BTI7800 Series Command Line Reference Guide

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BTI7800 Series Command Line Reference Guide
4.4
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CHAPTER 1

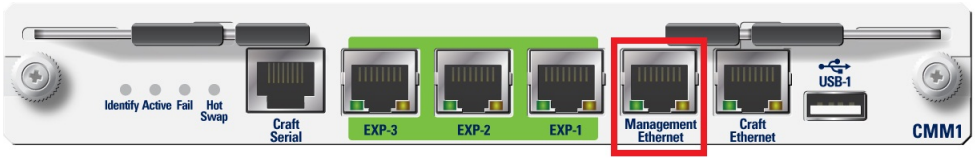
Introduction to CLI Commands

- Logging In to the CLI on page 11
- CLI Command Syntax Conventions on page 12
- Keystroke Shortcuts on page 13
- Inputting Character Strings and Passwords on page 14
- Controlling Output on page 16
- The "no" Form of a Command on page 18

Logging In to the CLI

Use this procedure to log in to the BTI7800 CLI. The BTI7800 CLI can be reached through SSH on port 22. The BTI7800 can support up to 20 simultaneous user CLI sessions.

1. Physically connect the Management Ethernet interface on the CMM to your management IP network.



2. Start an SSH session to the management interface from a computer on the management network. Use the shared management IP address you configured during commissioning and use port 22.

> NOTE: The BTI7800 has multiple IP addresses. You should always use the shared management IP address to reach the CLI. See *Management Overview* for more information on the shared management IP address.

For Linux and MAC OS X, launch a terminal window and start an SSH session. For Windows, install and launch a terminal application (for example, PuTTY).

```
$ ssh -p22 user@10.228.220.104
*****************************************************************************
* WARNING! The use of this system is restricted to authorized users.      *
```

```
*                                                                        *
* All information and communications on this system are subject to review,*
* Monitoring and recording at any time, without notice or permission.     *
*                                                                        *
**************************************************************************
user@10.228.220.104's password:
Welcome to BTI 7800 CLI admin connected from 192.168.0.157 using ssh on scm2
bti7800#
```

After you supply the correct login credentials, you will be logged in to the active SCM.

3. When you log in, your CLI session is automatically placed in operational mode. To enter configuration mode type **config**. To return to operational mode, type **exit**.

```
bti7800# config
Entering configuration mode terminal
bti7800(config)#
bti7800(config)# exit
bti7800#
```

Operational mode commands do not change the stored configuration. An example of an operational mode command is the **show** command. To change the stored configuration, you must execute commands in configuration mode.

4. If desired, use the **set** command to set user preferences for this session.

```
bti7800# set ?
Possible completions:
  complete-on-space      Enable/disable completion on space
  idle-timeout           Configure idle timeout
  ignore-leading-space   Ignore leading whitespace (true/false)
  paginate               Paginate output from CLI commands
  prompt1                Set operational mode prompt
  prompt2                Set configure mode prompt
  screen-length          Configure screen length
  screen-width           Configure screen width
  terminal               Set terminal type
```

For example, to set the **idle-timeout** to 6000 seconds:

```
bti7800# set idle-timeout 6000
bti7800#
```

NOTE: **If you want settings to persist across login sessions, use the user-profile command in configuration mode.**

CLI Command Syntax Conventions

The following table lists the command syntax conventions used throughout this document.

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Table 1: CLI Command Syntax Conventions

Convention	Description
bold	Commands, command options, and keywords
italics or *<italics>*	Arguments in which you supply values
[ ]	Elements in square brackets are optional.
{x|y|z}	Alternative keywords are grouped in braces and separated by vertical lines.
[x|y|z]	Optional alternative keywords are grouped in square brackets and separated by vertical lines. The options might be mutually inclusive or mutually exclusive, depending on the command.
<keyboard_key>	A key on the keyboard

Keystroke Shortcuts

The following table lists the keystroke shortcuts that are available and the actions they perform.

Keystroke Sequence	Common Name	Action
<DEL>	Delete	Backspace one character and delete
?	Question Mark	Provides help information
^A	Control+A	Position cursor to the start of the line
^B	Control+B	Position cursor left one character
^C	Control+C	Console interrupt character
^D	Control+D	Delete current character
^E	Control+E	Position cursor to end of line
^F	Control+F	Position cursor right one character
^H	Control+H	Backspace one character and delete
^I	Tab	Complete current word
^K	Control+K	Delete to end of line
^L	Control+L	Redraw line

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Keystroke Sequence	Common Name	Action
^N	Control+N	Move down one line in command history
^P	Control+P	Move up one line in command history
^R	Control+R	Reverse search
^T	Control+T	Switch characters
^U	Control+U	Clears input and resets line buffer
^W	Control+W	Deletes word
^X	Control+X	Clears input and resets line buffer
^Z	Control+Z	Exits current mode and returns to previous mode.
\	Back Slash	If character escaping, ignore special meaning of following character
<SP>	Space	Separates keywords
"	Quotation Mark	Surrounds a single token

Inputting Character Strings and Passwords

NOTE: This section applies to configuring character strings and CLI user passwords (that is, the passwords used to log in to the CLI). This section does not apply to entering other types of passwords, such as commands where you specify passwords for FTP/SFTP.

Some commands require you to enter character strings. If the character string includes any of the following special characters, then special handling is required:

Table 2: Special Characters

Special Character	Name	Uses
|	pipe	Used for controlling output
;	semicolon	Used for delimiting commands
?	question mark	Used for listing command completion options
<space>	space	Used for delimiting words

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Table 2: Special Characters *(continued)*

Special Character	Name	Uses
!	exclamation mark	Used for delimiting comments (such as in scripts)
“	quotation mark	Used for delimiting character strings
\	backslash	Used for escaping special characters

How you enter these special characters depends on where you type the character string. The CLI allows you two ways of entering character strings:

- Entering a Character String Directly on the Command Line on page 15
- Entering a Character String in Response to a Prompt on page 16

Entering a Character String Directly on the Command Line

When entering a character or CLI user password string directly on the command line and that string contains special characters, enclose the entire string in quotation marks.

For example:

```
bti7800(config-module-ufm:1/7)# custom1 "abcd!efg"
bti7800(config-module-ufm:1/7)# commit
Commit complete.
```

```
bti7800(config-module-ufm:1/7)# do show equipment chassis:1 module ufm:1/7
Module          PEC            Admin    Oper            Custom1
--------------- -------------- -------- --------------- ------------
ufm:1/7         BT8A78UFM4     up       notPresent      abcd!efg
```

If the string includes a backslash (\) or a quotation mark (“), precede it with a backslash (\) to escape it.

For example:

```
bti7800(config-module-ufm:1/7)# custom1 "abcd\\efg"
bti7800(config-module-ufm:1/7)# commit
Commit complete.
```

```
bti7800(config-module-ufm:1/7)# do show equipment chassis:1 module ufm:1/7
Module          PEC            Admin    Oper            Custom1
--------------- -------------- -------- --------------- ------------
ufm:1/7         BT8A78UFM4     up       notPresent      abcd\efg
```

```
bti7800(config-module-ufm:1/7)# custom1 "abcd\"efg"
bti7800(config-module-ufm:1/7)# commit
Commit complete.
```

```
bti7800(config-module-ufm:1/7)# do show equipment chassis:1 module ufm:1/7
Module          PEC            Admin    Oper            Custom1
--------------- -------------- -------- --------------- ------------
ufm:1/7         BT8A78UFM4     up       notPresent      abcd"efg
```

Entering a Character String in Response to a Prompt

When entering a character string in response to a prompt, there are fewer restrictions, but there are differences between configuring a character string for a parameter and configuring a CLI user password.

- When configuring a CLI user password, you can use all special characters at the prompt.

  For example:

  ```
  bti7800(config)# users user password
  (<string: Password >): abcd”;\|efg
  ```

  NOTE: The password is shown in clear text for illustration purposes only. On the CLI, the password is shown as a series of asterisks (*).

- When configuring a character string, you can use all special characters but if your string includes a backslash (\) or a quotation mark (“), you must escape it with a backslash (\).

  For example:

  ```
  bti7800(config-module-amp:1/4)# custom1
  (<string, min: 0 chars, max: 255 chars>) (): abcd\”:\\|efg
  ```

  ```
  bti7800(config-module-amp:1/4)# commit
  Commit complete.
  bti7800(config-module-amp:1/4)# do show equipment chassis:1 module amp:1/4
  Module          PEC             Admin State     Oper State      Custom1
  --------------- --------------- --------------- --------------- ---------------
  amp:1/4         BT8A78AMP1      up              down            abcd":\|efg
  ```

Controlling Output

The CLI allows you many ways to control and save the output of a command.

--More--

The CLI supports a MORE facility to control the amount of output when a large amount of data is displayed. After a screen's worth of data is displayed, a "--More--" prompt is shown at the bottom of the screen and the output is suspended until the user types in one of the following keys:

- <SPACE> to display the next screen's worth of data or remaining output.
- <CR> to scroll down one line.
- <q> or <SHIFT><q> to terminate the command.

The number of lines displayed is determined by the screen size values that are sent in by the Telnet or SSH client. The number of lines that are displayed for each screen of a MORE displayed are the screen size less 1 line for the "--More--" prompt.

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For example:

```
bti7800# show equipment
Chassis          PEC          Admin State  Oper State  Custom1            Custom2
---------------  -----------  -----------  ----------  ------------------ -------
chassis:1         BT8A78CH14   enabled      up

Module      PEC             Admin State  Oper State      Custom1            Custo
----------  --------------  -----------  --------------  ------------------ -----
amp:1/4      BT8A78AMP1      enabled      down
cmm:1/A      BT8A78CMM1      enabled      up
cmm:1/B      BT8A78CMM1      enabled      up
fan:1/1      BT8A78FAN1      enabled      up
fan:1/2      BT8A78FAN1      enabled      up
fan:1/3      BT8A78FAN1      enabled      up
fan:1/4      BT8A78FAN1      enabled      up
fan:1/5      BT8A78FAN5      enabled      up
fan:1/6      BT8A78FAN5      enabled      up
ila:1/5      BT8A78AMPL      enabled      down
--More--
```

Filtering Output with the Pipe (|) Output Modifier

The pipe (|) output modifier allows you filter output as well as to save the output to a file. The supported options are shown in the following table:

Option	Description
append *file*	Appends the output to the specified file.
begin *string*	Displays output beginning at the line that contains the specified string.
count	Displays a count of the number of lines of output.
exclude *string*	Displays lines that do not contain the specified string.
include *string*	Displays lines that only contain the specified string.
linnum	Enumerates lines in the output.
more	Displays a full screen's worth of lines followed by a --More-- prompt.
nomore	Displays output in its entirety without the --More-- prompt. This is useful when saving the output to a file.
save *file* **[overwrite]**	Saves the output to the specified file with the option to overwrite the specified file if the specified file already exists.
until *string*	Displays lines up to and including the line that contains the specified string.

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NOTE: You can use multiple pipes in the same command. The order that you enter the pipes dictates the order that the pipes are executed. See example.

For example:

```
bti7800# show equipment | include cmm | linnum
1: cmm:1/A     BT8A78CMM1      enabled      up
2: cmm:1/B     BT8A78CMM1      enabled      up

bti7800# show equipment | linnum | include cmm
8: cmm:1/A     BT8A78CMM1      enabled      up
9: cmm:1/B     BT8A78CMM1      enabled      up
```

The "no" Form of a Command

The "no" form of a command can take the following meanings depending on the context:

- Sets the parameter back to its default value. For example, to set the parameter, signaling-mode, back to its default value:

  ```
  bti7800(config-interface-10ge:1/3/1/1)# signaling-mode ?
  Possible completions:   [legacy]  legacy  standard

  bti7800(config-interface-10ge:1/3/1/1)# no signaling-mode
  bti7800(config-interface-10ge:1/3/1/1)# signaling-mode ?
  Possible completions:   [standard]  legacy  standard
  ```

- Negates a command. For example, to enable the airfilterAbsence alarm:

  ```
  bti7800(config)# no conditions settings airfilterAbsense disable
  ```

- Deletes a provisioned entity. For example, to delete an interface:

  ```
  bti7800(config)# no interface 10ge:1/3/1/2
  ```

Note that the "no" form of the same command might take on different meanings depending on the parameters you use in the command.

