# Sun Datacenter InfiniBand Switch 36 Product Notes for Firmware Version 2.1

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# Using This Documentation

- **Overview** – Provide late-breaking information for the Sun Network QDR InfiniBand Gateway Switch from Oracle.
- **Audience** – Technicians, system administrators, and authorized service providers.
- **Required knowledge** – Advanced experience troubleshooting and replacing hardware.

## Product Documentation Library

Documentation and resources for this product and related products are available at http://docs.oracle.com/cd/E36256_01.

## Feedback

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

# Sun Datacenter InfiniBand Switch 36 Product Notes

These product notes provide last-minute, late-breaking information regarding the switch. These notes pertain to the 2.1.9-1 firmware for the switch.

## Known Problems

| Bug | Description | Workaround |
|---|---|---|
| 20714591 | All Subnet Managers `segfault at 54 ip 080ba543 sp` *xxxxxxxx* `error 4` displayed. | An InfiniBand fabric that is not a pure Fat Tree topology might experience a segmentation fault across all Subnet Managers in the fabric. This can occur when cabling or decabling an active switch configured for Fat Tree topology, as the actual topology at that instant is not pure Fat Tree.<br><br>**Workaround**: Either use the `setsmrouting` command to set the Subnet Managers to Min Hop routing, or ensure a pure Fat Tree topology and power off the switch before cabling or decabling it. See "Replace a Switch" on page 27. |
| 20649071 | Fabric Director is filling up the switch root file system. | If the hostname of a management controller exceeds 26 characters, the Fabric Director incessantly writes errors to the log file which can fill the root filesystem if left unchecked.<br><br>**Workaround**: Do not use more than 26 characters for the hostname of the management controller.<br>**Note -** The maximum number of characters for the node description field is 17. |
| 18129290 | `smpartition` command fails from firmware version 2.0 switch with firmware version 2.1 peer. | In a mixed firmware fabric where the master Subnet Manager is on a switch with firmware version 2.0 and other switches in the fabric are firmware version 2.1, issuing the `smpartition commit` command fails.<br><br>**Workaround:** When you use the `smpartition` commands to partition the mixed firmware fabric, issue the commands from a master Subnet Manager on a switch with firmware version 2.1. |
| 17408412 | `connector` command not fully functional from `Fabric_Mgmt` restricted shell. | When the `info` or `dump` options of the `connector` command are issued in the `Fabric_Mgmt` or `Switch_Diag` restricted shells, the command fails. |

| Bug | Description | Workaround |
|---|---|---|
| | | **Workaround:** Use the Fabric Monitor feature of the Oracle ILOM web interface to retrieve connector information. |
| 16847481 | Setting time zone changes permissions of time zone file. | After setting the time zone, the permissions of the time zone file are set to be highly restricted. Consequently, the `fwverify` command receives an error when it attempts to read the file.<br><br>**Workaround**: Open the permissions on the time zone file.<br><br>1. After setting the time zone, become the `root` user.<br>2. Open the permissions for the time zone file.<br><br>`# chmod 644 /conf/localtime` |
| 15755727 | Need tool to display InfiniBand topology with physical InfiniBand entities. | At present, no command provides the relationship of InfiniBand fabric GUIDs, LIDs, and IB ports to each other in a simplified manner.<br><br>**Workaround**: Use the `ibnetdiscover` command. |
| 15703751 | No way to set Fabric Monitor console timeout. | The Fabric Monitor will timeout after 15 minutes of idle time.<br><br>**Workaround**: You must log in to the web interface and start the Fabric Monitor again. |
| 15667851 | Time zone setting is not preserved. | When upgrading from or downgrading to the 1.1.3 firmware version, the time zone setting is lost.<br><br>**Workaround**: Reconfigure the time zone setting after the firmware upgrade or downgrade. Refer to the Sun Datacenter InfiniBand Switch 36 Administration Guide for Firmware Version 2.1 for instructions on setting the time. |
| 15560533 | Setting an alert rule to `ipmipet` sometimes does not work. | There is no impact to the InfiniBand fabric.<br><br>**Workaround**: After setting the alert rule to `ipmipet`, set the level to `disable`, and then set the level to the desired value. |

# Software Information and Issues

## Main Board, Management Controller, and Chassis Serial Numbers

The switch documentation describes how to retrieve the chassis serial number using the `showfruinfo` command or the `/SYS/MB` Oracle ILOM target. These methods actually display the serial number of the main board and the management controller respectively, and not the switch chassis. The switch chassis serial number is provided on the pull-out tab on the left side front of the switch chassis, adjacent to power supply 0.

# Firmware Version Numbers

When upgrading the management controller firmware, the procedure uses the variables *x*, *y*, *z*, and *w* in filename strings to identify the version number. For this release of the firmware, 2.1.9-1, the values are as follows:

- *x* is 2
- *y* is 1
- *z* is 9
- *w* is 1

# Time Zone Support

The following time zones are only supported in firmware versions 1.3.4 and newer 1.3.*x* releases, 2.0.7 and newer 2.0.*x* releases and all 2.1.*x* releases. If you upgrade or downgrade to a firmware version other than those identified, you must set an alternative time zone.

- America/Argentina/Salta
- America/Argentina/San_Luis
- America/Bahia_Banderas
- America/Kralendijk
- America/Lower_Princes
- America/Matamoros
- America/Metlakatla
- America/North_Dakota/Beulah
- America/Ojinaga
- America/Santa_Isabel
- America/Santarem
- America/Sitka
- Antarctica/Macquarie
- Asia/Ho_Chi_Minh
- Asia/Kathmandu
- Asia/Kolkata
- Asia/Novokuznetsk
- Pacific/Chuuk
- Pacific/Pohnpei

In firmware version 2.1.2-2 through 2.1.9-1, these additional time zones are supported:

- Africa/Juba

- America/Creston
- Asia/Hebron

If you downgrade from firmware version 2.1.2-2 through 2.1.9-1, you must set an alternative time zone.

In firmware version 2.1.6-2, 2.1.7-2, 2.1.8-1, and 2.1.9-1, these additional time zones are supported:

- Asia/Khandyga
- Asia/Ust-Nera
- Europe/Busingen
- Pacific/Bougainville

If you downgrade from firmware version 2.1.6-2, 2.1.7-2, 2.1.8-1, or 2.1.9-1, you must set an alternative time zone.

---

**Note -** See "Firmware Update Guidelines" on page 12 about downgrading from firmware version 2.1.7-2, 2.1.8-1, or 2.1.9.

