page 46 and "Oracle ILOM Legacy Target Replaceable Components" on page 30.

5. **Within the Oracle ILOM interface, display the fault state of main board components.**

```
-> show /SYS -t fault_state
Target             | Property              | Value
-------------------+-----------------------+-------
/SYS               | fault_state           | OK
.
.
.
/SYS/MB            | fault_state           | Faulted
.
.
/SYS/SP            | fault_state           | OK
->
```

In the output, look for the rows beginning with `/SYS`, `/SYS/MB`, and `/SYS/SP`.

If their fault states are anything other than `OK`, replace the switch. Start at "Remove the Switch" on page 146.

6. **If you are unable to determine if the switch is faulty, seek further information.**

See "Detecting and Managing Faults" on page 17.

Related Information

■ "Switch LEDs" on page 141
■ "Remove the Switch" on page 146
■ "Install the Switch" on page 149
■ "Verify the Switch" on page 154

▼ **Remove the SER MGT Cable**

1. **Locate the SER MGT cable at the rear of the switch.**

See "Rear Panel Components" on page 15.
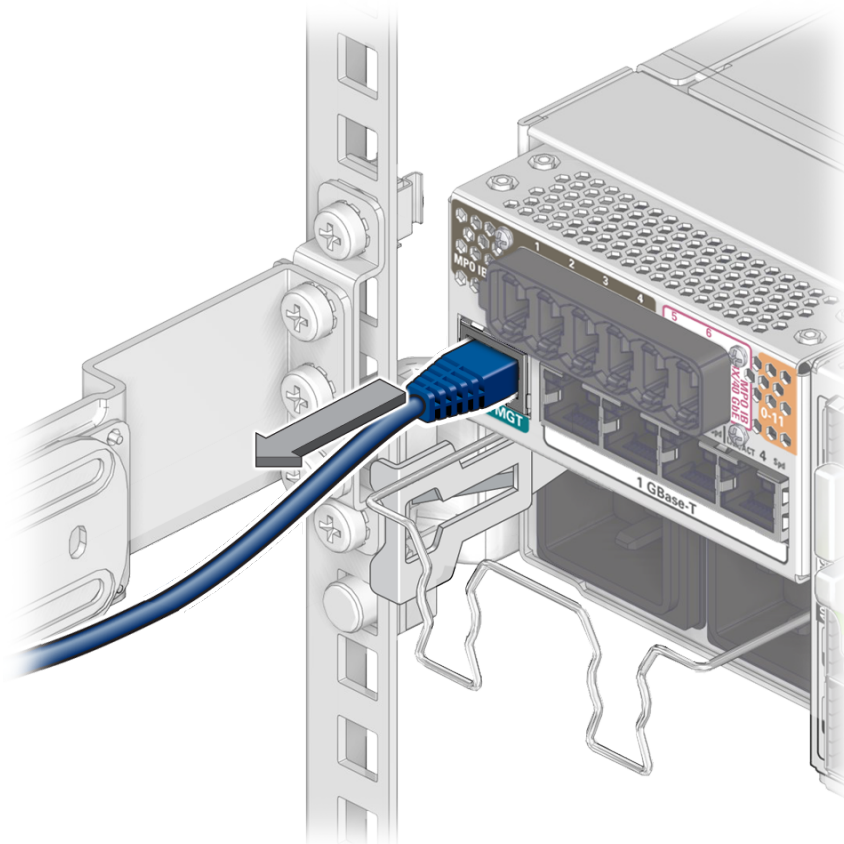
2. **Pinch the tab and opposite side of the RJ-45 connector between your thumb and forefinger.**

   Use either your thumb or forefinger to depress the release tab.

3. **Pull the RJ-45 connector straight out of the receptacle.**

4. **Determine your next step:**

   ■ **If you removed the SER MGT cable as part of another task, return to that task.**

   ■ **If you removed the SER MGT cable before removing the switch, continue to "Remove the Switch" on page 146.**

Related Information

-
-
-
-

▼ Remove the Switch

Removing the switch is a cold-service operation. You must power off the switch before you remove it.

Note - Because of the weight and mounting of the switch, two people are required for switch removal.

1. **Consider your first step.**

    - **If you have not prepared for service, you must do so now.**
      See .

    - **If you have completed those prerequisite tasks, continue to the next step.**

2. **Power off both power supplies.**
    See .

3. **Remove all data cables.**
    See .

4. **Remove the SER MGT cable.**
    See .

5. **Remove the front and rear components from the switch.**
    Place all removed components on an antistatic mat.

    - **Remove the fan modules.**
      See .

    - **Remove the power supplies**
      See .

    - **Remove I/O modules.**

See "Remove an I/O Module" on page 113.

■ **Remove any filler panels.**

See "Remove a Filler Panel" on page 123.