- This sets the parameter back to its default value:

  ```
  bti7800(config)# no system auto-warm-boot
  ```

- This enables the option:

  ```
  bti7800(config)# no system auto-warm-boot disabled
  ```


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CHAPTER 2

Data Dictionary

- Alarms and Conditions on page 19
- Chassis Number Ranges on page 28
- Slot Identifier Ranges on page 28
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- DWDM 50-GHz Wavelength Plan on page 54

Alarms and Conditions

Table 3: Alarms and Conditions

Alarm/condition	Description	Default Severity	Service Affecting
airFilterAbsence	Air filter absent. No air filter has been detected in the BTI7814 chassis. An air filter is mandatory in the BTI7814 chassis. This alarm does not apply to the other chassis types.	Major	No
ais-l	Alarm indication signal, line, SONET. The local port has received an AIS-L signal from the NE at the far end of the fiber. This indicates that an SF condition exists upstream of (and towards) the local node.	Not alarmed	Yes
apr	Automatic power reduction. For safety reasons, the local port has automatically reduced laser power because it has detected optical back reflection exceeding the high threshold. This can occur if the fiber is not plugged in properly.	Critical	Yes

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Table 3: Alarms and Conditions *(continued)*

Alarm/condition	Description	Default Severity	Service Affecting
apsd	Automatic power shutdown. The local port has automatically shut down its laser because the receive optical power has dropped below the receive LOL threshold. This can occur if the fiber is not plugged in properly or if there is a problem at the far-end transmitter or if there is a problem in the fiber itself.	Critical	Yes
bdi	Backward defect indication, OTN. The local port has received a BDI signal from the NE at the far end of the fiber. This indicates that an SF condition exists downstream of (and away from) the local node.	Not alarmed	No
cfgFail	A 40ge interface has been provisioned on a client port on a UFM6, but the UFM6 cannot accept the provisioning because the correct SERDES configuration has not been applied. To apply the SERDES configuration, reseat or perform a cold reload of the UFM.	Not reported	Yes
contComS	Control communications failure, span section, amplifier. OSC control communications with the NE at the far end of the span section have failed. Check for OSC alarms on the far end NE and resolve.	Major	Yes
diskHighUsage	Disk high usage. Disk usage has exceeded 90%. This is typically caused by an over-accumulation of log files. Use the CLI logging commands to delete unwanted log files, to move log files off the NE, or to set up automatic log rotation. This alarm clears when disk usage falls below 70%.	Major	No
envCurrentHighTh	Current above high threshold. The output current at the AC PEM is above the high current threshold.	Major	Yes
envCurrentLowTh	Current below low threshold. The output current at the AC PEM is below the low current threshold.	Major	Yes
envTempHighTh	Environment temperature above high threshold. The temperature at the indicated module has exceeded the high temperature threshold. The fan speed in the chassis is increased to the maximum.	Major	Yes
envTempLowTh	Environment temperature above low threshold. The temperature at the indicated module has exceeded (above) the low temperature threshold. The fan speed in the chassis begins to increase.	Not alarmed	Yes

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Table 3: Alarms and Conditions *(continued)*

Alarm/condition	Description	Default Severity	Service Affecting
envVoltHighTh	Environment voltage above high threshold on the AC PEM. The input AC voltage is greater than 255 VAC. Continued operation might cause equipment damage.	Major	Yes
envVoltLowTh	Environment voltage below low threshold (on the PEM). AC PEM: The input AC voltage is less than 90 VAC. DC PEM: The input DC voltage is less than 40 VDC. Continued operation might cause equipment damage.	Major	Yes
eqptBrownout	Equipment brownout. The input voltage to a UFM has dropped below the brownout threshold. UFM3 and UFM4 modules are automatically cold reloaded.	Major	Yes
eqptComm	Equipment management communications failure. The CMM is not able to communicate with the specified equipment. Depending on the reason behind this alarm, traffic might be affected.	Major	Yes
eqptDgrd	Equipment degrade. This is raised when UFM or BIC initialization fails.	Major	Yes
eqptFail	Equipment fail. Either a hardware self test has detected faulty hardware or an automatic re-timer firmware upgrade has failed.	Critical	Yes
eqptMism	Equipment mismatch. The installed equipment does not match the provisioned equipment.	Critical	Yes
eqptMiss	Equipment missing. Equipment is provisioned but not physically installed.	Critical	Yes
fanSpeedLowTh	Fan speed below low threshold. This can be caused by a faulty cooling unit or by a problem with the power entry module.	Major	Yes
feci	Far end node configuration mismatch. Verify the configuration at the far end NE.	Major	Yes
feim	Far end node identification mismatch. Verify the configuration at the far end NE.	Major	Yes

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Table 3: Alarms and Conditions *(continued)*

Alarm/condition	Description	Default Severity	Service Affecting
firmUpgrdInProg	Firmware upgrade in progress.	Not alarmed	No
firmUpgrdFail	Firmware upgrade failed.	Major	No
firmUpgrdReqd	Firmware upgrade required. The version of firmware running on the module does not match the version of firmware required by the current software load.	Major	No
forced	Forced protection switch active. The operator has forced a protection switch. The force remains active until a switch release is invoked.	Not alarmed	No
highBer	High bit error rate. The local port has detected a bit error rate in the received signal higher than the threshold. This can be caused by a problem in the fiber or by excessive attenuation in the signal.	Major	No
invUnknown	Inventory unknown. The installed equipment is not recognized. Ensure that the software version supports the specified equipment.	Major	No
inventoryUnsupp	Inventory item not supported. A QSFP28 transceiver is installed in a port that supports only QSFP+ transceivers.	Major	Yes
isisAdjDown	IS-IS adjacency down. An IS-IS adjacency has gone down. This link will no longer be considered for routing.	Major	Yes
laserFail	Laser failure.	Critical	Yes
laserTempHighTh	Laser temperature above high temperature threshold.	Major	No
laserTempLowTh	Laser temperature below low temperature threshold.	Major	No
lck	ODU locked. The port has received an ODU-LCK signal from the NE at the far end of the fiber. This indicates that a transmitting interface at an upstream node has been administratively disabled.	Critical	Yes
lf	Local fault. The local port has received an LF signal from the NE at the far end of the fiber. This indicates that an SF condition exists upstream of the local node.	Not alarmed	No
lockout	Lockout of protection. The operator has locked out a line for protection. The lockout protection switch remains active until a switch release is invoked.	Not alarmed	No

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Table 3: Alarms and Conditions *(continued)*

Alarm/condition	Description	Default Severity	Service Affecting
lof	Loss of frame alignment.	Critical	Yes
lolightRx	Loss of light, receive. The optical power received has dropped below the LOL threshold. NOTE: In some ROADM network topologies with ILAs deployed, amplified spontaneous emissions (ASE) might accumulate sufficiently to cause this alarm to clear on provisioned but unoccupied optical channels. (The ASE will not be high enough to affect optical performance, however.)	Critical	Yes
lolightTx	Loss of light, transmit. The optical power transmitted has dropped below the LOL threshold. NOTE: In some ROADM network topologies with ILAs deployed, amplified spontaneous emissions (ASE) might accumulate sufficiently to cause this alarm to clear on provisioned but unoccupied optical channels. (The ASE will not be high enough to affect optical performance, however.)	Major	Yes
lom	Loss of multiframe. The multiframe alignment process is in the out-of-multiframe (OOM) state.	Critical	Yes
los	Loss of signal. The local port has detected a loss of received signal power.	Critical	Yes
loSpecRx	Loss out of specification, receive. The optical receive loss is outside the allowable range configured.	Critical	Yes
loSync	Loss of synchronization. The received signal cannot be synchronized.	Critical	Yes
lpbk	Loopback operated. The operator has initiated loopback on the local port.	Not alarmed This setting should not be changed.	No
memHighUsage	Memory high usage. Memory usage has exceeded 90%. This alarm clears when memory usage falls below 70%.	Major	No
modTempHighTh	Module temperature above high threshold. The temperature on the 100G Coherent MSA XCVR has exceeded the high temperature threshold.	Major	No
modTempLowTh	Module temperature below low threshold. The temperature on the 100G Coherent MSA XCVR is below the low temperature threshold.	Major	No

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Table 3: Alarms and Conditions *(continued)*

Alarm/condition	Description	Default Severity	Service Affecting
modTempShutdown	Module temperature shutdown. The 100G Coherent MSA XCVR has exceeded the high temperature shutdown threshold and has been shut down.	Critical	Yes
ms-ais	Multiplex section alarm indication signal, SDH. The local port has received an MS-AIS signal from the NE at the far end of the fiber. This indicates an SF condition upstream of the local node.	Not alarmed	Yes
ms-rdi	Multiplex section remote defect indication, SDH. The local port has received an MS-RDI signal from the NE at the far end of the fiber. This indicates an SF condition downstream of the local node.	Not alarmed	No
nonCoLocatedController	Controllers are in different chassis. In a multichassis configuration, the CMMs that act as the system controllers must be in the same chassis. Follow the instructions to set up a proper multichassis configuration.	Critical	Yes
obrHt	Optical back reflection high threshold exceeded. The optical back reflection has exceeded the high threshold. This can occur if the fiber is not plugged in properly.	Minor	Yes
ochAis	Alarm indication signal, OCH. The OCH has received an AIS signal from the NE at the far end of the fiber. This indicates that an SF condition exists upstream of (and towards) the local node.	Not alarmed	Yes
ochOci	Open connection indication, OCH. The OCH has received an OCH-OCI signal from the NE at the far end of the fiber. This usually indicates a missing optical cross-connect upstream.	Critical	Yes
ochUeq	OCH unequipped.	Critical	Yes

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Table 3: Alarms and Conditions *(continued)*

Alarm/condition	Description	Default Severity	Service Affecting
oci	Open connection indication, ODU. The interface has received an ODU-OCI signal from the NE at the far end of the fiber. This usually indicates a missing cross-connect upstream. NOTE: The local interface that receives the ODU-OCI signal raises this alarm only if the local interface is part of a cross-connect. If the local interface is not part of a cross-connect, the received ODU-OCI signal is ignored. An interface transmits an ODU-OCI signal downstream if the interface is open (that is, not part of any cross-connect). For multiplexed ODU interfaces, the ODU-OCI signal is transmitted (and therefore received) on the containing ODU interface, not on the individual ODU subinterfaces. The containing ODU interface transmits the ODU-OCI signal if none of the contained ODU subinterfaces is part of a cross-connect. The containing ODU interface stops transmitting the ODU-OCI signal if at least one of the contained ODU subinterfaces is part of a cross-connect. The ODU-OCI signal on multiplexed interfaces does not indicate which specific subinterface is open (that is, not part of a cross-connect).	Critical	Yes
odtgMism	ODTG Mismatch. The Optical Data Tributary Group (ODTG) configuration on a multiplexed interface is inconsistent at the two ends of the fiber. This means that the ODU subinterface cross-connected at the local end does not match the ODU subinterface cross-connected at the far end. This alarm is raised against the containing ODU4 interface. Verify that both ends are configured for the same ODU subinterface.	Critical	Yes
odu-ais	ODU alarm indication signal. The interface has received an ODU-AIS signal from the NE at the far end of the fiber. This indicates that an SF condition exists upstream of (and towards) the local node. In addition to standard use of ODU-AIS signals, the BTI7800 originates an ODU-AIS signal in the following situations: • A multiplexed ODU subinterface transmits an ODU-AIS signal when the subinterface detects an ODTG tributary mismatch. See *odtgMism*. • On a UFM6, an optical channel transmits a default ODU4 signal containing ODU-AIS for each ODU4 interface not created.	Not alarmed	Yes

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Table 3: Alarms and Conditions *(continued)*

Alarm/condition	Description	Default Severity	Service Affecting
oduMism	ODU Mismatch. The ODU type in the received ODU signal does not match the expected type. Verify that both ends are configured for the same ODU (both ODU2 or both ODU2e or both ODU4).	Not alarmed	No
omsAis	Alarm indication signal, OMS. The local OMS has received an AIS signal from the NE at the far end of the fiber. This indicates that an SF condition exists upstream of (and towards) the local node.	Not alarmed	Yes
oneCableDisconnected	One multichassis cable disconnected.	Major	Yes
oprHighTh	Optical power received above high threshold.	Major	No
oprLowTh	Optical power received below low threshold.	Major	No
oprHighFail	Optical power received high fail.	Not alarmed	No
optHighTh	Optical power transmitted above high threshold.	Major	No
optLowTh	Optical power received below low threshold.	Major	No
partitionFault	Disk partition fault detected. Perform a warm reboot of the affected module.	Major	No
posRxHigh	Receive power out of specification, high. The optical power received is above the high threshold.	Minor	Yes
posRxLow	Receive power out of specification, low. The optical power received is below the low threshold. NOTE: In some ROADM network topologies with ILAs deployed, amplified spontaneous emissions (ASE) might accumulate sufficiently to cause this alarm to clear on provisioned but unoccupied optical channels. (The ASE will not be high enough to affect optical performance, however.)	Major	Yes
posTx	Power out of specification, transmit. The optical power transmitted is below the POS low threshold, or above the POS high threshold. NOTE: In some ROADM network topologies with ILAs deployed, amplified spontaneous emissions (ASE) might accumulate sufficiently to cause this alarm to clear on provisioned but unoccupied optical channels. (The ASE will not be high enough to affect optical performance, however.)	Critical	Yes

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Table 3: Alarms and Conditions *(continued)*

Alarm/condition	Description	Default Severity	Service Affecting
powerAbsent	No power available. AC PEM: The input AC voltage to the PEM is less than 90 VAC or greater than 255 VAC, and the output DC voltage of the PEM is less than 40 VDC or greater than 60 VDC. DC PEM: The input and output DC voltages of the PEM are less than 40 VDC or greater than 60 VDC. Continued operation might cause equipment damage.	Critical	Yes
prbs	PRBS test activated.	Not alarmed This setting should not be changed.	No
preFecBerTh	Pre-FEC bit error rate above high threshold.	Minor	No
pyldMism	Payload mismatch, ODU. The expected payload type within the ODU signal is not the same as the received payload type. Verify the configuration along the payload path.	Critical	Yes
rdi-l	Remote defect indication, line. The local port has received an RDI-L signal from the NE at the far end of the fiber. This indicates an SF condition exists downstream of the local node.	Not alarmed	No
rf	Remote fault. The local port has received an RF signal from the NE at the far end of the fiber. This indicates that an SF condition exists at a node downstream of the local node.	Not alarmed	No
scmNmiDown	System controller management (SCM) interface down.	Major	Yes
scmNoNmConn	No network management connectivity on either system controller management (SCM) modules.	Critical	Yes
sd	Signal degrade. The local port is in a signal degrade state due to a sufficient number of errors in the received signal.	Minor	No
tLossRxHt	Loss above high threshold, receive. The measured optical power loss in the receive fiber is above the high threshold.	Minor	Yes
tLossRxLt	Loss below low threshold, receive. The measured optical power loss in the receive fiber is below the low threshold.	Minor	Yes

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Table 3: Alarms and Conditions *(continued)*

Alarm/condition	Description	Default Severity	Service Affecting
tim	Trace identifier mismatch. The expected trace identifier is different from the actual trace identifier received. Verify fiber connectivity and trace ID configuration at the far end. This alarm clears when the expected trace identifier is received.	Major	No
upgr	Upgrade In progress. This alarm clears when the upgrade is finished.	Minor	Yes

Chassis Number Ranges

The chassis number specifies the chassis within a system.