---

# Firmware Update Guidelines

- When downgrading from firmware 2.1.7, 2.1.8, or 2.1.9, you must first downgrade to firmware 2.1.6 using a special version of firmware 2.1.6. After this is done, you can then downgrade from firmware 2.1.6 to any supported firmware. See "Upgrade and Downgrade Paths Supported" on page 15. The special downgrade version of the 2.1.6 firmware is part of patch 20380281 available at My Oracle Support. Ensure that you read the README file included in the patch.

  ---

  **Note -** The downgrade version of the 2.1.6 firmware requires initiating downgrade twice.

  ---

- For greater security, ensure that all Sun Datacenter InfiniBand Switch 36 switches and Sun Network QDR InfiniBand Gateway Switches are upgraded to firmware version 2.1.6 or later version. A miss-match of firmware versions reduces or negates secret M_Key functionality, and compromises fabric security.

  For example, in a mixed 2.1.6 and 2.1.5 fabric, you must use the `-override-inconsistent-partition-configurations` option with the `smsubnetprotection` command. To do this is insecure.
- If you are going to downgrade the firmware to a version earlier than 2.1.*x*, you must reconfigure secret M_Key functionality, if it was enabled. Refer to the Sun Datacenter

InfiniBand Switch 36 Administration Guide for Firmware Version 2.1 for instructions on securing the fabric.

- If you are going to downgrade the firmware to a version earlier than 2.0, you must remove user partitions and depopulate the Subnet Manager nodes list if these features were configured. Refer to the Sun Datacenter InfiniBand Switch 36 Administration Guide for Firmware Version 2.1 for instructions on removing partitions for a firmware downgrade.
- If you are going to downgrade from firmware 2.0.*x* to 1.3.5 or earlier, you might see these types of messages in the `/var/log/message` file after the downgrade:

  ```
  lda: Unknown config parameter: ErrLogCount=100; .
  ```

  ```
  lda: Unknown config parameter: ErrLogTimeInterval=100; .
  ```

  The `ErrLogCount` and `ErrLogTimeInterval` configuration parameters introduced in firmware 2.0.*x* are unknown to firmware version 1.3.5 and earlier LDAs. The LDA logs these messages and ignores them afterwards. The messages appear once per LDA startup and are harmless.

  If you later upgrade from firmware 1.3.5 or earlier to 2.0.*x* and the `ErrLogCount` and `ErrLogTimeInterval` configuration parameters are absent, the 2.0.*x* LDA uses the compiled default values. Consequently, no LDA messages regarding these configuration parameters are recorded.
- The firmware upgrade status is displayed on the SUN DCS 36p Firmware Versions subtab of the System Information tab of the Oracle ILOM web interface. If you directly upgrade from firmware 1.3 to firmware 2.1, even after a successful upgrade, the firmware upgrade status is reported as `NOT AVAILABLE`.

# High Availability in Partitions

To allow communication fail-over between HCAs belonging to the same operating system instance, the HCA ports must be members of the same partition and have identical membership type (full or limited).

Having both full and limited port memberships within a partition for the same operating system instance creates a configuration instability that might cause subtle communication problems.

# Email Alert Rules

You must specify the value for the `email_custom_sender` property of an email alert rule, because the alert does not use the `custom_sender` property of the `/SP/clients/smtp` target.

# Hardware Information and Issues


- "Undervoltage Condition" on page 14
- "Supported Fan Configuration" on page 14


## Undervoltage Condition

If a power supply experiences a temporary brownout or undervoltage condition, the `checkpower` command might indicate an `Alert` status for the power supply. The `Alert` does not reset upon supply voltage returning to nominal values. If the `checkpower` command reports an `Alert`, yet supplied voltage is known to be sufficient, perform the following task.

1. **Remove the power cord from the suspect power supply.**
2. **Remove the power supply from the switch chassis.**
3. **Wait for 1 minute.**
4. **Install the power supply into the switch chassis.**
5. **Attach the power cord to the power supply.**

---

**Note -** If the `checkpower` command still displays an `Alert` status for the power supply, refer to the Sun Datacenter InfiniBand Switch 36 Administration Guide for Firmware Version 2.1 for instructions on troubleshooting the switch and the power supply.

---

## Supported Fan Configuration

For optimum thermal management, ensure that the three fans shipped with your switch are installed at the central fan slots, Fan 1, Fan 2, and Fan 3. Installing any one of the three fans in fan slots Fan 0 or Fan 4 is not supported.

# Documentation Information and Issues

## Upgrade and Downgrade Paths Supported

The README files of previous firmware releases have omitted supported upgrade and downgrade paths.

This table identifies supported firmware version upgrade and downgrade paths.

| | **To** | | | | | |
|---|---|---|---|---|---|---|
| **From** | **1.0.*x*** | **1.1.*x*** | **1.3.*x*** | **2.0.*x*** | **2.1.2 - 2.1.6** | **2.1.7 - 2.1.9** |
| **1.0.*x*** | Upgrade or Downgrade | Upgrade or Downgrade | | | | |
| **1.1.*x*** | Upgrade or Downgrade | Upgrade or Downgrade | Upgrade or Downgrade | | | |
| **1.3.*x*** | | Upgrade or Downgrade | Upgrade or Downgrade | Upgrade or Downgrade | Upgrade or Downgrade | ■ Upgrade<br>■ Downgrade to 2.1.6 first |
| **2.0.*x*** | | | Upgrade or Downgrade | Upgrade or Downgrade | Upgrade or Downgrade | ■ Upgrade<br>■ Downgrade to 2.1.6 first |
| **2.1.2 - 2.1.6** | | | Upgrade or Downgrade | Upgrade or Downgrade | Upgrade or Downgrade | ■ Upgrade<br>■ Downgrade to 2.1.6 first |
| 2.1.7 - 2.1.9 | | | ■ Upgrade<br>■ Downgrade to 2.1.6 first | ■ Upgrade<br>■ Downgrade to 2.1.6 first | ■ Upgrade<br>■ Downgrade to 2.1.6 first | Upgrade or Downgrade |

For example, upgrading from firmware version 1.1.2 to 1.3.5 is supported. However, upgrading from firmware version 1.1.2 to 2.1.5 is not. You must first upgrade from firmware version 1.1.2 to 1.3.*x*, and from firmware version 1.3.*x* to 2.1.5.

Similarly, downgrading from firmware version 2.1.6 to 2.0.7 is supported. However, downgrading from firmware version 2.1.9 to 2.0.7 is not. You must first downgrade from firmware version 2.1.9 to 2.1.6 using the downgrade version of firmware 2.1.6. Then you can downgrade from 2.1.6 to 2.0.7.