6. Move the cable management assembly out of the way so that the switch can slide out of the rack.

7. Use a No. 2 Phillips screwdriver to loosen the two green screws at the front of the switch.
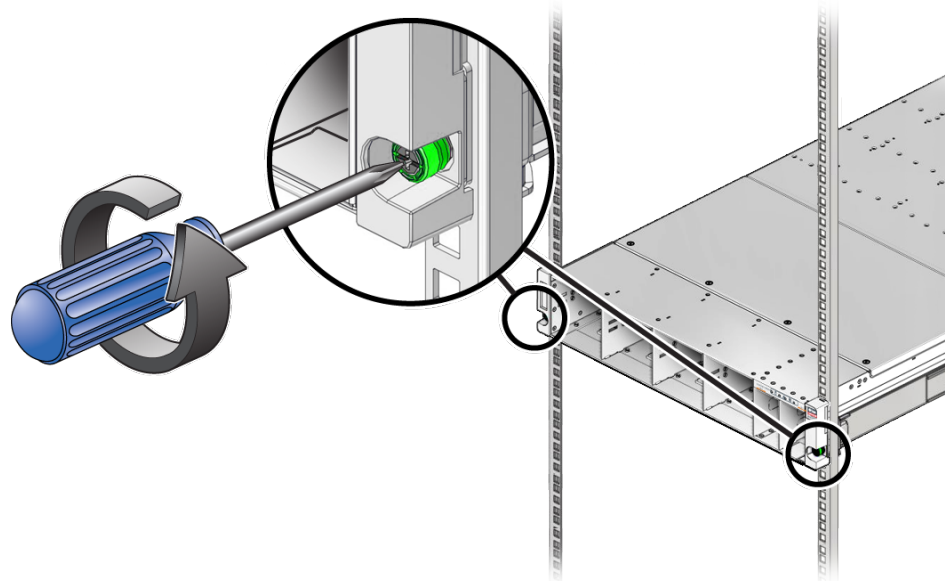
8. While supporting the weight of the switch, gently slide the switch out of the rack.

⚠ **Caution -** The weight of the switch is such that a lift or two people are used to raise the switch to the shelf rails.
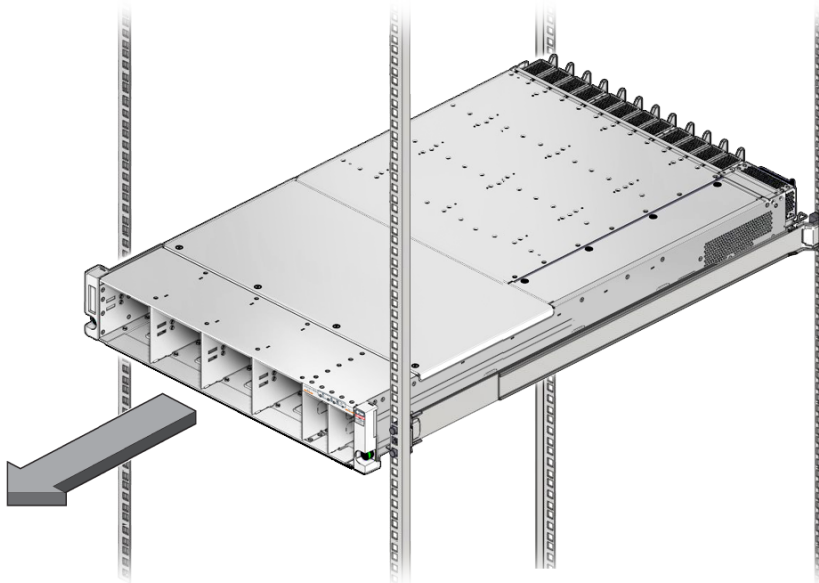
Ensure that the switch does not bind on the rails as it slides.

9. **Set the switch down onto a stable, ESD-safe work surface.**

10. **Consider your next step:**

   ■ **If you removed the switch as part of another service task, return to that task.**

   ■ **Continue to "Install the Switch" on page 149.**

   ### Related Information

   ■ "Switch LEDs" on page 141
   ■ "Determine if the Switch Is Faulty" on page 143
   ■ "Install the Switch" on page 149
   ■ "Verify the Switch" on page 154

▼ Install the Switch

⚠ **Caution -** The weight of the switch is such that a lift or two people are used to raise the switch to the shelf rails.

1. **If you are replacing the switch, remove the faulty or obsolete switch first, then return to of this task.**

   See "Remove the Switch" on page 146.

2. **Locate the bracket on each side of the switch.**

   This bracket will used to correctly seat the switch in the rack.