Table 4: Chassis Numbers

Chassis	Chassis number
Passive equipment	0 NOTE: The chassis number for passive equipment is conceptual. Passive equipment does not reside in a chassis.
Main (or hub) chassis	1
Satellite chassis	2

NOTE: This document distinguishes between a chassis number and a chassis identifier. The chassis identifier is a self-contained addressable entity whereas the chassis number is not. The chassis number is part of the chassis identifier. For example, **chassis:1** is a chassis identifier with a chassis number of 1.

NOTE: There is no chassis identifier called **chassis:0**. When you add a passive module, you do not specify a chassis identifier. However, you do specify a chassis number when you refer to passive equipment. For example, **md:0/3** is a valid passive equipment identifier.

Slot Identifier Ranges

The slot identifier specifies a module's location in a chassis.

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Table 5: Slot Identifier Ranges

Modules	Slot Identifier Range
Service Module	BTI7814: 1 through 14 BTI7802: 1, 2 BTI7801: 1
Chassis Alarm Panel	BTI7814: 1 BTI7802: 1 BTI7801: –
Chassis Management Module	BTI7814: A, B BTI7802: A, B BTI7801: A
Cooling Module (FAN)	BTI7814: 1 through 4 BTI7802: 1 BTI7801: 1
Booster Fan (FAN)	BTI7814: 5, 6 BTI7802: – BTI7801: –
Power Entry Module	BTI7814: 1 through 4 BTI7802: 1, 2 BTI7801: 1, 2
Ethernet and Serial Link	BTI7814: – BTI7802: – BTI7801: 1
Passive equipment	1 through 255 NOTE: The slot identifier for passive equipment is conceptual. Passive equipment does not reside in slots in a chassis.

Subslot Identifier Ranges

The subslot identifier specifies where a component resides within a module. Depending on the module, the subslot can be a physical subslot or a logical subslot.

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Table 6: Subslot Identifier Ranges

Modules	Subslot Identifier Range
UFM3	This module consists of two BIC subslots: • BIC: 1, 2
UFM4	This module consists of two subslots corresponding to the 100G Coherent MSA XCVR and the BIC, respectively: • 100G Coherent MSA XCVR: 1 • BIC: 2
UFM6	This module has a fixed configuration consisting of two logical subslots corresponding to the two port groups: • Port group 1: 1 • Port group 2: 2
ROADM2 ILA	These modules have a fixed configuration consisting of two logical subslots corresponding to the main module and the CFP2 module, respectively: • Main module (client and line): 0 • CFP2 module: 1
FMD96	These modules have a fixed configuration with one logical subslot: • Main module (client and line): 0

Port Identifier Ranges

The port identifier specifies a specific port within a module.

Table 7: Port Identifier Ranges

Ports	Port Identifier Range
UFM4 100G Coherent MSA XCVR	1
UFM6 port group 1	1 through 10
UFM6 port group 2 400G Coherent MSA XCVR	1
12x SFP+ BIC	1 through 12
1x CFP BIC	1
ROADM2, ILA	C1, C2, L1, PRE
WPS	C1 through C4, L1A through L4A, L1B through L4B
FMD96	1 through 96

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Location Identifiers

Location identifiers are used in various commands to specify where components reside in the system.

Table 8: Equipment Location Identifier Format

Equipment	Identifier
Module	**chassis/slot**
BIC	**chassis/slot/subslot**
Transceiver	**chassis/slot/subslot/port**

Table 9: UFM Interface Location Identifier Format

UFM type	Interfaces	Identifier
UFM3 UFM4	All interfaces	Non-multiplexed: **chassis/slot/subslot/port** Multiplexed: **chassis/slot/subslot/port.subinterface**
UFM6	All interfaces except for opticalChannel	Port group 1 (non-multiplexed): **chassis/slot/subslot/port/subport** Port group 2 (multiplexed): **chassis/slot/subslot/port/subport.channel.tributary.subinterface**
UFM6	opticalChannel	Port group 2: **chassis/slot/subslot/port/subport.channel**

Table 10: ROADM Component Location Identifier Format

Component	Identifier
port oms osc	**chassis/slot/subslot/port**
och	**chassis/slot/subslot/port/channel**

Table 11: WPS Component Location Identifier Format

Component	Identifier
wpsport	**chassis/slot/port**
wpsgroup	**chassis/slot/group**

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Table 12: Parameter Definitions and Ranges

Parameter	Definition	Range
chassis	The chassis number.	See "Chassis Number Ranges" on page 28.
slot	The slot within the chassis.	See "Slot Identifier Ranges" on page 28.
subslot	The subslot identifier within the module.	See "Subslot Identifier Ranges" on page 29.
port	The port identifier within the subslot or module.	See "Port Identifier Ranges" on page 30.
subport	This applies to UFM6 only. In port group 1, depending on the transceiver, each port can be physically divided into subports using a fiber breakout device. These subports connect to external equipment. In port group 2, the conceptual 400-Gbps port is divided into two physical subports on the UFM faceplate.	UFM6: • Port group 1 subports: 1 through 4 NOTE: Subports 2 through 4 are only applicable for transceivers that require a fiber breakout device. • Port group 2 subports: 1, 2
channel	The meaning of an optical channel depends on the context: • UFM6: The optical channel in a subport in port group 2 • ROADM: The optical channel that bears user traffic.	UFM6: • Optical channel in a subport in port group 2: 1 ROADM: • Alphanumeric string up to 32 characters long
tributary	This parameter specifies the tributary within an optical channel on a UFM6. A tributary is a signal that is modulated onto an optical channel. Each optical channel on a UFM6 can carry up to two OTU4 tributaries.	UFM6: • Port group 2 subport optical channel OTU4 tributaries: 1, 2
subinterface	A subinterface is a lower-order ODU multiplexed within a higher-order ODU. ODU4 signals on all UFMs can be configured to contain multiplexed lower-order ODUs.	UFM3, UFM4, UFM6: • ODU2 subinterface within an ODU4: 1 through 10 • ODU2e subinterface within an ODU4: 1 through 10
group	This parameter specifies the protection group for WPS.	WPS: • WPS group: 1 through 4

UFM Interfaces

Interfaces on the UFM are defined by their names and types and are addressed in the following format: *interface_name*:*location_id*, as shown in Table 13 on page 33:

NOTE: **The UFM6 is supported starting with release 4.1.**

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NOTE: The QSFPP-4X10GD-LR (740-058730) transceiver is supported starting with release 4.2.

NOTE: The QSFPP-4X10GE-SR (740-054053), QSFP-100G-LR4-D (740-073859), and QSFP-100GBASE-SR4 (740-058734) transceivers are supported starting with release 4.3.

NOTE: The QSFPP-40GBASE-SR4 (740-067443), QSFPP-40GBASE-LR4 (740-073093), and JNP-100G-AOC-xx (740-06xxxx) transceivers are supported starting with release 4.4.

Table 13: UFM Interfaces

Interface Name (Protocol)	Interface Type	Supported UFMs	Supported Transceivers	Interface Identifier	Introduced in Release
otu2[1]	otnOtu	UFM3 UFM4	BP3AD6SS BP3AM6MS BP3AM6DL-xx BP3AM6TL	otu2:*chassis/slot/subslot/port* For example: otu2:1/5/2/3	Before 2.1.1
		UFM6	QSFPP-4X10GD-LR (740-058730)	otu2:*chassis/slot/subslot/port/subport* For example: otu2:1/5/1/10/4	4.2
otu2e[1]	otnOtu	UFM3	BP3AD6SS BP3AM6MS BP3AM6DL-xx BP3AM6TL	otu2e:*chassis/slot/subslot/port* For example: otu2e:1/5/2/4	4.1
		UFM6	QSFPP-4X10GD-LR (740-058730)	otu2e:*chassis/slot/subslot/port/subport* For example: otu2e:1/5/1/10/4	4.2

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Table 13: UFM Interfaces *(continued)*

Interface Name (Protocol)	Interface Type	Supported UFMs	Supported Transceivers	Interface Identifier	Introduced in Release
otu4	otnOtu	UFM3 UFM4	BP3AMASS BP3AMDLI BP3AMCTL CFP-100GBASE-CHRT 100G Coherent MSA XCVR	otu4:*chassis/slot/subslot/port* For example: otu4:1/5/2/1	Before 2.1.1
		UFM6	400G Coherent MSA XCVR	otu4:*chassis/slot/subslot/port/subport.channel.tributary* for OTU4 interfaces within an optical channel For example: otu4:1/5/2/1/2.1.2	4.1
			QSFP-100G-LR4-D (740-073859)	otu4:*chassis/slot/subslot/port* For example: otu4:1/5/1/1	4.3
odu2[1,2]	otnOdu	UFM3 UFM4	BP3AD6SS BP3AM6MS BP3AM6DL-xx BP3AM6TL	odu2:*chassis/slot/subslot/port* For example: odu2:1/5/2/3	Before 2.1.1
		UFM6	QSFPP-4X10GD-LR (740-058730)	odu2:*chassis/slot/subslot/port/subport* For example: odu2:1/5/1/10/4	4.2
odu2[3]	otnOdu	UFM3 UFM4	BP3AMASS BP3AMDLI BP3AMCTL CFP-100GBASE-CHRT 100G Coherent MSA XCVR	odu2:*chassis/slot/subslot/port.subinterface* for ODU2 subinterfaces within an ODU4 For example: odu2:1/5/2/1.1	Before 2.1.1
		UFM6	400G Coherent MSA XCVR	odu2:*chassis/slot/subslot/port/subport.channel.tributary.subinterface* for ODU2 subinterfaces within an ODU4 For example: odu2:1/5/2/1/2.1.2.8	4.1

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Table 13: UFM Interfaces *(continued)*

Interface Name (Protocol)	Interface Type	Supported UFMs	Supported Transceivers	Interface Identifier	Introduced in Release
odu2e[1,4]	otnOdu	UFM3	BP3AD6SS BP3AM6MS BP3AM6DL-xx BP3AM6TL	odu2e:*chassis/slot/subslot/port* For example: odu2e:1/5/2/3	4.1
		UFM6	QSFPP-4X10GD-LR (740-058730)	odu2e:*chassis/slot/subslot/port/subport* For example: odu2e:1/5/1/10/4	4.2
odu2e[5]	otnOdu	UFM3	BP3AMASS BP3AMDLI BP3AMCTL CFP-100GBASE-CHRT	odu2e:*chassis/slot/subslot/port.subinterface* for ODU2e subinterfaces within an ODU4 For example: odu2e:1/5/2/1.1	Before 2.1.1
		UFM6	400G Coherent MSA XCVR	odu2e:*chassis/slot/subslot/port/subport.channel.tributary.subinterface* for ODU2e subinterfaces within an ODU4 For example: odu2e:1/5/2/1/2.1.2.8	4.1
odu3	otnOdu	UFM6	400G Coherent MSA XCVR	odu3:*chassis/slot/subslot/port/subport.channel.tributary.subinterface* for ODU3 subinterfaces within an ODU4 For example: odu3:1/5/2/1/2.1.2.1	4.4
odu4[6]	otnOdu	UFM3 UFM4	BP3AMASS BP3AMDLI BP3AMCTL CFP-100GBASE-CHRT 100G Coherent MSA XCVR	odu4:*chassis/slot/subslot/port* For example: odu4:1/5/2/1	Before 2.1.1
		UFM6	400G Coherent MSA XCVR	odu4:*chassis/slot/subslot/port/subport.channel.tributary* for ODU4 interfaces within an optical channel. For example: odu4:1/5/2/1/2.1.2	4.1
			QSFP-100G-LR4-D (740-073859)	odu4:*chassis/slot/subslot/port* For example: odu4:1/5/1/1	4.3

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Table 13: UFM Interfaces *(continued)*