---

**Note -** See “Firmware Update Guidelines” on page 12 about upgrading and downgrading firmware.

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# Command Corrections

Both the `smpartition` and `smsubnetprotection` commands have had updates or features that were mistakenly undocumented. The following two sections are updated and corrected versions of command reference information that supersede information currently provided in the Sun Datacenter InfiniBand Switch 36 Command Reference for Firmware Version 2.1 and Sun Datacenter InfiniBand Switch 36 Administration Guide for Firmware Version 2.1.

## `smpartition` Command

Manages the partition configuration.

### Syntax

`smpartition` *subcommand* `[-h]`

This hardware command has subcommands that determine its functionality. This table describes the *subcommands* and provides their syntax.

| Subcommand Syntax | Description |
|---|---|
| `peerversion` | Displays the firmware version of smnode peers of the master Subnet Manager. |
| `start [tid]` | Initiates a new configuration based upon a currently used configuration. |
| `create [tid` *tid*`][-n` *partition_name*`] -pkey` *p_key* `[use_grh][-m` *defmember*`][-flag [ipoib [mtu` *mtu*`][rate` *rate*`][sl` *sl*`][scope` *scope*`]]]` | Creates a new partition. The `-m` option configures the default membership for the partition. |
| `delete [tid` *tid*`] -n` *partition_name*`\|-pkey` *p_key* | Deletes a partition. |
| `add [tid` *tid*`] -n` *partition_name*`\|-pkey` *p_key* `-port` *port* `\|ALL_CAS\| ALL_SWITCHES\|ALL_ROUTERS [-m` *member*`]` | Adds one or more ports to the partition. The `-m` option sets the membership for the ports. |
| `remove [tid` *tid*`] -n` *partition_name*`\|-pkey` *p_key* `-port` *port* `\|ALL_CAS\| ALL_SWITCHES\|ALL_ROUTERS` | Removes one or more ports to the partition. |
| `modify [tid` *tid*`] -n` *partition_name*`\|-pkey` *p_key* `[-flag [ipoib [mtu` *mtu*`][rate` *rate*`][sl` *sl*`][scope` *scope*`]]]\|[-port` *port* `\|ALL_CAS\| ALL_SWITCHES\|ALL_ROUTERS [-m` *member*`]]` | Modifies a partition flag or port membership. The `-m` option sets the membership for the ports. |
| `list active\|modified [no-page]` | Displays the active or modified configuration. By default, the output is displayed one page at a time, advanced by pressing the spacebar. The `no-page` option enables a continuous stream of output without page breaks. |

| Subcommand Syntax | Description |
|---|---|
| `listcurrenttid` | Lists the current transaction ID. |
| `commit` [`tid` *tid*] | Commits the modified configuration to become the active configuration. |
| `abort` [`tid` *tid*] | Abruptly ends the configuration session. All modified configuration information is lost and the active configuration remains unchanged. |

where:

- *tid* is the transaction ID (`0` to `4294967295`).
- *partition_name* is an alphanumeric tag to the InfiniBand partition (optional).
- *p_key* is the partition key (`1` to `7fff` or `default`).

---

**Note -** You cannot delete the pre-defined partitions with P_Keys `1` and `7fff`.

---

- *defmember* is the default membership type (`full`, `limited`, or `both`) for the partition.

---

**Note -** If ports are added to the partition without specifying the membership type, the default membership type is applied to the port.

---

- *mtu* is the number that maps to the actual MTU (`1` to `5`).

| *mtu* **Number** | **1** | **2** | **3** | **4** | **5** |
|---|---|---|---|---|---|
| MTU Value | 256 | 512 | 1024 | 2048 | 4096 |

- *rate* is the number that maps to the actual throughput of a link (link width + link speed) (`2` to `10`).

| *rate* **Number** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |
|---|---|---|---|---|---|---|---|---|---|
| Rate Value in Gbps | 2.5 | 10 | 30 | 5 | 20 | 40 | 60 | 80 | 120 |

- *sl* is the service level (`0` to `15`).

---

**Note -** Use service level 1 (`sl 1`) only for low-latency, high-priority, small-message, low-bandwidth traffic. Use other service levels for regular, high-bandwidth traffic.

---

- *scope* is the multicast address scope value (`1` to `14`).

**Note -** The `mtu`, `rate`, `sl`, and `scope` parameters are for the multicast group created when `ipoib` (IP over InfiniBand) is configured for the partition. Typically, these values are not specified as the defaults are sufficient for the fabric configuration.

- *port* is the GUID of the port, or the special parameter, to add, remove, or modify:
  - `ALL_CAS` – All CAs in the InfiniBand fabric.
  - `ALL_SWITCHES` – All switches.
  - `ALL_ROUTERS` – All routers.
- *member* is the membership type (`full`, `limited`, or `both`) for the port.

## Description

This hardware command is used to manage the InfiniBand partitions and is available only on management controllers that are hosting the primary (or master) Subnet Manager. There are two configurations for the InfiniBand partition, the active configuration and the modified configuration. When configuring a partition, you must initiate the configuration session with the `smpartition start` command. During the session, you create a modified copy of the active configuration. To end the session, you must use the `smpartition commit` command to make the modified configuration the active configuration. Once committed, the active configuration is distributed to all Subnet Managers in the InfiniBand fabric where the management controller's IP addresses are listed in the Subnet Manager nodes file.

The Subnet Manager nodes file must exist in every management controller file system. The file contains a list of IP addresses of all active management controllers hosting a Subnet Manager in your fabric. The file should have an entry for every Sun Datacenter InfiniBand Switch 36 and Sun Network QDR InfiniBand Gateway Switch that runs a Subnet Manager in your InfiniBand fabric.

**Note -** If the Subnet Manager nodes of your InfiniBand fabric ever change (disabled, added, and so on), you must update all copies of the Subnet Manager nodes file and the fabric element configuration file. Refer to the `smnodes` command and the `createfabric` command in the Sun Datacenter InfiniBand Switch 36 Command Reference for Firmware Version 2.1.