3. **Carefully lift the switch and slide it into the rack, from the front rearward.**
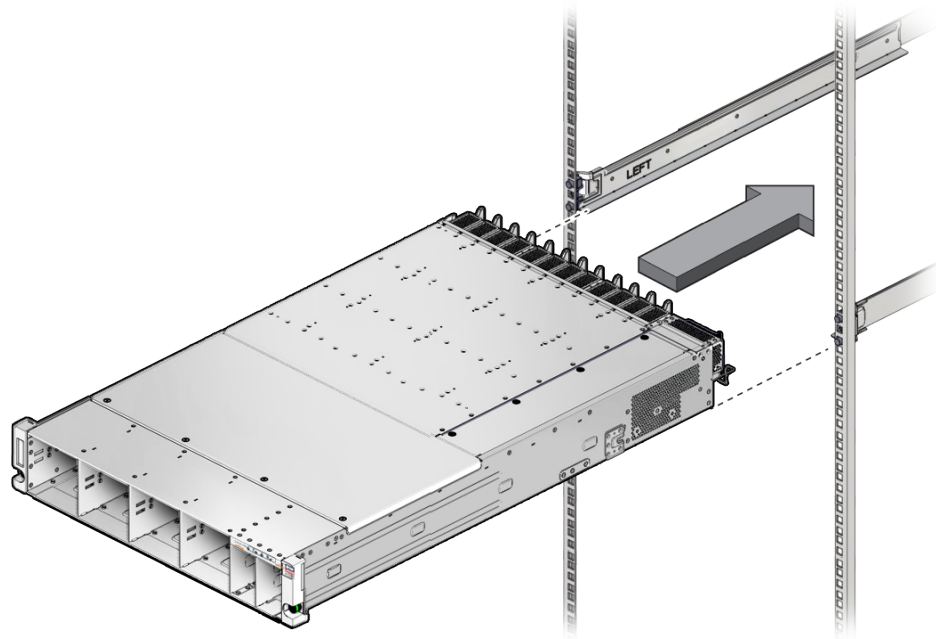
4. **While sliding the switch into the rack, on each side of the switch, make sure each mushroom screw slips into the slot in its bracket.**
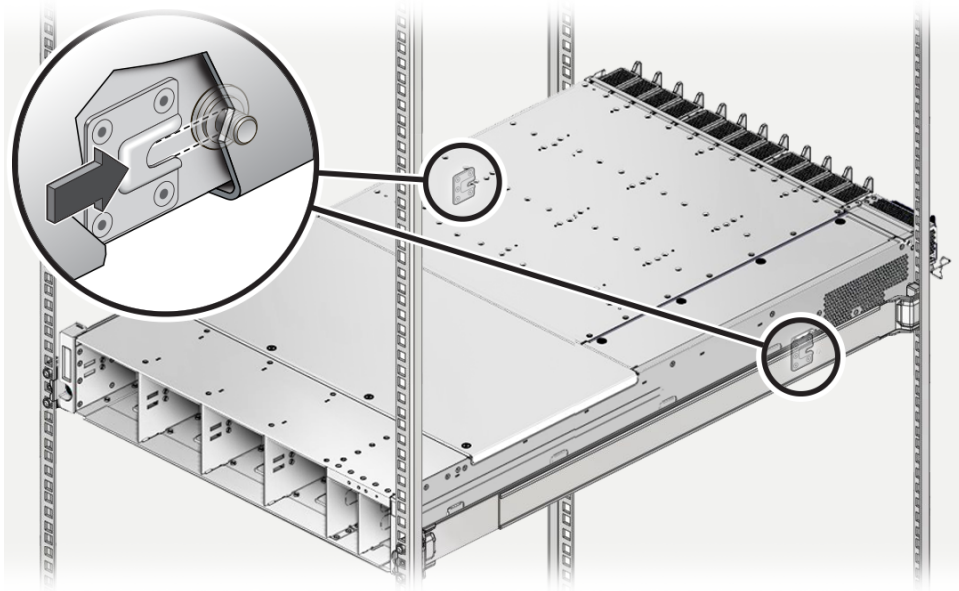
5. **If both screws are not seated in each brackets' slot, slide the switch out far enough to realign the brackets and screws, then slide the switch in again.**

   The switch is correctly installed when you have slid it completely into the rack, and each screw is seated in its bracket.

6. **When the chassis is correctly installed, use a No. 2 Phillips screwdriver to secure the switch chassis to the front rack posts with the captive screws at each side.**
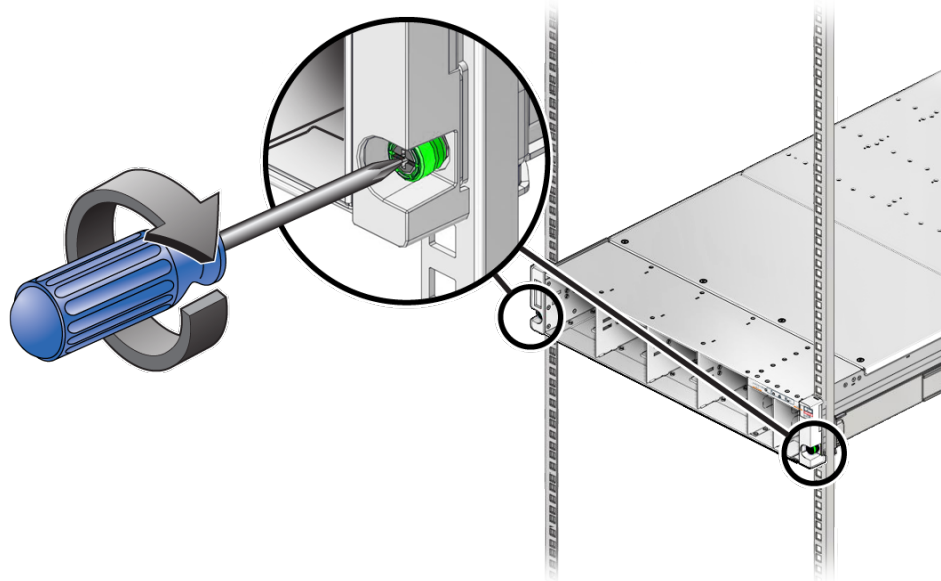
7. **Consider your next step:**

   ■ **If you have installed the switch as part of another service task, return to that task.**

   ■ **If you have installed a replacement switch, continue to the next step.**

8. **Install the components you removed from the faulty switch.**

   ■ **Install the fan modules.**

   See "Install a Fan Module" on page 104.

   ■ **Install the power supplies.**

   See "Install a Power Supply" on page 136.

   ■ **Install the I/O modules.**

Note - Ensure you install the I/O modules into the same slots where they were installed in the faulty switch.