Interface Name (Protocol)	Interface Type	Supported UFMs	Supported Transceivers	Interface Identifier	Introduced in Release
10ge	ethernetCsmacd	UFM3 UFM4	BP3AD6SS BP3AM6MS BP3AM6DL-xx BP3AM6TL	10ge:*chassis/slot/subslot/port* For example: 10ge:1/5/2/3	Before 2.1.1
		UFM6	QSFPP-4X10GE-LR (740-054050)	10ge:*chassis/slot/subslot/port/subport* For example: 10ge:1/5/1/10/4	4.1
			QSFPP-4X10GD-LR (740-058730)	Same as above.	4.2
			QSFPP-4X10GE-SR (740-054053)	Same as above.	4.3
40ge[7]	ethernetCsmacd	UFM6	QSFPP-4X10GE-SR (740-054053) QSFPP-40GBASE-SR4 (740-067443) QSFPP-40GBASE-LR4 (740-073093)	40ge:*chassis/slot/subslot/port* For example:40ge:1/5/1/1	4.4
100ge	ethernetCsmacd	UFM3 UFM4	BP3AMASS BP3AMDLI	100ge:*chassis/slot/subslot/port* For example:100ge:1/5/2/1	Before 2.1.1
		UFM6	QSFP-100G-LR4-2 (740-074685)	100ge:*chassis/slot/subslot/port* For example: 100ge:1/5/1/1	4.1
			QSFP-100G-LR4-D (740-073859)	Same as above.	4.3
			QSFP-100GBASE-SR4 (740-058734)	Same as above.	4.3
			JNP-100G-AOC-xx (740-06xxxx)	Same as above.	4.4

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Table 13: UFM Interfaces *(continued)*

Interface Name (Protocol)	Interface Type	Supported UFMs	Supported Transceivers	Interface Identifier	Introduced in Release
oc192[1]	sonet	UFM3 UFM4	BP3AM6MS BP3AM6DL-xx BP3AM6TL	oc192:*chassis/slot/subslot/port* For example: oc192:1/5/2/3	Before 2.1.1
		UFM6	QSFPP-4X10GD-LR (740-058730)	oc192:*chassis/slot/subslot/port/subport* For example: oc192:1/5/1/10/3	4.2
stm64[1]	sonet	UFM3 UFM4	BP3AM6MS BP3AM6DL-xx BP3AM6TL	stm64:*chassis/slot/subslot/port* For example: stm64:1/5/2/3	Before 2.1.1
		UFM6	QSFPP-4X10GD-LR (740-058730)	stm64:*chassis/slot/subslot/port/subport* For example: stm64:1/5/1/10/3	4.2
wanoc192[8]	sonet	UFM3 UFM4	BP3AM6MS BP3AM6DL-xx BP3AM6TL	wanoc192:*chassis/slot/subslot/port* For example: wanoc192:1/5/2/3	Before 2.1.1
wanstm64[9]	sonet	UFM3 UFM4	BP3AM6MS BP3AM6DL-xx BP3AM6TL	wanstm64:*chassis/slot/subslot/port* For example: wanstm64:1/5/2/3	Before 2.1.1
och	opticalChannel	UFM6	400G Coherent MSA XCVR	och:*chassis/slot/subslot/port/subport.channel* For example: och:1/5/2/1/2.1	4.1
8gfc	fibreChannel	UFM6	QSFPP-4X10GE-SR (740-054053) QSFPP-4X10GD-LR (740-058730)	8gfc:*chassis/slot/subslot/port/subport* For example: 8gfc:1/5/1/10/3	4.3
10gfc	fibreChannel	UFM6	QSFPP-4X10GE-SR (740-054053) QSFPP-4X10GD-LR (740-058730)	10gfc:*chassis/slot/subslot/port/subport* For example: 10gfc:1/5/1/10/3	4.3

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Table 13: UFM Interfaces *(continued)*

Interface Name (Protocol)	Interface Type	Supported UFMs	Supported Transceivers	Interface Identifier	Introduced in Release

[1] The UFM3 and UFM4 are compatible with most OTN/SONET/SDH transport applications. Contact your Juniper Networks representative for more information.

[2] Created automatically when an otu2 interface is created on a 10-Gbps port.

[3] Created automatically on a UFM3 and UFM4 when a gmp-capable odu4 interface is created. Must be manually created on a UFM6.

[4] Created automatically when an otu2e interface is created on a 10-Gbps port.

[5] Created automatically on UFM6 when a gmp-capable odu4 line interface is created. Must be manually created on a UFM3 and UFM4.

[6] Created automatically when an otu4 interface is created.

[7] 40ge interfaces can only be created on a UFM6 if the UFM6 has the correct SERDES configuration applied. See *Provisioning a Transport Interface* for details.

[8] 10-Gigabit Ethernet WAN PHY over OC-192.

[9] 10-Gigabit Ethernet WAN PHY over STM-64.

Release History Table

Release	Description
4.4	The QSFPP-40GBASE-SR4 (740-067443), QSFPP-40GBASE-LR4 (740-073093), and JNP-100G-AOC-xx (740-06xxxx) transceivers are supported starting with release 4.4.
4.3	The QSFPP-4X10GE-SR (740-054053), QSFP-100G-LR4-D (740-073859), and QSFP-100GBASE-SR4 (740-058734) transceivers are supported starting with release 4.3.
4.2	The QSFPP-4X10GD-LR (740-058730) transceiver is supported starting with release 4.2.
4.1	The UFM6 is supported starting with release 4.1.

Forward Error Correction (FEC) Types

Forward error correction can be provisioned on OTU and optical channel interfaces. The following are the supported configurations:

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Table 14: FEC Types

Interface	Supported FEC Types
OTU2 or OTU2e	• No FEC (**no-fec**) • Generic FEC (**g-fec**) • G.975.1 i.4 Super FEC (**s-fec-i4**) • G.975.1 i.7 Super FEC (**s-fec-i7**) NOTE: The ports on the 12x SFP+ BIC are divided into three port groups (ports 1 to 4, ports 5 to 8, ports 9 to 12). Within each port group, you cannot configure one port for G.975.1 i.4 Super FEC and another port for G.975.1 i.7 Super FEC. The Super FEC settings are mutually exclusive within a port group. On a UFM6, all 10-Gbps client ports within the same QSFP+ transceiver have a similar restriction. You cannot configure one 10-Gbps port for G.975.1 i.4 Super FEC and another 10-Gbps port on the same transceiver for G.975.1 i.7 Super FEC. The Super FEC settings are mutually exclusive within a transceiver.
OTU4 on 100G Coherent MSA XCVR	• Soft-Decision FEC (**soft-fec**)
OTU4 on 100G Coherent CFP	• Soft-Decision FEC (**soft-fec**)
OTU4 on all other CFPs	• Swizzle FEC (**swiz-fec**)
OTU4 on the QSFP28 100GE Ethernet/OTN LR4 (QSFP-100G-LR4-D (740-073859))	• No FEC (**no-fec**) • Generic FEC (**g-fec**)
Optical channel on 400G Coherent MSA XCVR	• Soft-Decision FEC with 25% overhead (**sd-fec-25pc**) for 16-QAM modulation • Soft-Decision FEC with 25% overhead (**sd-fec-25pc**) for QPSK modulation - Releases 4.2 and higher • Soft-Decision FEC (**soft-fec**) for QPSK modulation - Releases 4.2 and higher NOTE: This FEC is applied to the optical channel, which can include one or two OTU4 signals.

Release History Table

Release	Description
4.3	OTU4 on the QSFP28 100GE Ethernet/OTN LR4 (QSFP-100G-LR4-D (740-073859))
4.2	Soft-Decision FEC with 25% overhead (**sd-fec-25pc**) for QPSK modulation
4.2	Soft-Decision FEC (**soft-fec**) for QPSK modulation

Optical Formats

The **optical-format** is an attribute of a transceiver.

Table 15: Optical Formats of Transceivers

Transceiver	PEC	Optical Format	Introduced in Release
SFP+ 850nm 200m Dual-Rate 10.3 and 10.5Gbps	BP3AD6SS	fixedX1	Before 2.1.1
SFP+ 1310nm 10km Multi-Rate 9.9 to 11.1Gbps	BP3AM6MS	fixedX1	Before 2.1.1
SFP+ DWDM Fixed 80km Multi-Rate 9.9 to 11.1Gbps	BP3AM6DL-xx	fixedX1	Before 2.1.1
SFP+ DWDM Tunable 80km Multi-Rate 9.9 to 11.1Gbps	BP3AM6TL	tunableX1	Before 2.1.1
QSFP+ 4x10GBASE LR	QSFPP-4X10GE-LR (740-054050)	fixedX4	4.1
QSFP+ 4x10G Ethernet/OTN LR	QSFPP-4X10GD-LR (740-058730)	fixedX4	4.2
QSFP+ 4x10GBASE SR	QSFPP-4X10GE-SR (740-054053)	fixedX4	4.3
QSFP+ 40GE SR4	QSFPP-40GBASE-SR4 (740-067443)	fixedX4	4.4
QSFP+ 40GE LR4	QSFPP-40GBASE-LR4 (740-073093)	fixedX4	4.4
QSFP28 100GE AOC	JNP-100G-AOC-xx (740-06xxxx)	fixedX4	4.4
QSFP28 100GE SR4	QSFP-100GBASE-SR4 (740-058734)	fixedX4	4.3
QSFP28 100GE LR4	QSFP-100G-LR4-2 (740-074685)	fixedX4	4.1
QSFP28 100GE Ethernet/OTN LR4	QSFP-100G-LR4-D (740-073859)	fixedX4	4.3
CFP 100GBASE-SR10 100m	BP3AMASS	fixedX10	Before 2.1.1
CFP 100GBASE-LR4 10km	BP3AMDLI	fixedX4	Before 2.1.1
100G Coherent CFP-M05	CFP-100GBASE-CHRT	tunableX1	4.1
100G Coherent CFP	BP3AMCTL	tunableX1	Before 2.1.1
100G Coherent MSA XCVR	– (integrated in the UFM4)	tunableX1	Before 2.1.1

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Table 15: Optical Formats of Transceivers *(continued)*

Transceiver	PEC	Optical Format	Introduced in Release
400G Coherent MSA XCVR	– (integrated in the UFM6)	tunableX2	4.1

Supported UFM Cross-Connects

Cross-connects can be created between interfaces within the same UFM. Cross-connects cannot be created across UFMs. Depending on what you are cross-connecting, you can be regenerating, transponding, or muxponding.

Table 16 on page 41 lists the cross-connects that are supported. The **A** and **B** designations in the table are used only to distinguish between the two cross-connect endpoints. They are assigned arbitrarily and are interchangeable.

NOTE: Not all interfaces are supported on all transceivers. To see which transceivers support which interfaces, see "UFM Interfaces" on page 32.

NOTE: The UFM6 is supported in releases 4.1 and higher.

NOTE: When cross-connecting two 10-Gbps interfaces on a UFM3 equipped with 12x SFP+ BICs, both interfaces must reside on the same BIC.

Table 16: UFM Cross-Connects

Description	Supported UFMs	Interface A	Interface B	Rate	Introduced in Release
Regenerating					
10GbE to/from 10GbE	UFM3 UFM4	10ge on an SFP+ transceiver	10ge on an SFP+ transceiver	10GbE	Before 2.1.1
SONET/SDH (OC-192/STM-64/ 10GbE WAN PHY) to/from SONET/SDH (OC-192/STM-64/ 10GbE WAN PHY)	UFM3 UFM4	oc192/stm64/wanoc192/wanstm64 on an SFP+ transceiver	oc192/stm64/wanoc192/wanstm64 on an SFP+ transceiver	OC-192 or STM-64	Before 2.1.1
OTU2 to/from OTU2	UFM3 UFM4	odu2 on an SFP+ transceiver	odu2 on an SFP+ transceiver	ODU2	Before 2.1.1

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Table 16: UFM Cross-Connects *(continued)*

Description	Supported UFMs	Interface A	Interface B	Rate	Introduced in Release
OTU2e to/from OTU2e	UFM3	odu2e on an SFP+ transceiver	odu2e on an SFP+ transceiver	ODU2e	4.1
100GbE to/from 100GbE	UFM3	100ge on a CFP transceiver	100ge on a CFP transceiver	100GbE	4.2
OTU4 to/from OTU4	UFM3 UFM4	odu4 on a CFP or on the integrated transceiver	odu4 on a CFP or on the integrated transceiver	ODU4	Before 2.1.1
	UFM6[1]	odu4 on a QSFP28 transceiver	odu4 on the integrated transceiver	ODU4	4.3
Transponding					
10GbE to/from OTU2	UFM3 UFM4	10ge on an SFP+ transceiver	odu2 on an SFP+ transceiver	ODU2	Before 2.1.1
SONET/SDH (OC-192/STM-64/ 10GbE WAN PHY) to/from OTU2	UFM3 UFM4	oc192/stm64/wanoc192/wanstm64 on an SFP+ transceiver	odu2 on an SFP+ transceiver	ODU2	Before 2.1.1
100GbE to/from OTU4	UFM3 UFM4	100ge on a CFP transceiver	odu4 on a CFP or on the integrated transceiver	ODU4	Before 2.1.1
	UFM6[1]	100ge on a QSFP28 transceiver	odu4 on the integrated transceiver	ODU4	4.1
Muxponding					
10GbE to/from OTU4	UFM3 UFM4	10ge on an SFP+ transceiver	odu2 within an odu4 on a CFP or on the integrated transceiver	ODU2	Before 2.1.1
	UFM6[1]	10ge on a QSFP+ transceiver	odu2e within an odu4 on the integrated transceiver	ODU2e	4.1
OTU2 to/from OTU4	UFM3 UFM4	odu2 on an SFP+ transceiver	odu2 within an odu4 on a CFP or on the integrated transceiver	ODU2	Before 2.1.1
	UFM6[1]	odu2 on a QSFP+ transceiver	odu2 within an odu4 on the integrated transceiver	ODU2	4.2
OTU2e to/from OTU4	UFM3	odu2e on an SFP+ transceiver	odu2e within an odu4 on a CFP or on the integrated transceiver	ODU2e	4.1
	UFM6[1]	odu2e on a QSFP+ transceiver	odu2e within an odu4 on the integrated transceiver	ODU2e	4.2