## Options

This table describes the options to the `smpartition` command and their purposes.

| Option | Purpose |
|---|---|
| `tid` | Specifies the transaction ID. The transaction ID adds an additional layer of security to the `smpartition` command. The identifier is a 32-bit unsigned integer, returned when the partition configuration session is started with the `smpartition start tid` command. This identifier is then required for all subsequent actions to the particular partition. Use of the transaction ID mediates changes to the partition by multiple users. |
| `-n` | Specifies the partition name. |
| `-pkey` | Specifies the partition key. |
| `use_grh` | If the `use_grh` option is used in the `smpartition create` command, a requirement of the partition is that Global Route Headers (GRH) are attached to InfiniBand messages and are used for path resolution requests made to the Subnet Manager. This option provides additional security for Engineered Systems. |
| `-m` | Specifies the membership type.<br><br>If the `-m` option is used in the `smpartition create` command, the default membership type of the partition is specified.<br><br>If the `-m` option is used with the `smpartition add` command or `smpartition modify` command, the membership type of the port is specified.<br><br>If ports are added to the partition without specifying the membership type, the default membership type for the partition is applied to the port. |
| `-port` | Specifies the port or ports to be acted upon:<br><br>■ *port* – The GUID of the port to be acted upon.<br><br>Alternatively, one these special parameters is specified instead of a GUID.<br><br>■ `ALL_CAS` – All CAs in the InfiniBand fabric.<br>■ `ALL_SWITCHES` – All switches.<br>■ `ALL_ROUTERS` – All routers. |
| `-flag` | Specifies:<br><br>■ `ipoib` – If present, IP over InfiniBand is to be supported.<br>■ `mtu` – Sets the MTU.<br>■ `rate` – Sets the throughput of a link (link width + link speed).<br>■ `sl` – Sets the service level.<br>■ `scope` – Sets the multicast address scope.<br><br>**Note -** The `-flag` option by itself disables IPoIB.<br><br>If you use the `-flag` option in the `smpartition modify` command, you must restart the master Subnet Manager or perform a Subnet Manager handover after the `smpartition commit` command. Because this causes an interruption of service, if you want flag parameters different than the default, consider setting partition flags at the time of partition creation. |
| `-h` | Provides help. |

### Example

This example shows how to display the active configuration of the InfiniBand partition with the `smpartition` command.

```
FabMan@switch_name->smpartition list active
# Sun DCS IB partition config file
# This file is generated, do not edit
#! version_number : 16
Default=0x7fff, ipoib : ALL_CAS=full, ALL_SWITCHES=full, SELF=full;
SUN_DCS=0x0001, ipoib : ALL_SWITCHES=full;
part1 = 0x9001,ipoib:
0x0002c90300089138=full,
0x0002c9030008923b=full,
0x0002c9030008923c=full,
0x0002c90300089103=limited,
0x0002c90300089104=full,
0x0002c90300089137=limited;
part2 = 0x9002,ipoib:
0x0003ba000100e389=full,
0x0002c903000890cb=limited,
0x0002c903000890cc=full,
0x0002c903000890c8=full,
0x0002c903000890c7=limited;
FabMan@switch_name->
```

## `smsubnetprotection` Command

Manages the secret M_Key.

### Syntax

`smsubnetprotection` *subcommand* `[-h]`

This hardware command has subcommands that determine its functionality. This table describes the *subcommands* and provides their syntax.

| Subcommand Syntax | Description |
|---|---|
| `start [-force][-addonly\|-deleteonly][-override-inconsistent-partition-configurations][-override-unavailable-smnodes][tid]` | Initiates a new configuration based upon a currently used configuration. Use the `-force` option or `-override-unavailable-smnodes` option to bypass the partition daemon check. |

| Subcommand Syntax | Description |
|---|---|
| `list active\|modified` | Displays a list of active secret M_Keys, the current secret M_Key, and the enabled status, or displays a list of pending M_Keys and the M_Key to be assigned to current status. |
| `listlocalmkey` | Displays the current local M_Key for an I4 switch chip without a corresponding Subnet Manager and its status. |
| `listcurrenttid` | Lists the current transaction ID. |
| `setlocalsecretmkey` *m_key* | Sets the secret M_Key locally for an I4 switch chip without a corresponding Subnet Manager. |
| `clearlocalmkey` | Clears the local secret M_Key. |
| `add` *m_key* `[tid` *tid*`]` | Adds an M_Key to the configuration. |
| `delete` *m_key* `[tid` *tid*`]` | Deletes an M_Key from the configuration. |
| `undo` [`tid` *tid*] | Reverts the previous `add`, `delete`, or `set-current` operation. |
| `set-current` *m_key* `[tid` *tid*`]` | Sets the current M_Key. |
| `commit [-force][-override-inconsistent-partition-configurations] [-override-unavailable-smnodes][tid` *tid*`]` | Commits the modified configuration to become the active configuration. Use the `-force` option or `-override-unavailable-smnodes` option to bypass the partition daemon check. See "Options" on page 24. |
| `abort` [`tid` *tid*] | Abruptly ends the configuration session. All modified configuration information is lost, and the active configuration remains unchanged. |
| `setreplicationpassword` *password* `[tid` *tid*`]` | Configures the replication (and encryption) password. |
| `enablesecretmkey [-force][-override-inconsistent-partition-configurations][-override-unavailable-smnodes]` | Enables secret M_Key functionality. Use the `-force` option or `-override-unavailable-smnodes` option to bypass the partition daemon check. See "Options" on page 24. |
| `disablesecretmkey [-force][-override-inconsistent-partition-configurations][-override-unavailable-smnodes]` | Disables secret M_Key functionality. Use the `-force` option or `-override-unavailable-smnodes` option to bypass the partition daemon check. See "Options" on page 24. |

where:

- *m_key* is the management key (16 hexadecimal digits).
- *tid* is the transaction ID (`0` to `4294967295`).
- *password* is encryption string for M_Key replication (8 alphanumeric characters).

## Description

This hardware command manages the secret M_Key and its implementation. The secret M_Key is a passphrase used by trusted Subnet Managers to securely perform activities (enabling ports,

setting parameters, and so on) on the I4 switch chips as well as any end node in the InfiniBand fabric.

A readable M_Key is an M_Key operating in a mode, where the node that possesses the M_Key permits the value of the M_Key to be read through in-band operations on the InfiniBand fabric, without first specifying the current readable M_Key value. The secret M_Key is an M_Key that cannot be obtained in-band by way of the InfiniBand fabric without first knowing the current secret M_Key value.

Use the `smsubnetprotection` command and its subcommands to create and manage the list of secret M_Keys. When configuring a list of secret M_Keys, you first enable secret M_Key functionality with the `enablesecretmkey` subcommand. Then you initiate the configuration session on the master Subnet Manager with the `smsubnetprotection start` command. During the session, you add or delete secret M_Keys to the configuration, set the current secret M_Key, and list the M_Keys configured.

**Note -** There is a maximum of 10 secret M_Keys for the configuration.

To end the session, you must use the `smsubnetprotection commit` command to make the configuration active. Once committed, the configuration is automatically distributed to all Subnet Managers in the InfiniBand fabric.