See "Install an I/O Module" on page 117

■   **Install the filler panels.**

See "Install a Filler Panel" on page 126.

9.   **Reconnect all data cables removed from the faulty switch.**

See "Install a Data Cable" on page 90.

10.   **Reposition the cable management comb.**

11.   **Return the switch to operation.**

Perform the tasks as directed in "Returning the Switch to Operation" on page 161, including installing the SER MGT cable.

Related Information

■   "Switch LEDs" on page 141
■   "Determine if the Switch Is Faulty" on page 143
■   "Remove the Switch" on page 146
■   "Verify the Switch" on page 154

▼ Install the SER MGT Cable

1. **Orient the RJ-45 connector to the SER MGT receptacle at the rear of the switch, above the power cords.**
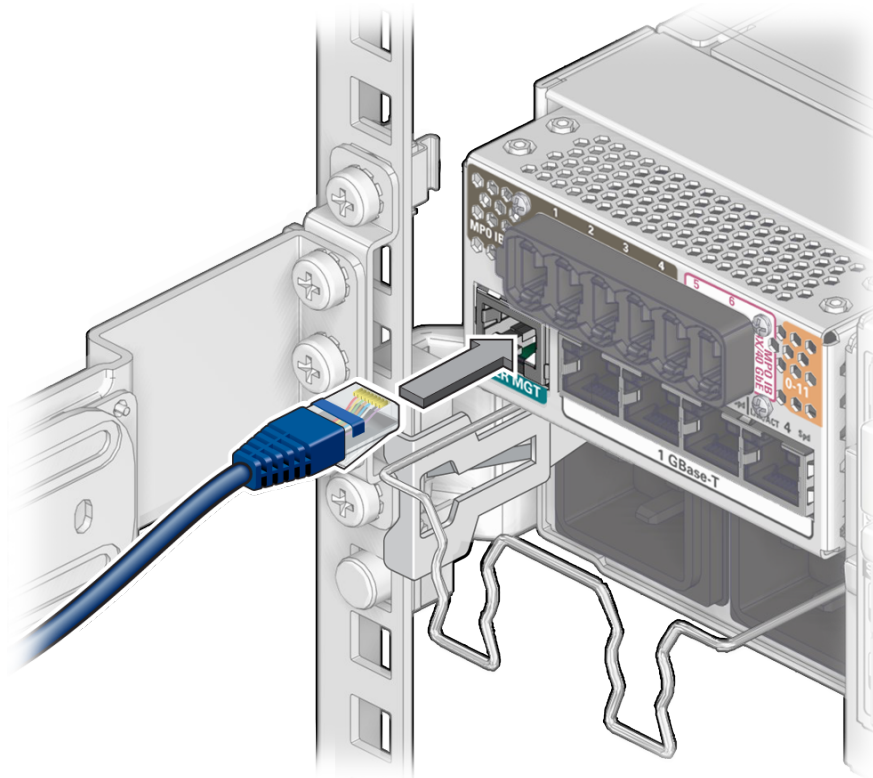
2. **Insert the connector into the receptacle until it clicks, securing the SER MGT cable in place.**

3. **Determine your next step:**

   ■ **If you installing the SER MGT cable as part of another task, return to that task.**

   ■ **If you replaced the switch, continue to** **.**

Related Information

-
-

▼ Verify the Switch

After you install the switch, you can verify its functionality.

1. Verify that the switch is no longer considered faulty, then return to this task.

See .

2. Verify Ethernet connectivity.

a. Start the EMS console.

```
-> start /System/Networking/Switches/Switch_0/fs_cli
Are you sure you want to start /System/Networking/Switches/Switch_0/fs_cli
(y/n)? y
                Management Switch for Oracle Fabric Interconnect F2-12
SEFOS login:
```

b. Log in to SEFOS.

```
SEFOS login: root
Password: password
SEFOS#
```

The default password is admin123.

c. Display the state of the Ethernet ports.

```
SEFOS# show interfaces status
```

Port	Status	Duplex	Speed	Negotiation	Capability
Gi0/1	not connected	Half	-	Auto	Auto-MDIX on
Gi0/2	connected	Full	1 Gbps	Auto	Auto-MDIX on
Gi0/3	connected	Full	1 Gbps	Auto	Auto-MDIX on
Gi0/4	not connected	Half	-	Auto	Auto-MDIX on
Gi0/5	not connected	Half	-	Auto	Auto-MDIX on
Gi0/6	connected	Full	1 Gbps	Auto	Auto-MDIX on
Gi0/7	not connected	Half	-	Auto	Auto-MDIX on
...					
Gi0/13	connected	Full	1 Gbps	Auto	Auto-MDIX on
...					
Gi0/23	not connected	Half	-	Auto	Auto-MDIX on

```
Gi0/23      connected      Full    1 Gbps    Auto           Auto-MDIX on
Gi0/25      connected      Full    1 Gbps    Auto           Auto-MDIX on
Gi0/26      connected      Full    1 Gbps    Auto           Auto-MDIX on
Ex0/1       not connected  Full    10 Gbps   No-Negotiation Auto-MDIX on
Ex0/2       not connected  Full    10 Gbps   No-Negotiation Auto-MDIX on
SEFOS#
```