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Table 16: UFM Cross-Connects *(continued)*

Description	Supported UFMs	Interface A	Interface B	Rate	Introduced in Release
SONET/SDH (OC-192/STM-64) to/from OTU4	UFM3 UFM4	oc192/stm64 on an SFP+ transceiver	odu2 within an odu4 on a CFP or on the integrated transceiver	ODU2	Before 2.1.1
	UFM6[1]	oc192/stm64 on a QSFP+ transceiver	odu2 within an odu4 on the integrated transceiver	ODU2	4.2
SONET/SDH (10GbE WAN PHY) to/from OTU4	UFM3 UFM4	wanoc192/wanstm64 on an SFP+ transceiver	odu2 within an odu4 on a CFP or on the integrated transceiver	ODU2	Before 2.1.1
Fibre Channel to/from OTU4	UFM6[1]	8gfc on a QSFP+ transceiver	odu2 within an odu4 on the integrated transceiver	ODU2	4.3
		10gfc on a QSFP+ transceiver	odu2e within an odu4 on the integrated transceiver	ODU2e	4.3
40GbE to/from OTU4	UFM6[1]	40ge on a QSFP+ 40GE transceiver	odu3 within an odu4 on the integrated transceiver	ODU3	4.4

[1] UFM6 modules have fixed cross-connect mappings. See Table 17 on page 43.

Table 17: UFM6 Fixed Cross-Connect Mappings

Description	Client Interface	Line Interface	Introduced in Release
100GbE to/from OTU4	100ge:chassis/slot/1/1	odu4:chassis/slot/2/1/1.1.1	4.1
	100ge:chassis/slot/1/2	odu4:chassis/slot/2/1/1.1.2	4.1
	100ge:chassis/slot/1/6	odu4:chassis/slot/2/1/2.1.1	4.1
	100ge:chassis/slot/1/7	odu4:chassis/slot/2/1/2.1.2	4.1
OTU4 to/from OTU4	odu4:chassis/slot/1/1	odu4:chassis/slot/2/1/1.1.1	4.3
	odu4:chassis/slot/1/2	odu4:chassis/slot/2/1/1.1.2	4.3
	odu4:chassis/slot/1/6	odu4:chassis/slot/2/1/2.1.1	4.3
	odu4:chassis/slot/1/7	odu4:chassis/slot/2/1/2.1.2	4.3

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Table 17: UFM6 Fixed Cross-Connect Mappings *(continued)*

Description	Client Interface	Line Interface	Introduced in Release
10GbE/SONET/SDH/OTU2 to/from subinterface within OTU4	10ge:chassis/slot/1/1/1	odu2e:chassis/slot/2/1/1.1.1.1	4.1
	oc192:chassis/slot/1/1/1	odu2:chassis/slot/2/1/1.1.1.1	4.2
	stm64:chassis/slot/1/1/1	odu2:chassis/slot/2/1/1.1.1.1	4.2
	odu2:chassis/slot/1/1/1	odu2:chassis/slot/2/1/1.1.1.1	4.2
	odu2e:chassis/slot/1/1/1	odu2e:chassis/slot/2/1/1.1.1.1	4.2
	8gfc:chassis/slot/1/1/1	odu2:chassis/slot/2/1/1.1.1.1	4.3
	10gfc:chassis/slot/1/1/1	odu2e:chassis/slot/2/1/1.1.1.1	4.3
	10ge:chassis/slot/1/1/2	odu2e:chassis/slot/2/1/1.1.1.2	4.1
	oc192:chassis/slot/1/1/2	odu2:chassis/slot/2/1/1.1.1.2	4.2
	stm64:chassis/slot/1/1/2	odu2:chassis/slot/2/1/1.1.1.2	4.2
	odu2:chassis/slot/1/1/2	odu2:chassis/slot/2/1/1.1.1.2	4.2
	odu2e:chassis/slot/1/1/2	odu2e:chassis/slot/2/1/1.1.1.2	4.2
	8gfc:chassis/slot/1/1/2	odu2:chassis/slot/2/1/1.1.1.2	4.3
	10gfc:chassis/slot/1/1/2	odu2e:chassis/slot/2/1/1.1.1.2	4.3
	10ge:chassis/slot/1/1/3	odu2e:chassis/slot/2/1/1.1.1.3	4.1
	oc192:chassis/slot/1/1/3	odu2:chassis/slot/2/1/1.1.1.3	4.2
	stm64:chassis/slot/1/1/3	odu2:chassis/slot/2/1/1.1.1.3	4.2
	odu2:chassis/slot/1/1/3	odu2:chassis/slot/2/1/1.1.1.3	4.2
	odu2e:chassis/slot/1/1/3	odu2e:chassis/slot/2/1/1.1.1.3	4.2
	8gfc:chassis/slot/1/1/3	odu2:chassis/slot/2/1/1.1.1.3	4.3
	10gfc:chassis/slot/1/1/3	odu2e:chassis/slot/2/1/1.1.1.3	4.3
	10ge:chassis/slot/1/1/4	odu2e:chassis/slot/2/1/1.1.1.4	4.1
	oc192:chassis/slot/1/1/4	odu2:chassis/slot/2/1/1.1.1.4	4.2
	stm64:chassis/slot/1/1/4	odu2:chassis/slot/2/1/1.1.1.4	4.2
	odu2:chassis/slot/1/1/4	odu2:chassis/slot/2/1/1.1.1.4	4.2
	odu2e:chassis/slot/1/1/4	odu2e:chassis/slot/2/1/1.1.1.4	4.2
	8gfc:chassis/slot/1/1/4	odu2:chassis/slot/2/1/1.1.1.4	4.3
	10gfc:chassis/slot/1/1/4	odu2e:chassis/slot/2/1/1.1.1.4	4.3

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Table 17: UFM6 Fixed Cross-Connect Mappings *(continued)*

Description	Client Interface	Line Interface	Introduced in Release
	10ge:chassis/slot/1/2/1	odu2e:chassis/slot/2/1/1.1.1.5	4.1
	oc192:chassis/slot/1/2/1	odu2:chassis/slot/2/1/1.1.1.5	4.2
	stm64:chassis/slot/1/2/1	odu2:chassis/slot/2/1/1.1.1.5	4.2
	odu2:chassis/slot/1/2/1	odu2:chassis/slot/2/1/1.1.1.5	4.2
	odu2e:chassis/slot/1/2/1	odu2e:chassis/slot/2/1/1.1.1.5	4.2
	8gfc:chassis/slot/1/2/1	odu2:chassis/slot/2/1/1.1.1.5	4.3
	10gfc:chassis/slot/1/2/1	odu2e:chassis/slot/2/1/1.1.1.5	4.3
	10ge:chassis/slot/1/2/2	odu2e:chassis/slot/2/1/1.1.1.6	4.1
	oc192:chassis/slot/1/2/2	odu2:chassis/slot/2/1/1.1.1.6	4.2
	stm64:chassis/slot/1/2/2	odu2:chassis/slot/2/1/1.1.1.6	4.2
	odu2:chassis/slot/1/2/2	odu2:chassis/slot/2/1/1.1.1.6	4.2
	odu2e:chassis/slot/1/2/2	odu2e:chassis/slot/2/1/1.1.1.6	4.2
	8gfc:chassis/slot/1/2/2	odu2:chassis/slot/2/1/1.1.1.6	4.3
	10gfc:chassis/slot/1/2/2	odu2e:chassis/slot/2/1/1.1.1.6	4.3
	10ge:chassis/slot/1/2/3	odu2e:chassis/slot/2/1/1.1.1.7	4.1
	oc192:chassis/slot/1/2/3	odu2:chassis/slot/2/1/1.1.1.7	4.2
	stm64:chassis/slot/1/2/3	odu2:chassis/slot/2/1/1.1.1.7	4.2
	odu2:chassis/slot/1/2/3	odu2:chassis/slot/2/1/1.1.1.7	4.2
	odu2e:chassis/slot/1/2/3	odu2e:chassis/slot/2/1/1.1.1.7	4.2
	8gfc:chassis/slot/1/2/3	odu2:chassis/slot/2/1/1.1.1.7	4.3
	10gfc:chassis/slot/1/2/3	odu2e:chassis/slot/2/1/1.1.1.7	4.3
	10ge:chassis/slot/1/2/4	odu2e:chassis/slot/2/1/1.1.1.8	4.1
	oc192:chassis/slot/1/2/4	odu2:chassis/slot/2/1/1.1.1.8	4.2
	stm64:chassis/slot/1/2/4	odu2:chassis/slot/2/1/1.1.1.8	4.2
	odu2:chassis/slot/1/2/4	odu2:chassis/slot/2/1/1.1.1.8	4.2
	odu2e:chassis/slot/1/2/4	odu2e:chassis/slot/2/1/1.1.1.8	4.2
	8gfc:chassis/slot/1/2/4	odu2:chassis/slot/2/1/1.1.1.8	4.3
	10gfc:chassis/slot/1/2/4	odu2e:chassis/slot/2/1/1.1.1.8	4.3

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Table 17: UFM6 Fixed Cross-Connect Mappings *(continued)*

Description	Client Interface	Line Interface	Introduced in Release
	10ge:chassis/slot/1/3/1	odu2e:chassis/slot/2/1/1.1.1.9	4.1
	oc192:chassis/slot/1/3/1	odu2:chassis/slot/2/1/1.1.1.9	4.2
	stm64:chassis/slot/1/3/1	odu2:chassis/slot/2/1/1.1.1.9	4.2
	odu2:chassis/slot/1/3/1	odu2:chassis/slot/2/1/1.1.1.9	4.2
	odu2e:chassis/slot/1/3/1	odu2e:chassis/slot/2/1/1.1.1.9	4.2
	8gfc:chassis/slot/1/3/1	odu2:chassis/slot/2/1/1.1.1.9	4.3
	10gfc:chassis/slot/1/3/1	odu2e:chassis/slot/2/1/1.1.1.9	4.3
	10ge:chassis/slot/1/3/2	odu2e:chassis/slot/2/1/1.1.1.10	4.1
	oc192:chassis/slot/1/3/2	odu2:chassis/slot/2/1/1.1.1.10	4.2
	stm64:chassis/slot/1/3/2	odu2:chassis/slot/2/1/1.1.1.10	4.2
	odu2:chassis/slot/1/3/2	odu2:chassis/slot/2/1/1.1.1.10	4.2
	odu2e:chassis/slot/1/3/2	odu2e:chassis/slot/2/1/1.1.1.10	4.2
	8gfc:chassis/slot/1/3/2	odu2:chassis/slot/2/1/1.1.1.10	4.3
	10gfc:chassis/slot/1/3/2	odu2e:chassis/slot/2/1/1.1.1.10	4.3
	10ge:chassis/slot/1/3/3	odu2e:chassis/slot/2/1/1.1.2.1	4.1
	oc192:chassis/slot/1/3/3	odu2:chassis/slot/2/1/1.1.2.1	4.2
	stm64:chassis/slot/1/3/3	odu2:chassis/slot/2/1/1.1.2.1	4.2
	odu2:chassis/slot/1/3/3	odu2:chassis/slot/2/1/1.1.2.1	4.2
	odu2e:chassis/slot/1/3/3	odu2e:chassis/slot/2/1/1.1.2.1	4.2
	8gfc:chassis/slot/1/3/3	odu2:chassis/slot/2/1/1.1.2.1	4.3
	10gfc:chassis/slot/1/3/3	odu2e:chassis/slot/2/1/1.1.2.1	4.3
	10ge:chassis/slot/1/3/4	odu2e:chassis/slot/2/1/1.1.2.2	4.1
	oc192:chassis/slot/1/3/4	odu2:chassis/slot/2/1/1.1.2.2	4.2
	stm64:chassis/slot/1/3/4	odu2:chassis/slot/2/1/1.1.2.2	4.2
	odu2:chassis/slot/1/3/4	odu2:chassis/slot/2/1/1.1.2.2	4.2
	odu2e:chassis/slot/1/3/4	odu2e:chassis/slot/2/1/1.1.2.2	4.2
	8gfc:chassis/slot/1/3/4	odu2:chassis/slot/2/1/1.1.2.2	4.3
	10gfc:chassis/slot/1/3/4	odu2e:chassis/slot/2/1/1.1.2.2	4.3

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Table 17: UFM6 Fixed Cross-Connect Mappings *(continued)*