**Note -** You cannot both add and delete secret M_Keys within a single configuration session. You must perform these actions in separate configuration sessions.

Should a local secret M_Key be created for an I4 switch chip without a corresponding Subnet Manager, that secret M_Key is only recognized by that I4 switch chip, and is unrecognized by the other I4 switch chips in the InfiniBand fabric.

Because of the complexity of the secret M_Key functionality, this table describes the impact of certain scenarios and actions you can take.

| Scenario | Impact and Actions |
|---|---|
| Setting up secret M_Key in a mixed firmware fabric. | If the master Subnet Manager has firmware 2.1, only other Subnet Managers with firmware 2.1 can administrate the fabric. For Subnet Managers with firmware 2.0 or lower, the fabric “disappears”.<br><br>If the master Subnet Manager has firmware 2.0 or lower, you can only set up local secret M_Keys for the I4 switch chips on their respective Subnet Managers with firmware 2.1.<br><br>Both situations are unsupported and not recommended. |
| Downgrading firmware after secret M_Key has been enabled. | If the master Subnet Manager is downgraded to firmware 2.0 or lower and there is a standby Subnet Manager with firmware 2.1, the secret M_Key is maintained through the standby Subnet Manager during the master Subnet Manager's reboot. After the reboot, the situation becomes as in the first scenario. |

| Scenario | Impact and Actions |
|---|---|
| | If you downgrade any other Subnet Manager to firmware 2.0 or lower, the situation becomes as in the first scenario.<br><br>Before you downgrade any firmware, disable secret M_Key.<br>**Note -** Readable M_Key is not affected by a downgrade from firmware 2.1 to 2.0. |
| Upgrading from a lower firmware version. | Do not enable secret M_Key until all Subnet Managers in the fabric are at firmware version 2.1 or higher. |
| Introducing a new Subnet Manager with firmware 2.1 or higher, yet no secret M_Key policy, into a secret M_Key fabric. | Before introducing the new Subnet Manager to the fabric:<br><br>1. Disable the new Subnet Manager.<br>2. Set the new Subnet Manager priority to the lowest.<br>3. Update the smnodes file with the `smnodes` command.<br>4. Enable the new Subnet Manager.<br><br>After introducing the new Subnet Manager to the fabric:<br><br>1. Update the fabric configuration with the `fdconfig` command.<br>2. Update the fabric mapping with the `createfabric` command.<br>3. Perform a `smpartition start`, then `smpartition commit`, then `smsubnetprotection start`, and finally, `smsubnetprotection commit` from the master Subnet Manager<br>4. Return the priority of the new Subnet Manager to its previous value. |
| Secret M_Key values are mismatched. | If you add a Subnet Manager with one set of secret M_Keys to a fabric with a different set of secret M_Keys, the added Subnet Manager is not recognized.<br><br>Before introducing the new Subnet Manager to the fabric:<br><br>1. Update the fabric's master Subnet Manager's list of known secret M_Keys to include the secret M_Keys already configured for the new Subnet Manager, with the `smsubnetprotection add` command.<br>2. Do not change the current secret M_Key.<br>3. Disable the new Subnet Manager.<br>4. Set the new Subnet Manager priority to the lowest.<br>5. Update the smnodes file with the `smnodes` command.<br>6. Enable the new Subnet Manager.<br><br>After introducing the new Subnet Manager to the fabric:<br><br>1. Update the fabric configuration with the `fdconfig` command.<br>2. Update the fabric mapping with the `createfabric` command.<br>3. Perform a `smpartition start`, then `smpartition commit`, then `smsubnetprotection start`, and finally, `smsubnetprotection commit` from the master Subnet Manager<br>4. Set the secret M_key policy as desired from the master Subnet Manager.<br>5. Return the priority of the new Subnet Manager to its previous value. |
| Merging two or more subnets into one fabric. | If each subnet is configured with different secret M_Key policies, then the subnets will not "see" each other and will act independently.<br><br>If one subnet is without a secret M_Key policy, then the subnet with a secret M_Key policy controls the subnet without. |

| Scenario | Impact and Actions |
|---|---|
| | If each subnet is configured with identical secret M_Key policies, they merge into a single subnet.<br><br>Before physically merging the subnets:<br><br>1. Set the priority of one master Subnet Manager to lower than the other.<br>2. Configure the soon-to-be master Subnet Manager of the combined subnets with partition information from both subnets with the `smpartition` command.<br>3. Update the soon-to-be master Subnet Manager's list of known secret M_Keys to include the secret M_Keys already configured for the other subnet, with the `smsubnetprotection add` command.<br>4. Do not change the current secret M_Key.<br><br>After physically merging the subnets:<br><br>1. Update the smnode files for all smnodes of both subnets with the `smnodes` command.<br>2. Configure both subnets with the new fabric configuration with the `fdconfig` command.<br>3. Correlate both subnets to the new fabric mapping with the `createfabric` command.<br>4. Perform a `smpartition start`, then `smpartition commit`, then `smsubnetprotection start`, and finally, `smsubnetprotection commit` from the now master Subnet Manager.<br>5. Set the secret M_key policy as desired from the master Subnet Manager. |

This table describes each of the columns of the output of the `smsubnetprotection` command.

| Column Heading | Description |
|---|---|
| `Mkey` | Secret M_Keys provided by the user for trusted devices. |
| `Untrusted Mkey` | Secret M_Keys generated from user input, for untrusted devices. |
| `Smkey` | SMKeys are used in communication between the Subnet Managers. |
| `Attribute` | The attribute of the M_Key.<br><br>■ `C` – The current secret M_Key.<br>■ `S` – The standby secret M_Key about to become current. |

The `smsubnetprotection` command is available from the `/SYS/Fabric_Mgmt` Linux shell target of the Oracle ILOM CLI interface.