In the output, `Port` is the port as seen on the rear panel. Ports `Gi0/25` and `Gi0/26` are internal to the switch architecture. Ports `Ex0/1` and `Ex0/2` are the two SFP+ uplink ports. The `Status` is the state of the port. The `Duplex`, `Speed`, and `Negotiation` are the parameters of the link. The `Capability` indicates if auto-crossover capability is on.

d. **If the status of a known-connected port is anything other than `connected`, investigate why.**

See "Detecting and Managing Faults" on page 17.

e. **Exit the EMS console.**

```
SEFOS# exit
Connection closed by foreign host

Entering character mode
Escape character is '^]'.
start: The session with /System/Networking/Switches/Switch_0/fs_cli has ended.
->
```

3. **Verify IB and gateway connectivity.**

a. **Start the host.**

```
-> start /HOST/console
Are you sure you want to start /HOST/console (y/n)? y

Serial console started.  To stop, type ESC (
```

b. **Press Enter.**

[*user@hostname* ~]#

where:

■ *user* is the current username.
■ *hostname* is the host name of the SCP.

c. **Switch to user `admin` with password `admin`.**

[*user@hostname* ~]# su admin
 Welcome to IBOS Controller

```
 Copyright (c) 2012-2015 Oracle Corp.  All rights reserved.
 Enter "help" for information on available commands.
 Enter the command "show system copyright" for licensing information
admin@hostname[OFOS]
```

Note - From here forward in this document, the admin@*hostname*[OFOS] prompt is replaced with [OFOS].

If this is the first time OFOS is accessed, the OFOS configuration wizard might start. If this happens, refer to "Run the Oracle Fabric OS Configuration Wizard" in *Oracle Fabric Interconnect F2-12 Installation Guide*.

d. Display the state of the gateway ports.

```
[OFOS] show ioports
name     type                  state              descr    v-resources
-------------------------------------------------------------------------------
0/1      gwEthernet10GbPort    up/indeterminate            0
0/2      gwEthernet10GbPort    up/indeterminate            0
0/3      gwEthernet10GbPort    up/indeterminate            0
0/4      gwEthernet10GbPort    up/indeterminate            0
0/5      gwEthernet10GbPort    up/indeterminate            0
0/6      gwEthernet10GbPort    up/indeterminate            0
0/7      gwEthernet10GbPort    up/indeterminate            0
0/8      gwEthernet10GbPort    up/indeterminate            0
8 records displayed
[OFOS]
```

In the output, the name is the port number as seen on the rear panel. The state is of the local port/peer port. The descr is the node descriptor of the peer port. The v-resources are the number of VLANs and VNICs supported on that port.

e. Display the state of the IB ports.

```
[OFOS] show infiniband-port
name            state              mode_state            guid
-------------------------------------------------------------------------------
0/1             up/down            switching             0
0/2             up/down            switching             0
0/3             up/down            switching             0
0/4             up/down            switching             0
.
.
.
0/27            up/down            switching             0
0/28            up/down            switching             0
0/29            up/down            switching             0
0/30            up/down            switching             0
30 records displayed
```

```
[OFOS]
```

In the output, the `name` is the port number as seen on the rear panel. The `state` is of the local port/peer port. The `mode_state` is the condition of the link. The `guid` is the GUID of the peer port.

f. **If in the output of these commands a port is identified as being in a `down` state, or if a link `mode_state` is other than `switching`, investigate why.**

See "Detecting and Managing Faults" on page 17.

g. **Exit the host console.**

Type **exit** and press the Enter key, then press the Esc key and type **(**.

```
[OFOS] exit
[root@nsn156-168 ~]#
Serial console stopped.
->
```

4. **After verifying the switch, continue to "Configure the Replacement Switch" on page 157.**

Related Information

- "Switch LEDs" on page 141
- "Determine if the Switch Is Faulty" on page 143
- "Remove the Switch" on page 146
- "Install the Switch" on page 149

▼ Configure the Replacement Switch

Note - The steps of this task are a generalization of what is to be done. For more thorough instructions on how to accomplish these steps, refer to the *Oracle Fabric OS 1.0.2 Administration Guide* and the *Oracle Fabric Manager 5.0.2 Administration Guide*.

⚠ **Caution -** Do not connect any network or fabric cables until instructed to do so.

The first time the switch powers on, the Oracle Fabric OS configuration wizard runs. This tool provides prompts to help you bring the switch online for management connectivity. For information about the Oracle Fabric OS configuration wizard, refer to "Run the Oracle Fabric OS Configuration Wizard" in *Oracle Fabric Interconnect F2-12 Installation Guide*.

1. **Using the SER MGT port, configure the replacement switch with the same host name and network management parameters as the switch you removed.**

    See "Access the SP (SER MGT Port)" on page 38 and "Configure and Enable Network Management (SER MGT Port)" on page 39.

2. **Attach a single network management cable.**

    See "Install a Data Cable" on page 90.

3. **Access the SCP.**

4. **Set the priority to the lowest.**

    Refer to "Manage SM Devices" in *Oracle Fabric Manager 5.0.2 Administration Guide*.

5. **Restore the switch configuration previously backed up.**

    Refer to "Restoring a Configuration" in *Oracle Fabric Manager 5.0.2 Administration Guide*.

6. **Completely power off the replacement switch.**

    See "Power Off the Switch" on page 67.

7. **Connect the replacement switch to the network and the fabric.**

    See "Install a Data Cable" on page 90.

8. **Power on the replacement switch.**

    See "Power On the Switch" on page 161.