Description	Client Interface	Line Interface	Introduced in Release
	10ge:chassis/slot/1/4/1	odu2e:chassis/slot/2/1/1.1.2.3	4.1
	oc192:chassis/slot/1/4/1	odu2:chassis/slot/2/1/1.1.2.3	4.2
	stm64:chassis/slot/1/4/1	odu2:chassis/slot/2/1/1.1.2.3	4.2
	odu2:chassis/slot/1/4/1	odu2:chassis/slot/2/1/1.1.2.3	4.2
	odu2e:chassis/slot/1/4/1	odu2e:chassis/slot/2/1/1.1.2.3	4.2
	8gfc:chassis/slot/1/4/1	odu2:chassis/slot/2/1/1.1.2.3	4.3
	10gfc:chassis/slot/1/4/1	odu2e:chassis/slot/2/1/1.1.2.3	4.3
	10ge:chassis/slot/1/4/2	odu2e:chassis/slot/2/1/1.1.2.4	4.1
	oc192:chassis/slot/1/4/2	odu2:chassis/slot/2/1/1.1.2.4	4.2
	stm64:chassis/slot/1/4/2	odu2:chassis/slot/2/1/1.1.2.4	4.2
	odu2:chassis/slot/1/4/2	odu2:chassis/slot/2/1/1.1.2.4	4.2
	odu2e:chassis/slot/1/4/2	odu2e:chassis/slot/2/1/1.1.2.4	4.2
	8gfc:chassis/slot/1/4/2	odu2:chassis/slot/2/1/1.1.2.4	4.3
	10gfc:chassis/slot/1/4/2	odu2e:chassis/slot/2/1/1.1.2.4	4.3
	10ge:chassis/slot/1/4/3	odu2e:chassis/slot/2/1/1.1.2.5	4.1
	oc192:chassis/slot/1/4/3	odu2:chassis/slot/2/1/1.1.2.5	4.2
	stm64:chassis/slot/1/4/3	odu2:chassis/slot/2/1/1.1.2.5	4.2
	odu2:chassis/slot/1/4/3	odu2:chassis/slot/2/1/1.1.2.5	4.2
	odu2e:chassis/slot/1/4/3	odu2e:chassis/slot/2/1/1.1.2.5	4.2
	8gfc:chassis/slot/1/4/3	odu2:chassis/slot/2/1/1.1.2.5	4.3
	10gfc:chassis/slot/1/4/3	odu2e:chassis/slot/2/1/1.1.2.5	4.3
	10ge:chassis/slot/1/4/4	odu2e:chassis/slot/2/1/1.1.2.6	4.1
	oc192:chassis/slot/1/4/4	odu2:chassis/slot/2/1/1.1.2.6	4.2
	stm64:chassis/slot/1/4/4	odu2:chassis/slot/2/1/1.1.2.6	4.2
	odu2:chassis/slot/1/4/4	odu2:chassis/slot/2/1/1.1.2.6	4.2
	odu2e:chassis/slot/1/4/4	odu2e:chassis/slot/2/1/1.1.2.6	4.2
	8gfc:chassis/slot/1/4/4	odu2:chassis/slot/2/1/1.1.2.6	4.3
	10gfc:chassis/slot/1/4/4	odu2e:chassis/slot/2/1/1.1.2.6	4.3

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Table 17: UFM6 Fixed Cross-Connect Mappings *(continued)*

Description	Client Interface	Line Interface	Introduced in Release
	10ge:chassis/slot/1/5/1	odu2e:chassis/slot/2/1/1.1.2.7	4.1
	oc192:chassis/slot/1/5/1	odu2:chassis/slot/2/1/1.1.2.7	4.2
	stm64:chassis/slot/1/5/1	odu2:chassis/slot/2/1/1.1.2.7	4.2
	odu2:chassis/slot/1/5/1	odu2:chassis/slot/2/1/1.1.2.7	4.2
	odu2e:chassis/slot/1/5/1	odu2e:chassis/slot/2/1/1.1.2.7	4.2
	8gfc:chassis/slot/1/5/1	odu2:chassis/slot/2/1/1.1.2.7	4.3
	10gfc:chassis/slot/1/5/1	odu2e:chassis/slot/2/1/1.1.2.7	4.3
	10ge:chassis/slot/1/5/2	odu2e:chassis/slot/2/1/1.1.2.8	4.1
	oc192:chassis/slot/1/5/2	odu2:chassis/slot/2/1/1.1.2.8	4.2
	stm64:chassis/slot/1/5/2	odu2:chassis/slot/2/1/1.1.2.8	4.2
	odu2:chassis/slot/1/5/2	odu2:chassis/slot/2/1/1.1.2.8	4.2
	odu2e:chassis/slot/1/5/2	odu2e:chassis/slot/2/1/1.1.2.8	4.2
	8gfc:chassis/slot/1/5/2	odu2:chassis/slot/2/1/1.1.2.8	4.3
	10gfc:chassis/slot/1/5/2	odu2e:chassis/slot/2/1/1.1.2.8	4.3
	10ge:chassis/slot/1/5/3	odu2e:chassis/slot/2/1/1.1.2.9	4.1
	oc192:chassis/slot/1/5/3	odu2:chassis/slot/2/1/1.1.2.9	4.2
	stm64:chassis/slot/1/5/3	odu2:chassis/slot/2/1/1.1.2.9	4.2
	odu2:chassis/slot/1/5/3	odu2:chassis/slot/2/1/1.1.2.9	4.2
	odu2e:chassis/slot/1/5/3	odu2e:chassis/slot/2/1/1.1.2.9	4.2
	8gfc:chassis/slot/1/5/3	odu2:chassis/slot/2/1/1.1.2.9	4.3
	10gfc:chassis/slot/1/5/3	odu2e:chassis/slot/2/1/1.1.2.9	4.3
	10ge:chassis/slot/1/5/4	odu2e:chassis/slot/2/1/1.1.2.10	4.1
	oc192:chassis/slot/1/5/4	odu2:chassis/slot/2/1/1.1.2.10	4.2
	stm64:chassis/slot/1/5/4	odu2:chassis/slot/2/1/1.1.2.10	4.2
	odu2:chassis/slot/1/5/4	odu2:chassis/slot/2/1/1.1.2.10	4.2
	odu2e:chassis/slot/1/5/4	odu2e:chassis/slot/2/1/1.1.2.10	4.2
	8gfc:chassis/slot/1/5/4	odu2:chassis/slot/2/1/1.1.2.10	4.3
	10gfc:chassis/slot/1/5/4	odu2e:chassis/slot/2/1/1.1.2.10	4.3

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Table 17: UFM6 Fixed Cross-Connect Mappings *(continued)*

Description	Client Interface	Line Interface	Introduced in Release
	10ge:chassis/slot/1/6/1	odu2e:chassis/slot/2/1/2.1.1.1	4.1
	oc192:chassis/slot/1/6/1	odu2:chassis/slot/2/1/2.1.1.1	4.2
	stm64:chassis/slot/1/6/1	odu2:chassis/slot/2/1/2.1.1.1	4.2
	odu2:chassis/slot/1/6/1	odu2:chassis/slot/2/1/2.1.1.1	4.2
	odu2e:chassis/slot/1/6/1	odu2e:chassis/slot/2/1/2.1.1.1	4.2
	8gfc:chassis/slot/1/6/1	odu2:chassis/slot/2/1/2.1.1.1	4.3
	10gfc:chassis/slot/1/6/1	odu2e:chassis/slot/2/1/2.1.1.1	4.3
	10ge:chassis/slot/1/6/2	odu2e:chassis/slot/2/1/2.1.1.2	4.1
	oc192:chassis/slot/1/6/2	odu2:chassis/slot/2/1/2.1.1.2	4.2
	stm64:chassis/slot/1/6/2	odu2:chassis/slot/2/1/2.1.1.2	4.2
	odu2:chassis/slot/1/6/2	odu2:chassis/slot/2/1/2.1.1.2	4.2
	odu2e:chassis/slot/1/6/2	odu2e:chassis/slot/2/1/2.1.1.2	4.2
	8gfc:chassis/slot/1/6/2	odu2:chassis/slot/2/1/2.1.1.2	4.3
	10gfc:chassis/slot/1/6/2	odu2e:chassis/slot/2/1/2.1.1.2	4.3
	10ge:chassis/slot/1/6/3	odu2e:chassis/slot/2/1/2.1.1.3	4.1
	oc192:chassis/slot/1/6/3	odu2:chassis/slot/2/1/2.1.1.3	4.2
	stm64:chassis/slot/1/6/3	odu2:chassis/slot/2/1/2.1.1.3	4.2
	odu2:chassis/slot/1/6/3	odu2:chassis/slot/2/1/2.1.1.3	4.2
	odu2e:chassis/slot/1/6/3	odu2e:chassis/slot/2/1/2.1.1.3	4.2
	8gfc:chassis/slot/1/6/3	odu2:chassis/slot/2/1/2.1.1.3	4.3
	10gfc:chassis/slot/1/6/3	odu2e:chassis/slot/2/1/2.1.1.3	4.3
	10ge:chassis/slot/1/6/4	odu2e:chassis/slot/2/1/2.1.1.4	4.1
	oc192:chassis/slot/1/6/4	odu2:chassis/slot/2/1/2.1.1.4	4.2
	stm64:chassis/slot/1/6/4	odu2:chassis/slot/2/1/2.1.1.4	4.2
	odu2:chassis/slot/1/6/4	odu2:chassis/slot/2/1/2.1.1.4	4.2
	odu2e:chassis/slot/1/6/4	odu2e:chassis/slot/2/1/2.1.1.4	4.2
	8gfc:chassis/slot/1/6/4	odu2:chassis/slot/2/1/2.1.1.4	4.3
	10gfc:chassis/slot/1/6/4	odu2e:chassis/slot/2/1/2.1.1.4	4.3

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Table 17: UFM6 Fixed Cross-Connect Mappings *(continued)*

Description	Client Interface	Line Interface	Introduced in Release
	10ge:chassis/slot/1/7/1	odu2e:chassis/slot/2/1/2.1.1.5	4.1
	oc192:chassis/slot/1/7/1	odu2:chassis/slot/2/1/2.1.1.5	4.2
	stm64:chassis/slot/1/7/1	odu2:chassis/slot/2/1/2.1.1.5	4.2
	odu2:chassis/slot/1/7/1	odu2:chassis/slot/2/1/2.1.1.5	4.2
	odu2e:chassis/slot/1/7/1	odu2e:chassis/slot/2/1/2.1.1.5	4.2
	8gfc:chassis/slot/1/7/1	odu2:chassis/slot/2/1/2.1.1.5	4.3
	10gfc:chassis/slot/1/7/1	odu2e:chassis/slot/2/1/2.1.1.5	4.3
	10ge:chassis/slot/1/7/2	odu2e:chassis/slot/2/1/2.1.1.6	4.1
	oc192:chassis/slot/1/7/2	odu2:chassis/slot/2/1/2.1.1.6	4.2
	stm64:chassis/slot/1/7/2	odu2:chassis/slot/2/1/2.1.1.6	4.2
	odu2:chassis/slot/1/7/2	odu2:chassis/slot/2/1/2.1.1.6	4.2
	odu2e:chassis/slot/1/7/2	odu2e:chassis/slot/2/1/2.1.1.6	4.2
	8gfc:chassis/slot/1/7/2	odu2:chassis/slot/2/1/2.1.1.6	4.3
	10gfc:chassis/slot/1/7/2	odu2e:chassis/slot/2/1/2.1.1.6	4.3
	10ge:chassis/slot/1/7/3	odu2e:chassis/slot/2/1/2.1.1.7	4.1
	oc192:chassis/slot/1/7/3	odu2:chassis/slot/2/1/2.1.1.7	4.2
	stm64:chassis/slot/1/7/3	odu2:chassis/slot/2/1/2.1.1.7	4.2
	odu2:chassis/slot/1/7/3	odu2:chassis/slot/2/1/2.1.1.7	4.2
	odu2e:chassis/slot/1/7/3	odu2e:chassis/slot/2/1/2.1.1.7	4.2
	8gfc:chassis/slot/1/7/3	odu2:chassis/slot/2/1/2.1.1.7	4.3
	10gfc:chassis/slot/1/7/3	odu2e:chassis/slot/2/1/2.1.1.7	4.3
	10ge:chassis/slot/1/7/4	odu2e:chassis/slot/2/1/2.1.1.8	4.1
	oc192:chassis/slot/1/7/4	odu2:chassis/slot/2/1/2.1.1.8	4.2
	stm64:chassis/slot/1/7/4	odu2:chassis/slot/2/1/2.1.1.8	4.2
	odu2:chassis/slot/1/7/4	odu2:chassis/slot/2/1/2.1.1.8	4.2
	odu2e:chassis/slot/1/7/4	odu2e:chassis/slot/2/1/2.1.1.8	4.2
	8gfc:chassis/slot/1/7/4	odu2:chassis/slot/2/1/2.1.1.8	4.3
	10gfc:chassis/slot/1/7/4	odu2e:chassis/slot/2/1/2.1.1.8	4.3

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Table 17: UFM6 Fixed Cross-Connect Mappings *(continued)*