## Options

This table describes the options to the `smsubnetprotection` command and their purposes.

| Option | Purpose |
|---|---|
| `-force` | Specifies the action to bypass the partition daemon check and perform the operation even though not all smnodes are available or communicating with the management network. The `-force` option is synonymous with the `-override-unavailable-smnodes` option. |
| `-addonly` | Specifies that the session is only to add secret M_Keys to the configuration. |
| `-deleteonly` | Specifies that the session is only to delete secret M_Keys from the configuration. |
| `-override-inconsistent-partition-configurations` | Specifies that the check for partition consistency across smnodes is bypassed. Before updating the secret M_Key configuration, all smnodes to use that secret M_Key must have the same partition configuration. If not, the user is warned of such situation during the secret M_Key configuration update. This option overrides the check, and permits the secret M_Key configuration to be used, regardless of the consequences. Use of this option compromises the integrity of your fabric. |
| `-override-unavailable-smnodes` | Specifies the action to bypass the partition daemon check and perform the operation even though not all smnodes are available or communicating with the management network. The `-override-unavailable-smnodes` option is synonymous with the `-force` option. |
| `tid` | Specifies the transaction ID. The transaction ID adds an additional layer of security to the `smsubnetprotection` command. The identifier is a 32-bit unsigned integer, returned when the secret M_Key configuration is created (`smsubnetprotection start`) with the `tid` option. This identifier is then required for all subsequent actions to the secret M_Key configuration. Use of the transaction ID mediates changes to the secret M_Key configuration by multiple users. |

## Example

This example shows how to display the active secret M_Keys with the `smsubnetprotection` command.

```
FabMan@switch_name->smsubnetprotection list active
# File_format_version_number 1
# Sun DCS IB mkey config file
# This file is generated, do not edit
# secretmkey=enabled
# nodeid=o4nm2-m36-6
# time=15 Sep 03:54:46
# checksum=378d9b09744e1d8b8ba6ae868c99d0c9
#! commit_number : 3
Mkey                    Untrusted Mkey          Smkey                   Attribute
------------------      ------------------      ------------------      ---------
0x00abcdefabcdef01      0x1aa45124fee612ae      0x15fc26aea300f831
0x00abcdefabcdef02      0x4ccd8230de6cd348      0x3fc7e6ad701a8a2a
0x00abcdefabcdef03      0x9baa1debcc74de5e      0x1b253003600d137b      C
FabMan@switch_name->
```

# Features and Functionality Documented

The features and functionality described in the switch documentation has been updated to reflect the 2.1.2-2 and later versions of the firmware. Upgrading your switch firmware to the most current version helps increase switch functionality. See “Upgrading the Switch Firmware” on page 30.

# Correct Power Consumption

In the Electrical Specifications table of the Sun Datacenter InfiniBand Switch 36 Installation Guide for Firmware Version 2.1, the table incorrectly states the power requirement of 550 Watts. The correct value is 320 Watts maximum.

# Node Description Format

The format of the node description in the Sun Datacenter InfiniBand Switch 36 Installation Guide for Firmware Version 2.1 is incorrect. The correct format is:

`SUN DCS 36P QDR` *hostname mc_IP*

where:

- *hostname* is the hostname of the switch and a maximum of 17 characters. Any additional characters are truncated.
- *mc_IP* is the IP address of the management controller in the switch.

For example:

```
SUN DCS 36P QDR IBSwitch36p-02 123.45.67.89
```

# Battery Service Sequence

In the Sun Datacenter InfiniBand Switch 36 Service Manual for Firmware Version 2.1, the summary of the tasks to service the battery is in the incorrect sequence. This table corrects the sequence.

| Step | Description | Sections |
|---|---|---|
| 1. | Determine if the battery is faulty. | “Determine If the Battery Is Faulty”. |
| 2. | Power off both power supplies. | “Power Off a Power Supply”. |

| Step | Description | Sections |
|---|---|---|
| 3. | Remove all InfiniBand cables. | “Remove an InfiniBand Cable”. |
| 4. | Remove the switch from the rack. | “Remove the Switch From the Rack”. |
| 5. | Replace the battery. | “Replace the Battery”. |
| 6. | Install the switch in the rack. | “Installing the Switch” in the Sun Datacenter InfiniBand Switch 36 Installation Guide for Firmware Version 2.1. **Note -** Do not power on the switch. |
| 7. | Install all InfiniBand cables. | “Install an InfiniBand Cable”. |
| 8. | Power on both power supplies. | “Power On a Power Supply”. |

**Note -** You must completely power off the switch before disconnecting the InfiniBand cables. Similarly, you must attach all InfiniBand cables before powering on the switch.

# ▼ Replace a Switch

This procedure briefly outlines the steps to replace a switch within an InfiniBand fabric. Refer to the following books for more information:

- Sun Datacenter InfiniBand Switch 36 Service Manual for Firmware Version 2.1
- Sun Datacenter InfiniBand Switch 36 Administration Guide for Firmware Version 2.1
- Sun Datacenter InfiniBand Switch 36 Installation Guide for Firmware Version 2.1

This procedure assumes that a secret M_Key policy is in use and the fabric is partitioned.

1. **Set the priority of the switch to be removed to the lowest.**
   Wait for any handover to complete.
2. **Create a backup of the switch configuration for the switch to be removed.**
3. **Completely power off the switch.**
4. **Remove the switch from the fabric and management network.**
5. **Install and power on the replacement switch, but do not connect it to the fabric or the fabric's management network.**
6. **Configure the replacement switch with the same hostname, IP address, and lowest priority as the switch removed.**
7. **Restore the switch configuration previously backed up.**

8. **Completely power off the replacement switch.**

9. **Connect the replacement switch to the fabric's management network and the fabric.**

10. **Power on the replacement switch.**
    Wait for any negotiation and propagation to complete.

11. **Perform a smpartition start and smpartition commit from the master Subnet Manager.**
    Wait for the partition configuration to propagate to the replacement switch.

12. **Perform a smsubnetprotection start and smsubnetprotection commit from the master Subnet Manager.**
    Wait for the secret M_Key policy to propagate to the replacement switch.

13. **Set up the smnodes file and fabric configuration file for the replacement switch, and ensure that the list and file are consistent with other switch and gateway lists and files.**

14. **(Optional) Set the priority of the replacement switch to that originally of the removed switch.**
    Wait for any handover to complete.

# Multiple Subnet Managers in a Single Fabric

When a fabric has multiple Subnet Managers, you must configure some parameters uniquely and some identically.

- **Subnet Manager Priority** – Subnet Managers can have different Priority values. The overall priority is determined from both the switch's GUID and the Priority value. Configure the Subnet Managers with the highest Priority value first, then configure any remaining Subnet Managers.
- **Subnet Manager Prefix** – All Subnet Manager must use the same prefix. Configure the standby Subnet Managers first, then configure the master Subnet Manager.
- **Subnet Manager Controlled Handover** – All Subnet Manager must use the same configuration for controlled handover. Configure the standby Subnet Managers first, then configure the master Subnet Manager.
- **Subnet Manager Routing Algorithm** – All Subnet Manager must use the same routing algorithm. Configure the standby Subnet Managers first, then configure the master Subnet Manager.