    Wait for any negotiation and propagation to complete.

9. **Migrate the partition configuration from the master Subnet Manager.**

    Refer to "Managing Partitions" in *Oracle Fabric Manager 5.0.2 Administration Guide*.

    Wait for the partition configuration to propagate to the replacement switch.

10. **Enable security features from the master Subnet Manager.**

    Wait for the security policies to propagate to the replacement switch.

11. **Configure the Subnet Manager nodes list and fabric configuration file for the replacement switch, and ensure that the list and file are consistent with other switch lists and files.**

    See "Managing Subnets" in *Oracle Fabric Manager 5.0.2 Administration Guide*.

12. **(Optional) Set the priority of the replacement switch to that originally of the removed switch.**

    Wait for any handover to complete.

Related Information

- "Power On the Switch" on page 161
- "Verify the Switch" on page 154

Returning the Switch to Operation

These topics explain how to return the switch to operation after you perform service tasks.

Step	Description	Link
1.	If you removed the power cords prior to replacing the switch, install the power cords to power on the switch.	"Power On the Switch" on page 161
2.	Verify the installation of the component.	"Verify the Serviced Component" on page 165

Related Information

▼ Power On the Switch

Connect the power cords to power on the switch.

1. **Determine your first step:**

   - **If you serviced a component that did not require you to power off the server, continue to "Verify the Serviced Component" on page 165.**

   - **If you replaced the switch itself, or if you have removed the power cords for another reason, continue to the next step.**

2. **Lower the retaining wire in front of the rear power receptacles.**

See for the location of the power receptacles.
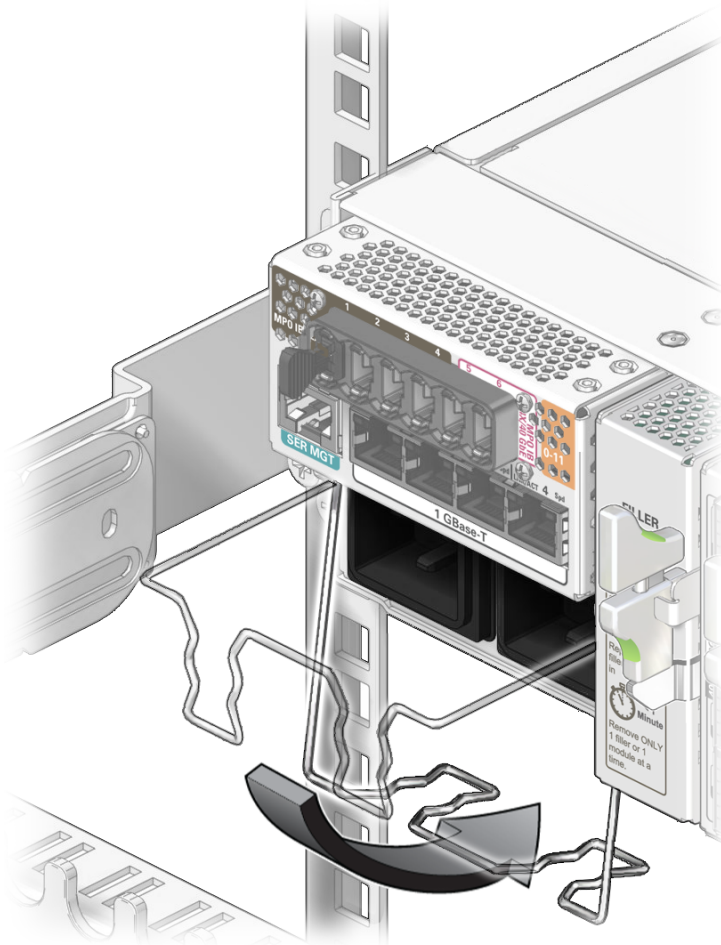
3.   Install the power cords in the rear power receptacles.

Note - Installing either power cord will power on the switch.