Description	Client Interface	Line Interface	Introduced in Release
	10ge:chassis/slot/1/8/1	odu2e:chassis/slot/2/1/2.1.1.9	4.1
	oc192:chassis/slot/1/8/1	odu2:chassis/slot/2/1/2.1.1.9	4.2
	stm64:chassis/slot/1/8/1	odu2:chassis/slot/2/1/2.1.1.9	4.2
	odu2:chassis/slot/1/8/1	odu2:chassis/slot/2/1/2.1.1.9	4.2
	odu2e:chassis/slot/1/8/1	odu2e:chassis/slot/2/1/2.1.1.9	4.2
	8gfc:chassis/slot/1/8/1	odu2:chassis/slot/2/1/2.1.1.9	4.3
	10gfc:chassis/slot/1/8/1	odu2e:chassis/slot/2/1/2.1.1.9	4.3
	10ge:chassis/slot/1/8/2	odu2e:chassis/slot/2/1/2.1.1.10	4.1
	oc192:chassis/slot/1/8/2	odu2:chassis/slot/2/1/2.1.1.10	4.2
	stm64:chassis/slot/1/8/2	odu2:chassis/slot/2/1/2.1.1.10	4.2
	odu2:chassis/slot/1/8/2	odu2:chassis/slot/2/1/2.1.1.10	4.2
	odu2e:chassis/slot/1/8/2	odu2e:chassis/slot/2/1/2.1.1.10	4.2
	8gfc:chassis/slot/1/8/2	odu2:chassis/slot/2/1/2.1.1.10	4.3
	10gfc:chassis/slot/1/8/2	odu2e:chassis/slot/2/1/2.1.1.10	4.3
	10ge:chassis/slot/1/8/3	odu2e:chassis/slot/2/1/2.1.2.1	4.1
	oc192:chassis/slot/1/8/3	odu2:chassis/slot/2/1/2.1.2.1	4.2
	stm64:chassis/slot/1/8/3	odu2:chassis/slot/2/1/2.1.2.1	4.2
	odu2:chassis/slot/1/8/3	odu2:chassis/slot/2/1/2.1.2.1	4.2
	odu2e:chassis/slot/1/8/3	odu2e:chassis/slot/2/1/2.1.2.1	4.2
	8gfc:chassis/slot/1/8/3	odu2:chassis/slot/2/1/2.1.2.1	4.3
	10gfc:chassis/slot/1/8/3	odu2e:chassis/slot/2/1/2.1.2.1	4.3
	10ge:chassis/slot/1/8/4	odu2e:chassis/slot/2/1/2.1.2.2	4.1
	oc192:chassis/slot/1/8/4	odu2:chassis/slot/2/1/2.1.2.2	4.2
	stm64:chassis/slot/1/8/4	odu2:chassis/slot/2/1/2.1.2.2	4.2
	odu2:chassis/slot/1/8/4	odu2:chassis/slot/2/1/2.1.2.2	4.2
	odu2e:chassis/slot/1/8/4	odu2e:chassis/slot/2/1/2.1.2.2	4.2
	8gfc:chassis/slot/1/8/4	odu2:chassis/slot/2/1/2.1.2.2	4.3
	10gfc:chassis/slot/1/8/4	odu2e:chassis/slot/2/1/2.1.2.2	4.3

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Table 17: UFM6 Fixed Cross-Connect Mappings *(continued)*

Description	Client Interface	Line Interface	Introduced in Release
	10ge:chassis/slot/1/9/1	odu2e:chassis/slot/2/1/2.1.2.3	4.1
	oc192:chassis/slot/1/9/1	odu2:chassis/slot/2/1/2.1.2.3	4.2
	stm64:chassis/slot/1/9/1	odu2:chassis/slot/2/1/2.1.2.3	4.2
	odu2:chassis/slot/1/9/1	odu2:chassis/slot/2/1/2.1.2.3	4.2
	odu2e:chassis/slot/1/9/1	odu2e:chassis/slot/2/1/2.1.2.3	4.2
	8gfc:chassis/slot/1/9/1	odu2:chassis/slot/2/1/2.1.2.3	4.3
	10gfc:chassis/slot/1/9/1	odu2e:chassis/slot/2/1/2.1.2.3	4.3
	10ge:chassis/slot/1/9/2	odu2e:chassis/slot/2/1/2.1.2.4	4.1
	oc192:chassis/slot/1/9/2	odu2:chassis/slot/2/1/2.1.2.4	4.2
	stm64:chassis/slot/1/9/2	odu2:chassis/slot/2/1/2.1.2.4	4.2
	odu2:chassis/slot/1/9/2	odu2:chassis/slot/2/1/2.1.2.4	4.2
	odu2e:chassis/slot/1/9/2	odu2e:chassis/slot/2/1/2.1.2.4	4.2
	8gfc:chassis/slot/1/9/2	odu2:chassis/slot/2/1/2.1.2.4	4.3
	10gfc:chassis/slot/1/9/2	odu2e:chassis/slot/2/1/2.1.2.4	4.3
	10ge:chassis/slot/1/9/3	odu2e:chassis/slot/2/1/2.1.2.5	4.1
	oc192:chassis/slot/1/9/3	odu2:chassis/slot/2/1/2.1.2.5	4.2
	stm64:chassis/slot/1/9/3	odu2:chassis/slot/2/1/2.1.2.5	4.2
	odu2:chassis/slot/1/9/3	odu2:chassis/slot/2/1/2.1.2.5	4.2
	odu2e:chassis/slot/1/9/3	odu2e:chassis/slot/2/1/2.1.2.5	4.2
	8gfc:chassis/slot/1/9/3	odu2:chassis/slot/2/1/2.1.2.5	4.3
	10gfc:chassis/slot/1/9/3	odu2e:chassis/slot/2/1/2.1.2.5	4.3
	10ge:chassis/slot/1/9/4	odu2e:chassis/slot/2/1/2.1.2.6	4.1
	oc192:chassis/slot/1/9/4	odu2:chassis/slot/2/1/2.1.2.6	4.2
	stm64:chassis/slot/1/9/4	odu2:chassis/slot/2/1/2.1.2.6	4.2
	odu2:chassis/slot/1/9/4	odu2:chassis/slot/2/1/2.1.2.6	4.2
	odu2e:chassis/slot/1/9/4	odu2e:chassis/slot/2/1/2.1.2.6	4.2
	8gfc:chassis/slot/1/9/4	odu2:chassis/slot/2/1/2.1.2.6	4.3
	10gfc:chassis/slot/1/9/4	odu2e:chassis/slot/2/1/2.1.2.6	4.3

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Table 17: UFM6 Fixed Cross-Connect Mappings *(continued)*

Description	Client Interface	Line Interface	Introduced in Release
	10ge:chassis/slot/1/10/1	odu2e:chassis/slot/2/1/2.1.2.7	4.1
	oc192:chassis/slot/1/10/1	odu2:chassis/slot/2/1/2.1.2.7	4.2
	stm64:chassis/slot/1/10/1	odu2:chassis/slot/2/1/2.1.2.7	4.2
	odu2:chassis/slot/1/10/1	odu2:chassis/slot/2/1/2.1.2.7	4.2
	odu2e:chassis/slot/1/10/1	odu2e:chassis/slot/2/1/2.1.2.7	4.2
	8gfc:chassis/slot/1/10/1	odu2:chassis/slot/2/1/2.1.2.7	4.3
	10gfc:chassis/slot/1/10/1	odu2e:chassis/slot/2/1/2.1.2.7	4.3
	10ge:chassis/slot/1/10/2	odu2e:chassis/slot/2/1/2.1.2.8	4.1
	oc192:chassis/slot/1/10/2	odu2:chassis/slot/2/1/2.1.2.8	4.2
	stm64:chassis/slot/1/10/2	odu2:chassis/slot/2/1/2.1.2.8	4.2
	odu2:chassis/slot/1/10/2	odu2:chassis/slot/2/1/2.1.2.8	4.2
	odu2e:chassis/slot/1/10/2	odu2e:chassis/slot/2/1/2.1.2.8	4.2
	8gfc:chassis/slot/1/10/2	odu2:chassis/slot/2/1/2.1.2.8	4.3
	10gfc:chassis/slot/1/10/2	odu2e:chassis/slot/2/1/2.1.2.8	4.3
	10ge:chassis/slot/1/10/3	odu2e:chassis/slot/2/1/2.1.2.9	4.1
	oc192:chassis/slot/1/10/3	odu2:chassis/slot/2/1/2.1.2.9	4.2
	stm64:chassis/slot/1/10/3	odu2:chassis/slot/2/1/2.1.2.9	4.2
	odu2:chassis/slot/1/10/3	odu2:chassis/slot/2/1/2.1.2.9	4.2
	odu2e:chassis/slot/1/10/3	odu2e:chassis/slot/2/1/2.1.2.9	4.2
	8gfc:chassis/slot/1/10/3	odu2:chassis/slot/2/1/2.1.2.9	4.3
	10gfc:chassis/slot/1/10/3	odu2e:chassis/slot/2/1/2.1.2.9	4.3
	10ge:chassis/slot/1/10/4	odu2e:chassis/slot/2/1/2.1.2.10	4.1
	oc192:chassis/slot/1/10/4	odu2:chassis/slot/2/1/2.1.2.10	4.2
	stm64:chassis/slot/1/10/4	odu2:chassis/slot/2/1/2.1.2.10	4.2
	odu2:chassis/slot/1/10/4	odu2:chassis/slot/2/1/2.1.2.10	4.2
	odu2e:chassis/slot/1/10/4	odu2e:chassis/slot/2/1/2.1.2.10	4.2
	8gfc:chassis/slot/1/10/4	odu2:chassis/slot/2/1/2.1.2.10	4.3
	10gfc:chassis/slot/1/10/4	odu2e:chassis/slot/2/1/2.1.2.10	4.3

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Table 17: UFM6 Fixed Cross-Connect Mappings *(continued)*

Description	Client Interface	Line Interface	Introduced in Release
40GbE to/from subinterface within OTU4	40ge:chassis/slot/1/1	odu3:chassis/slot/2/1/1.1.1.1	4.4
	40ge:chassis/slot/1/2	odu3:chassis/slot/2/1/1.1.1.2	4.4
	40ge:chassis/slot/1/4	odu3:chassis/slot/2/1/1.1.2.1	4.4
	40ge:chassis/slot/1/5	odu3:chassis/slot/2/1/1.1.2.2	4.4
	40ge:chassis/slot/1/6	odu3:chassis/slot/2/1/2.1.1.1	4.4
	40ge:chassis/slot/1/7	odu3:chassis/slot/2/1/2.1.1.2	4.4
	40ge:chassis/slot/1/9	odu3:chassis/slot/2/1/2.1.2.1	4.4
	40ge:chassis/slot/1/10	odu3:chassis/slot/2/1/2.1.2.2	4.4

Release History Table

Release	Description
4.1	The UFM6 is supported in releases 4.1 and higher.

DWDM 50-GHz Wavelength Plan

The DWDM 50-GHz wavelength plan is aligned with the ITU C-Band grid.

Table 18: DWDM Wavelength Plan (50-GHz Spacing)

Frequency (THz)	Wavelength (nm)	Client Port Number (multiplexer/demultiplexer)
196.10	1528.77	C96
196.05	1529.16	C95
196.00	1529.55	C94
195.95	1529.94	C93
195.90	1530.33	C92
195.85	1530.72	C91
195.80	1531.12	C90
195.75	1531.51	C89

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Table 18: DWDM Wavelength Plan (50-GHz Spacing) *(continued)*

Frequency (THz)	Wavelength (nm)	Client Port Number (multiplexer/demultiplexer)
195.70	1531.90	C88
195.65	1532.29	C87
195.60	1532.68	C86
195.55	1533.07	C85
195.50	1533.47	C84
195.45	1533.86	C83
195.40	1534.25	C82
195.35	1534.64	C81
195.30	1535.04	C80
195.25	1535.43	C79
195.20	1535.82	C78
195.15	1536.22	C77
195.10	1536.61	C76
195.05	1537.00	C75
195.00	1537.40	C74
194.95	1537.79	C73
194.90	1538.19	C72
194.85	1538.58	C71
194.80	1538.98	C70
194.75	1539.37	C69
194.70	1539.77	C68
194.65	1540.16	C67
194.60	1540.56	C66

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Table 18: DWDM Wavelength Plan (50-GHz Spacing) *(continued)*

Frequency (THz)	Wavelength (nm)	Client Port Number (multiplexer/demultiplexer)
194.55	1540.95	C65
194.50	1541.35	C64
194.45	1541.75	C63
194.40	1542.14	C62
194.35	1542.54	C61
194.30	1542.94	C60
194.25	1543.33	C59
194.20	1543.73	C58
194.15	1544.13	C57
194.10	1544.53	C56
194.05	1544.92	C55
194.00	1545.32	C54
193.95	1545.72	C53
193.90	1546.12	C52
193.85	1546.52	C51
193.80	1546.92	C50
193.75	1547.32	C49
193.70	1547.72	C48
193.65	1548.11	C47
193.60	1548.51	C46
193.55	1548.91	C45
193.50	1549.32	C44
193.45	1549.72	C43

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Table 18: DWDM Wavelength Plan (50-GHz Spacing) *(continued)*

Frequency (THz)	Wavelength (nm)	Client Port Number (multiplexer/demultiplexer)
193.40	1550.12	C42
193.35	1550.52	C41
193.30	1550.92	C40
193.25	1551.32	C39
193.20	1551.72	C38
193.15	1552.12	C37
193.10	1552.52	C36
193.05	1552.93	C35
193.00	1553.33	C34
192.95	1553.73	C33
192.90	1554.13	C32
192.85	1554.54	C31
192.80	1554.94	C30
192.75	1555.34	C29
192.70	1555.75	C28
192.65	1556.15	C27
192.60	1556.55	C26
192.55	1556.96	C25
192.50	1557.36	C24
192.45	1557.77	C23
192.40	1558.17	C22
192.35	1558.58	C21
192.30	1558.98	C20

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Table 18: DWDM Wavelength Plan (50-GHz Spacing) *(continued)*

Frequency (THz)	Wavelength (nm)	Client Port Number (multiplexer/demultiplexer)
192.25	1559.39	C19
192.20	1559.79	C18
192.15	1560.20	C17
192.10	1560.61	C16
192.05	1561.01	C15
192.00	1561.42	C14
191.95	1561.83	C13
191.90	1562.23	C12
191.85	1562.64	C11
191.80	1563.05	C10
191.75	1563.45	C9
191.70	1563.86	C8
191.65	1564.27	C7
191.60	1564.68	C6
191.55	1565.09	C5
191.50	1565.50	C4
191.45	1565.91	C3
191.40	1566.31	C2
191.35	1566.72	C1

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CHAPTER 3

Operational Mode Commands

- autowizard
- clear isis statistics
- config
- copy
- debug-utils
- del
- dir
- exit
- help
- logging logarchives copy
- logging logarchives remove
- logging logarchives show
- logout
- ping
- protection wavelength switch
- set
- statistics clear
- statistics copy
- system clock
- system database backup
- system database restore
- system reload
- system reload all
- system upgrade
- system upgrade firmware
- traceroute
- view file
- who

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autowizard

Syntax **autowizard [true | false]**

Description This command enables the CLI to prompt you for mandatory parameters during configuration.