# Replication Password Information Incomplete

The replication password is an eight alphanumeric character string used for encrypting communications between Subnet Managers nodes. All Subnet Managers must be configured with the same string, and you set the replication password using the `smsubnetprotection` command on the management controller of each Subnet Manager node. Because of the password's secure nature, is not readable. Therefore, you must remember the password for when adding Subnet Manager nodes in the future. Should you forget the replication password, you must reconfigure all Subnet Manager nodes with a new replication password.

# Temperature Sensor Thresholds Incorrect

Some of the temperature sensor thresholds described in the documentation are incorrect. This table provides correct threshold values.

| Sensor | Upper Critical Threshold | Upper Nonrecoverable Threshold |
|---|---|---|
| `/SYS/MB/T_SP` | 80°C | 85°C |
| `/SYS/MB/T_BACK` | 60°C | 65°C |
| `/SYS/MB/T_FRONT` | 60°C | 65°C |
| `/SYS/MB/T_I4A` | 90°C | 95°C |

# README File Is Incomplete

The README file accompanying the 2.1.2-2 firmware available for download from My Oracle Support is lacking this list of bugs fixed in the 2.1.2-2 firmware. The README file accompanying the 2.1.3-4 through 2.1.9-1 firmware is correct and inclusive of these bugs.

- 15787181 – Segmentation fault in `osm_mgrp_delete_port()`
- 15809823 – Subnet Manager should have a lease time of 60 seconds
- 15810464 – `getmaster` CLI command should show local SM state
- 15957702 – Switch running master Subnet Manager should trigger handover at reboot
- 15805689 – Default high error rate threshold should be increased to 3456 symbol errors per 24h
- 15815591 – BridgeX and I4 firmware versions should be checked by `fwverify`
- 15810720 – Do not allow to create partition without specifying P_Key

# Configuring Secure Fabric Management

In the Sun Datacenter InfiniBand Switch 36 Administration Guide for Firmware Version 2.1 and the Sun Datacenter InfiniBand Switch 36 Command Reference for Firmware Version 2.1, text might instruct you to configure secret M_Key functionality before enabling the secret M_Keys. This is incorrect. You must first enable secret M_Key functionality before configuring the secret M_Keys.

# Upgrading the Switch Firmware

In the Oracle Integrated Lights Out Manager (ILOM) 3.0 Supplement for the Sun Network QDR InfiniBand Gateway Switch Firmware Version 2.1, firmware version numbers are provided as *x.y*, *x.y.z*, and *x.y.z_w*. Currently, these numbers are 2.1, 2.1.9, and 2.1.9-1 respectively. The following two procedures describe how to acquire and upgrade the firmware through the Oracle ILOM CLI.

---

**Note -** The switch must have at least version 1.3 firmware installed before the following two procedures can be performed. Refer to the Oracle Integrated Lights Out Manager (ILOM) 3.0 Supplement for the Sun Network QDR InfiniBand Gateway Switch Firmware Version 2.1 for instructions on installing the firmware.

---

## ▼ Acquire the Switch Firmware Package (CLI)

1. **Open a web browser on a host that is on the same Ethernet network as the management controller to receive the firmware update.**

2. **Go to this URL.**

   `http://support.oracle.com`

   Oracle's My Oracle Support page is displayed.

3. **Sign in if you already have an account.**

   The dashboard page is displayed.

   ---

   **Note -** If you do not have an account, you must register.

   ---

4. **From the More... drop-down menu, select Patches & Updates.**

   The Patches and Updates page is displayed.

5. **In the Patch Search window, click the Search tab.**

   The Patch Search window updates.

6. **Click the Product or Family (Advance) link.**

   The Patch Search window updates.

7. **In the Product Is drop-down menu, select Sun Datacenter InfiniBand Switch 36.**

8. **In the Release Is drop-down menu, select Sun Datacenter InfiniBand Switch 36** *x.y.z***.**

   Where *x.y.z* is the version number of the firmware package to be acquired. For example, 2.1.9.

9. **Click outside of the drop-down menu.**

10. **Click Search.**

    The Patch Search window expands with the search results.

11. **In the Patch Name column, click the respective patch number link.**

    For example, `25467804`. The Patch Search window reformats.

12. **Click Read Me to display the README file.**

13. **Click Download.**

    The File Download window opens.

14. **Click the** *filename*`.zip` **link to initiate the download.**

    For example, `p25467804_219_Generic.zip`.

15. **Indicate where the file should be saved.**

    The file is downloaded and saved.

16. **In your receiving directory, decompress the** *filename*`.zip` **file.**

    The firmware is in the `SUN_DCS_36p_2.1.9-1/SUN_DCS_36p/sundcs_36p_repository_2.1.9_1.pkg` file.

    The `readme_SUN_DCS_36p_2.1.9-1.txt` file contains the latest information about the firmware release.

17. **Move the switch firmware package (***filename*`.pkg`**) to a directory on a host that is accessible by Oracle ILOM.**

18. **Upgrade the switch firmware.**

    See "Upgrade the Switch Firmware (CLI)" on page 32.

## ▼ Upgrade the Switch Firmware (CLI)

---

**Note -** Before upgrading or downgrading the switch firmware, read "Firmware Update Guidelines" on page 12.

---

**Note -** If you are going to downgrade the firmware to a version earlier than 2.1, you must disable secret M_Keys. Refer to the Sun Datacenter InfiniBand Switch 36 Administration Guide for Firmware Version 2.1 for instructions on disabling secret M_Key functionality.

---

**Note -** If you are going to downgrade the firmware to a version earlier than 2.0, you must remove user partitions and depopulate the Subnet Manager nodes list. Refer to the Sun Datacenter InfiniBand Switch 36 Administration Guide for Firmware Version 2.1 for instructions on removing partitions for a firmware downgrade.

---

1. **Consider your first step:**

   - If you are upgrading or downgrading from firmware version 2.0 or newer, go to Step 2.
   - If you are upgrading or downgrading from a firmware version earlier than 2.0, go to Step 5.

2. **Open an SSH session as user `ilom-admin` and connect to the management controller by specifying the controller's host name.**

   For example:

   ```
   % ssh -l ilom-admin switch_name
   ilom-admin@switch_name's password: password
   ->
   ```

   where *switch_name* is the host name of the management controller. Initially, the *password* is `ilom-admin`.