Ensure that you the power cords are installed securely.
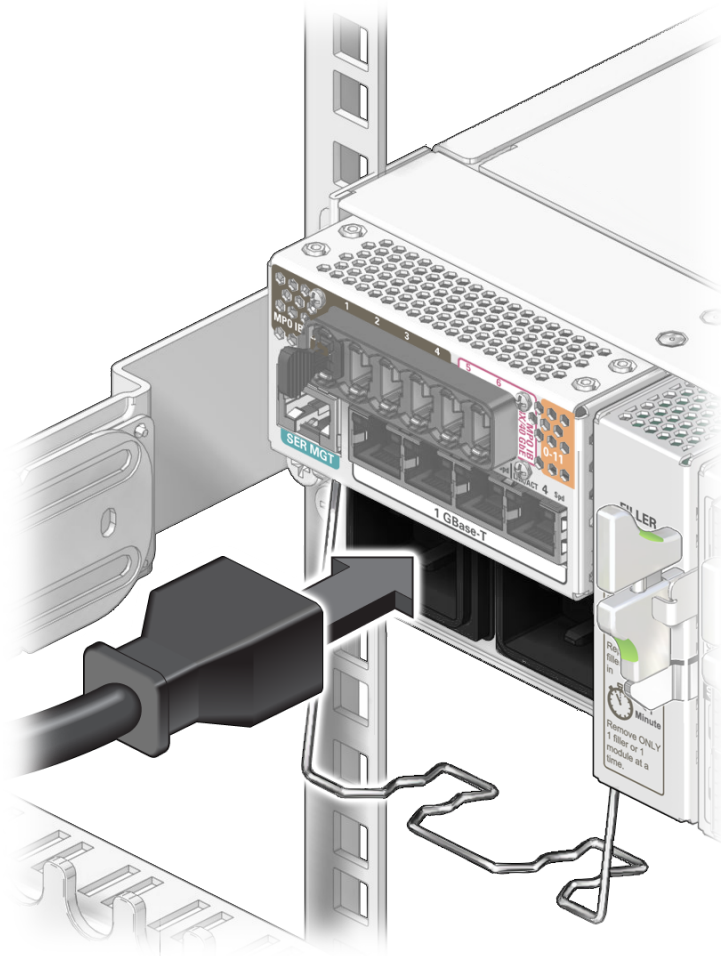
4.   Lift the retaining wire to secure the power cords to the switch.
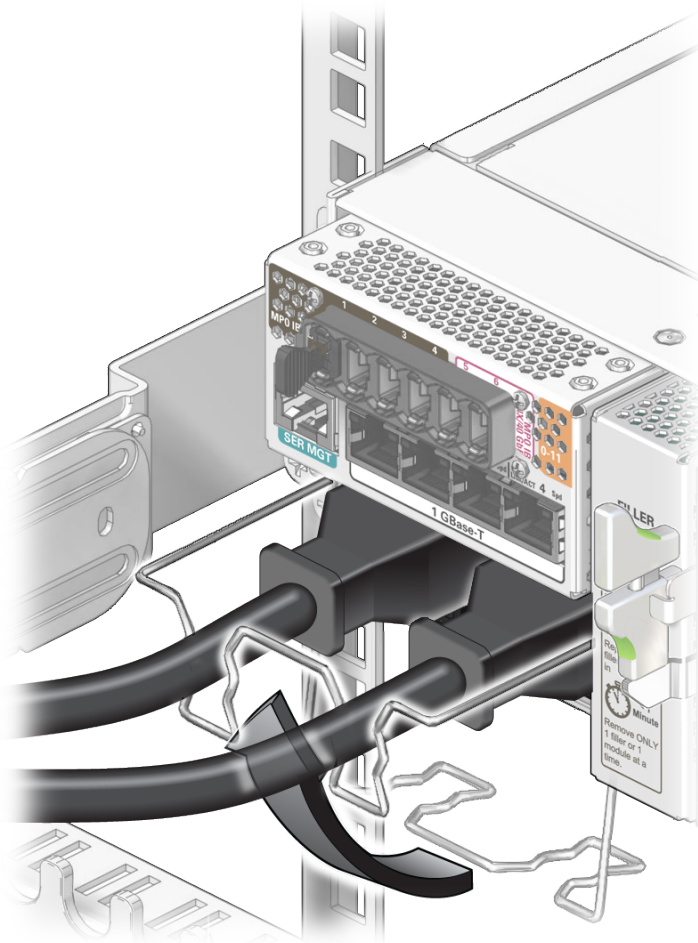
5.   At the front of the switch, verify the power supply LEDs.

For a description of these LEDs, see "Power Supply LEDs" on page 129.

- The AC LED lights green to indicate that the power supplies are connected to facility power.
- A moment later, the OK LED lights green to indicate the power supplies are at full power.

6.   If you replaced a power supply as part of a service operation, verify that the power supply Attention LED is not on.

■ **If the Attention LED is on, see "Verify a Power Supply" on page 139, then return to this procedure.**

■ **If the Attention LED is off, continue to the next step.**

7. **Continue to "Verify the Serviced Component" on page 165.continue to "Verify the Serviced Component" on page 165.**

Related Information

■ "Power Off the Switch" on page 67
■ "Install the SER MGT Cable" on page 153
■ "Configure the Replacement Switch" on page 157

▼ Verify the Serviced Component

1. **Confirm that the switch is powered on.**

   See "Power On the Switch" on page 161.

2. **If you removed the SER MGT cable when servicing the switch, install the RJ-45 cable to the SER MGT port at the rear of the switch.**

   See "Install the SER MGT Cable" on page 153.

3. **Access the Oracle ILOM CLI.**

   See "Accessing the SP" on page 37.

4. **Verify the serviced component.**

   Continue to the appropriate task:

   ■ "Verify a Data Cable" on page 97
   ■ "Verify a Fan Module" on page 106
   ■ "Verify an I/O Module" on page 121
   ■ "Verify a Power Supply" on page 139
   ■ "Verify the Switch" on page 154

Related Information

■ "Power Off the Switch" on page 67
■ "Detecting and Managing Faults" on page 17
■ "Configure the Replacement Switch" on page 157

Glossary

1

10GbE/40GbE module I/O module for the Oracle Fabric Interconnect F2-12 that supports 10GbE and 40GbE interfaces.

16Gb Fibre Channel module I/O module for the Oracle Fabric Interconnect F2-12 that supports Fibre Channel interfaces.

A

adapter Physical device, such as an HCA or NIC, that enables a host to communicate through a fabric or network.

ASR Automatic Service Request. A feature of Oracle hardware that automatically opens service requests when specific hardware faults occur. ASR is integrated with My Oracle Support (MOS) and requires a support agreement. See also MOS.

C

CFM Cubic feet per minute. A standard of measuring airflow.

CMB Abbreviation for cable management bracket. A component that supports and groups cables extending from the chassis.

E

EDR Extended Data Rate. A throughput of InfiniBand (IB) technology, typically 100Gbps. See also IB.

EMS module   Embedded Management Switch module. A component within the switch chassis that provides an Ethernet switch and management controller, using the SEFOS operating system. See also SEFOS.

Ethernet gateway   A device that either enables data transference from one protocol to another, for example IB to Ethernet. Or a device that serves as a routing node for an Ethernet network.

Ethernet management switch   An Ethernet switch that enables single point management of multiple service processors (SP) or hosts through their respective network management interfaces. See also SP.

F

fabric interconnect   Short name for an IB switch that provides gateway services and additional functionality.

fan module   A hot-swappable replaceable component that provides cooling air to the chassis interior.

Fibre Channel   A data transference technology used primarily for storage systems.

FM   Abbreviation of fan module. See also fan module.

G

GB   Abbreviation of GigaByte. 1 GB is approximately 1000 MB.

GbE   Abbreviation of Gigabit Ethernet. A unit of throughput for Ethernet technology.

H

HCA   Host channel adapter. A physical device that is the terminating point of an IB node used in a computing instance, such as a server or host.

housing   The colored plastic portion of the PrizmMT connector, magenta for 4x, black for 12x. Though it functions as a release device and not as a containment, the term "housing" was assigned by the manufacturer, USConec.

I

I/O module   A user-replaceable physical interface component for the Oracle Fabric Interconnect F2-12.

IB	InfiniBand. A high bandwidth messaging technology, used for very high performance computing.
IB switch	A physical device that provides connections between nodes within an IB fabric.
ILOM	See Oracle ILOM.
IPMI	Intelligent Platform Management Interface. A protocol for monitoring and controlling chassis components over the I^{2}C bus.

L

long-range IB module	I/O module for the Oracle Fabric Interconnect F2-12 that supports QDR IB throughput over distances up to 40 kilometers.
LR IB IOM	I/O module for the Oracle Fabric Interconnect F2-12 that supports QDR IB throughput over distances up to 40 kilometers.
LR transceiver	A transceiver used for long range Fibre Channel communication.

M

MAC	Machine Allocation Code. A 12-digit hexadecimal number that uniquely identifies a network node.
module	A user-replaceable component for a chassis, typically externally accessible. See also I/O module and fan module.
MOS	My Oracle Support, at: http://support.oracle.com

N

network management	A means of managing an SP or SCP through an Ethernet network. See also serial management, SP, and SCP.

O

Oracle F2 10 Gb and 40Gb Ethernet Module	An I/O module that provides either 10GbE or 40GbE functionality.

Oracle F2 Dual Port 16Gb Fibre Channel Module	An I/O module that provides 16Gb Fibre Channel functionality.
Oracle F2 Long Range InfiniBand Module	An I/O module that provides QDR InfiniBand functionality over long distances.
Oracle F2 Quad Port 10GBASE-T Module	An I/O module that provides four 10GbE interface functionality.
Oracle Fabric Interconnect F2-12	An Oracle virtualization switch. See also virtualization switch.
Oracle Fabric Manager	A web-based GUI to administer the switch and fabric.
Oracle Fabric OS	Oracle Fabric Operating System. The operating system within the SCP, that manages the fabric. See also SCP.
Oracle ILOM	Oracle Integrated Lights-Out Manager. An interface using the IPMI protocol and the I^{2}C bus to monitor and control the hardware components of a chassis.

P

PrizmMT cable	An optical fiber connector and cable used for IB 4x and 12x technology. Is configured with a PrizmMT ferrule. Appears similar to, but is not compatible with standard MT cables and connectors. See also standard MT cable.

Q

QSFP	Quad small form-factor pluggable. A form-factor for high-speed data interconnects.

R

RFID	Radio-frequency identification. Find the RFID tag, which contains the serial number, on the front of the chassis.

RJ-45   Standard for an eight-pin modular form-factor for Ethernet interconnects.

S

SCP   System control processor. A type of service processor that manages more complex and resource intensive services, such as IB technology, fabric management interfaces, the Subnet Manager, and so on. The SCP might also be the chassis host. See also SP.

SEFOS   Sun Ethernet Fabric Operating System. The operating system used by the EMS module to administer the Ethernet network. See also EMS module.

SER MGT   Serial management. A low-speed serial datastream used to interface with the SP. See also SP.

serial management   A means of managing an SP or SCP through a serial datastream. See also SER MGT, network management, SP, and SCP.

SFP+   Small form-factor pluggable. A form-factor for high-speed data interconnects.

SP   Service processor. A device that monitors and controls a chassis, regardless of the chassis host state, through an Oracle ILOM interface. See also Oracle ILOM and SCP.

SR transceiver   A transceiver used for short range Fibre Channel communication.

standard MT cable   An optical fiber connector and cable used for IB 4x technology. Appears similar to, but is not compatible with PrizmMT cables and connectors. See also PrizmMT cable.

switch front   The intake end of the switch chassis that faces the cold aisle when mounted in a rack. Typically is the end with fan modules and power supplies.

switch rear   The exhaust end of the switch chassis that faces the hot aisle when mounted in a rack. Typically is the end populated with high-speed data connections.

V

VAC   Voltage alternating current.

VDC   Voltage direct current.

virtualization switch   A switch supporting multiple interfaces having virtualization capabilities.

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