3. **If the Subnet Manager is running on the management controller, disable the Subnet Manager.**

   ```
   -> show /SYS/Fabric_Mgmt
   NOTE: show on Fabric_Mgmt will launch a restricted Linux shell.
        User can execute switch diagnosis, SM Configuration and IB
        monitoring commands in the shell. To view the list of commands,
        use "help" at rsh prompt.
   ```

```
    Use exit command at rsh prompt to revert back to
    ILOM shell.

FabMan@switch_name->disablesm
Stopping partitiond-daemon.                              [  OK  ]
Stopping IB Subnet Manager..                             [  OK  ]
FabMan@switch_name->exit
exit
->
```

4. **Go to Step 11.**

5. **Open an SSH session as user `root` and connect to the management controller by specifying the controller's host name.**

```
% ssh -l root switch_name
root@switch_name's password: password
#
```

where *switch_name* is the host name of the management controller. Initially, the *password* is `changeme`.

6. **If the Subnet Manager is running on the management controller, disable the Subnet Manager.**

```
# disablesm
Stopping partitiond daemon.                              [  OK  ]
Stopping IB Subnet Manager..                             [  OK  ]
#
```

7. **Verify that there is at least 80 MB available in the `/` filesystem.**

```
# df -h /
Filesystem            Size   Used   Avail  Use%  Mounted on
/dev/hda2             471M   276M   172M   62%   /
#
```

In this example, there are 172 MB available. If not enough space is available, you must delete or move files from the `/` filesystem.

8. **Verify that there is at least 120 MB available in the `/tmp` directory.**

```
# df -h /tmp
Filesystem            Size   Used  Avail  Use%  Mounted on
tmpfs                 250M   240K  249M   1%    /tmp
#
```

In this example, there are 249 MB available. If not enough space is available, you must delete files from the `/tmp` directory.

### 9. Verify that there is at least 120 MB free memory available.

```
# free -m
                        total       used       free     shared    buffers     cached
Mem:                    498         104        393      0         12          47
-/+ buffers/cache:      45          453
Swap:                   0           0          0
#
```

In the `-/+ buffers/cache:` row of the `free` column, there should be at least 120 MB free memory. In this example, there are 453 MB available. If not enough memory is available, you must exit nonessential applications that are running.

### 10. Start the Oracle ILOM shell.

```
# spsh
Oracle(R) Integrated Lights Out Manager
Version ILOM 3.0 r47111
Copyright (c) 2010, Oracle and/or its affiliates. All rights reserved.
->
```

You are now in the Oracle ILOM shell.

You can use the `exit` command to return to the Linux shell.

### 11. Begin the upgrade process.

-> **load -source** *URI*/*pkgname*

where:

- *URI* is the uniform resource indicator for the host where the switch firmware package is located. The FTP and HTTP protocols are supported. If you are upgrading from firmware 2.1.2-2 or newer, the TFTP protocol is also supported.
- *pkgname* is the name of the firmware package in the transfer directory.

For example, using the HTTP protocol:

```
-> load -source http://123.45.67.89/tmp/sundcs_36p_repository_2.1.9_1.pkg
Downloading firmware image. This will take a few minutes.
```

**Note -** If you are experiencing version number contention, you can use the `-force` option to disable version number checking, and force the upgrade.

The firmware is downloaded. The upgrade begins. A caution is displayed and you are asked to commit to the upgrade.

```
NOTE: Firmware upgrade will upgrade the SUN DCS 36p firmware. ILOM will enter a special mode to load
new firmware. No other tasks should be performed in ILOM until the firmware upgrade is complete.

Subnet manager is running on the switch. Proceeding with installation will stop it.
Are you sure you want to load the specified file (y/n)?
```

12. **Answer `y` to the prompt to commit to the upgrade.**

    The upgrade begins.

```
Setting up environment for firmware upgrade. This will take few minutes.
Subnet manager has been temporarily disabled on this switch so that firmware upgrade can go on. After the
upgrade is done, please make sure that the SM is running again, using commands sminfo and enablesm.
Starting SUN DCS 36p FW update
==========================
Performing operation: I4 A
==========================
I4 A: I4 is already at the given version.
==========================
Summary of Firmware update
==========================
I4 status                :  FW UPDATE - SUCCESS
I4 update succeeded on   :  none
I4 already up-to-date on :  A
I4 update failed on      :  none
========================================
Performing operation: SUN DCS 36p firmware update
========================================
SUN DCS 36p fw upgrade from 2.1.6-2 to 2.1.9-1:
Upgrade started...
Upgrade completed.
INFO: SUN DCS 36p fw upgrade from 2.1.6-2 to 2.1.9-1 succeeded

Post-install checks started...
Post-install checks completed.
Firmware update is complete.
ILOM will be restarted and will take 2 minutes to come up.
You will need to reconnect to Integrated Lights Out Manager.

Stopping any already executing ILOM daemons
Starting event manager
Starting log manager
Starting ILOM IPMI stack
Started ILOM IPMI stack
Starting lumain
```

```
Starting luproxy
Starting ealertd
Starting web server
Starting SNMP
Terminated
#
```

### 13. Exit the Oracle ILOM CLI shell.

```
-> exit
exit
#
```

### 14. Restart the switch to enable the new firmware.

```
-> reset /SP
Are you sure you want to reset /SP (y/n)? y
Performing reset on /SP
Broadcast message from root (Thu Mar 16 14:00:34 2017):
The system is going down for reboot NOW!
-> Connection to switch_name closed by remote host.
Connection to switch_name closed.
```

**Note -** The restart process takes between 4 to 5 minutes to complete. The Oracle ILOM stack requires at least 2 minutes to become operational after a reboot.

### 15. If the Subnet Manager was previously disabled, log in as the `root` user and enable the Subnet Manager.

```
% ssh -l root switch_name
root@switch_name's password: password
# enablesm
Starting IB Subnet Manager.                                [  OK  ]
Starting partitiond daemon.                                [  OK  ]
#
```

### 16. Verify the firmware version.

```
# version
SUN DCS 36p version: 2.1.9-1
Build time: Jan 12 2017 09:16:51
SP board info:
Manufacturing Date: 2013.08.13
Serial Number: "NCDA00732"
Hardware Revision: 0x0007
Firmware Revision: 0x0102
BIOS version: SUN0R100
```

```
BIOS date: 06/22/2010#
```

In the first line of the output is `SUN DCS 36p version` *x*.*y*.*z*-*w*, where *x*.*y*.*z*-*w* is the version of the firmware upgraded (or downgraded). For example, 2.1.9-1.

### 17. Verify the firmware integrity.

```
# fwverify
Checking all present packages:
..................................................................... OK
Checking if any packages are missing:
..................................................................... OK
Verifying installed files:
..................................................................... OK
Checking FW Coreswitch:
 FW Version: 7.4.3002 OK
 PSID: SUN_NM2-36p_004 OK
 Verifying image integrity OK#
```