By default, autowizard is set to true, which means that the CLI prompts you for mandatory parameters if you neglect to specify them.

If you disable autowizard, the CLI does not prompt you for mandatory parameters. If you neglect to configure the mandatory parameters, the **commit** command fails.

NOTE: **If you intend to use the running-config output as input to the CLI, you should disable autowizard (set to false).**

Related Documentation

- None

Sample Output

Here is an example where **autowizard** is set to **true**. The CLI prompts for the mandatory **type** parameter.

```
bti7800# autowizard true
bti7800# config
Entering configuration mode terminal
bti7800(config)# interface 10ge:1/3/1/1
Value for 'type' [ethernetCsmacd,opticalChannel,otn0du,otn0tu,...]: ethernetCsmacd
bti7800(config-interface-10ge:1/3/1/1)# commit
Commit complete.
```

Here is an example where **autowizard** is set to **false**. The **commit** fails because the mandatory **type** parameter is not configured.

```
bti7800# autowizard false
bti7800# config
Entering configuration mode terminal
bti7800(config)# interface 10ge:1/3/1/7
bti7800(config-interface-10ge:1/3/1/7)# commit
Aborted: 'interface 10ge:1/3/1/7 type' is not configured
```

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clear isis statistics

Syntax **clear isis statistics**

Description This command clears the IS-IS counters. IS-IS can be configured on the management network.

Related Documentation

- show isis counters on page 276

Sample Output

```
bti7800# clear isis statistics
bti7800#
```

config

Syntax **config**

Description This command places the session into configuration mode.

Sample Output

```
bti7800# config
Entering configuration mode terminal
bti7800(config)#
```


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copy

Syntax copy file *filename* remote-url *protocol:url* [password *password*]

Description This command copies a local file from the home directory to a remote location.

Options

Parameter	Description	Range	Default Value
filename	The name of the source file	The name of an existing file in the home directory	–
protocol:url	The remote location where you want to copy the file	`sftp|ftp://[username@]host[:port]/[filepath]` *username* is the username to use on the remote server. *host* is the host name or IP address of the remote server. *port* is the protocol port number to use. *filepath* is the filepath on the remote server.	If *username* is not specified, the current CLI session's login name is used. If *port* is not specified, the standard default FTP or SFTP port is used. If *filepath* is not specified, the file is copied to the FTP/SFTP user's home directory.
password	The password associated with the specified username If a password is not specified, the system prompts you for a password. NOTE: The password must contain alphanumeric characters only.	A character string	None

Related Documentation

- dir on page 66

Sample Output

```
bti7800# copy file test.txt remote-url sftp://192.168.0.45
Value for 'password' (<string>):
```

debug-utils

Syntax **debug-utils** *options*

Description This command is intended for use by Juniper Networks Support only.

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del

Syntax **del file *filename* [force]**

Description This command deletes a file from the home directory.

Options

Parameter	Description	Range	Default Value
filename	The name of the file to delete	The name of an existing file in the home directory	–
force	Deletes a file without a confirmation prompt	–	–

Related Documentation

- dir on page 66

Sample Output

```
bti7800# dir
test.txt
bti7800# del file test.txt
Confirm (yes/no): yes
bti7800#
bti7800# dir
bti7800#
```

dir

Syntax **dir [verbose]**

Description This command lists the contents of the home directory and displays the disk status.

Options

- verbose - provides a more detailed listing and includes the disk status

Related Documentation

- None

Sample Output

```
bti7800# dir verbose
total 24K
drwxr-xr-x 2 atlas atlas 4.0K Feb 22 17:20 .
drwxr-xr-x 4 root  root  4.0K Feb 22 15:38 ..
-rw------- 1 atlas atlas  339 Feb 22 17:20 .bash_history
-rw------- 1 atlas atlas    7 Feb 22 17:20 .python-history
-rw------- 1 atlas atlas  940 Feb 22 17:20 .viminfo
-rw-r--r-- 1 atlas atlas  173 Feb 22 17:20 test.txt

------disk status------
Used    Avail   Use%
844K    730M    1%
bti7800#
```


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exit

Syntax **exit**

Description When executed in operational mode, this command disconnects the user session.

When executed in configuration mode, this command causes the user session to exit configuration mode and return to operational mode.

Related Documentation

- None

Sample Output

```
bti7800(config)# exit
bti7800#
bti7800# exit
Connection to 10.1.2.3 closed.
[user]$
```

help

Syntax **help [*command*]**

Description This command displays the help text for the specified command. If no command is specified, a list of commands available at the current level is displayed.

Options

- *command* - displays help text for the specified command

Related Documentation

- None

Sample Output

```
bti7800# help system
Help for command: system
   Global system settings
bti7800#
```


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logging logarchives copy

Syntax **logging logarchives copy { all | files [*filename*] } remote-url *protocol:url* [password *password*]**

The square brackets **[ ]** surrounding the *filename* are required as part of the command.

Description This command copies system log files to a remote location.

Options

Parameter	Description	Range	Default Value
all	Copies all system log files	–	–
files [*filename* **]**	Copies the specified system log file(s) NOTE: The square brackets **[ ]** surrounding the *filename* are required as part of the command.	One or more existing system log files	–
remote-url *protocol:url*	The remote location where you want to copy the system log file(s)	`scp:sftp|ftp://[username@]host[:port]/[filepath]` *username* is the username to use on the remote server. *host* is the host name or IP address of the remote server. *port* is the protocol port number to use. *filepath* is the filepath on the remote server.	If *username* is not specified, the current CLI session's login name is used. If *port* is not specified, the standard default SCP, FTP, or SFTP port is used. If *filepath* is not specified, the file is copied to the SCP/FTP/SFTP user's home directory.
password *password*	The password associated with the specified username If a password is not specified, the system prompts you for a password. NOTE: The password must contain alphanumeric characters only.	A character string	None

Related Documentation

- logging logarchives show on page 73

Sample Output

```
bti7800# logging logarchives copy files [ system.log ] remote-url
ftp://user@10.229.1.162/logs
Value for 'password' (<string>): ************
```


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logging logarchives remove

Syntax **logging logarchives remove { all | files [*filename*] }**

The square brackets **[ ]** surrounding the *filename* are required as part of the command.

Description This command removes system log files.

Options

Parameter	Description	Range	Default Value
all	Removes all system log files	–	–
files [*filename* **]**	Removes the specified system log file(s) NOTE: The square brackets **[ ]** surrounding the *filename* are required as part of the command.	One or more existing system log files	–

Related Documentation

- logging logarchives show on page 73

Sample Output

```
bti7800# logging logarchives show


LogFiles                                      Size     Date/Time
system.log                                 1528488    Feb 23 15:38
system.log.1                               1384958    Feb 11 14:22
bti7800#

bti7800# logging logarchives remove files [ system.log.1 ]

system.log.1

bti7800# logging logarchives show


LogFiles                                      Size     Date/Time
system.log                                 1528488    Feb 23 15:38
bti7800#
```

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logging logarchives show

Syntax logging logarchives show

Description This command lists the system log files.

Related Documentation
- logging logarchives copy on page 69

Sample Output

```
bti7800# logging logarchives show

LogFiles                                        Size     Date/Time
system.log                                   1528488    Feb 23 15:38
bti7800#
```

logout

Syntax **logout [user *username*]**

Description This command ends all open CLI and NETCONF sessions for the specified user. If a user is not specified, this command ends the CLI session where this command is issued.

Options

- *username* - the user that you want to log out

Related Documentation

- None

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ping

Syntax **ping { *hostname* | *ip_address* } [count *number* | size *size*]**

Description This command issues an ICMP ping command on the management network.

Options

Parameter	Description	Range	Default Value
hostname	The name of the host to ping	A valid resolvable hostname	None
ip_address	The IP address of the host to ping	Standard dotted decimal notation (for example, 192.168.0.100)	None
count *number*	The number of pings to send out	1 to 2,147,483,647	5
size *number*	This is the size of the ICMP packet data. An ICMP packet consists of an 8-byte ICMP header followed by the ICMP packet data, all encapsulated within an IP datagram. This parameter specifies the size of the ICMP packet data.	0 to 65,507 A value of 0 results in an IP packet size of 64 bytes. A value of 65,507 results in an IP packet size of 65,535 bytes.	56

Related Documentation

- traceroute on page 101

Sample Output

The following command pings the specified host with an ICMP packet data size of 1472.

```
bti7800# ping 10.10.1.100 size 1472
PING 10.10.1.100 (10.10.1.100) 1472(1500) bytes of data.
1480 bytes from 10.10.1.100: icmp_seq=1 ttl=64 time=0.214 ms
1480 bytes from 10.10.1.100: icmp_seq=2 ttl=64 time=0.188 ms
1480 bytes from 10.10.1.100: icmp_seq=3 ttl=64 time=0.238 ms
1480 bytes from 10.10.1.100: icmp_seq=4 ttl=64 time=0.232 ms
1480 bytes from 10.10.1.100: icmp_seq=5 ttl=64 time=0.243 ms

--- 10.10.1.100 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4001ms rtt min/avg/max/mdev
 = 0.188/0.223/0.243/0.020 ms

bti7800#
```

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protection wavelength switch

Syntax **protection wavelength switch** *switch-type* **wpsport:***location*

Description This command executes a protection switch on the specified WPS port.

Options

Parameter	Description	Range	Default
protection wavelength switch *switch-type*	Denotes the type of wavelength protection switch the operator wants to invoke	forced lockout manual release	None
wpsport:*location*	The line port on which the user wants to invoke the wavelength protection switch	A valid WPS port See "Location Identifiers" on page 31.	None

Related Documentation

- show protection wavelength port on page 290
- protection wavelength group on page 191

Sample Output

```
bti7800#protection wavelength switch manual wpsport:1/3/L1B
```

set

Syntax **set [complete-on-space | idle-timeout | ignore-leading-space | paginate | prompt1 | prompt2 | screen-length | screen-width | terminal]**

Description This command configures the current CLI session environment.

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Options

Parameter	Description	Range	Default Value
complete-on-space	Enables/disables completion on space	false true	–
idle-timeout	The duration of time, in seconds, to keep a CLI session open during session inactivity	0 to 6000 seconds	–
ignore-leading-space	Ignores leading whitespace	true: Ignore whitespace false: Retain whitespace	–
paginate	Paginates screen output	false true	–
prompt1	User-defined string for the operational mode prompt	Alphanumeric string 1 to 32 characters NOTE: This sets the prompt for all users.	–
prompt2	User-defined string for the configuration mode prompt	Alphanumeric string 1 to 32 characters NOTE: This sets the prompt for all users.	–
screen-length	Configures the number of rows to display on the CLI screen	–	–
screen-width	Configures CLI screen width	–	–
terminal	Sets the terminal type	generic xterm vt100 ansi linus	–

Related Documentation

- None

statistics clear

Syntax

statistics { current | historical } *entity* **[binLength { 1Day | 1Minute | 15Minute | unTimed }] clear**

Description

This command clears the current or historical statistics for the specified bin length. If no bin length is specified, all current or historical bins are cleared.

Options

Parameter	Description	Range	Default Value
current	Clears the current statistics for the indicated entity	–	–
historical	Clears the historical statistics for the indicated entity	–	–
entity	The module, interface, or other entity that supports performance monitoring (for example, cmm:1/A or 10ge:1/3/1/1)	A valid entity	None
1Day	Clears all counters in the 1Day bin length	–	–
1Minute	Clears all counters in the 1Minute bin length	–	–
15Minute	Clears all counters in the 15Minute bin length	–	–
unTimed	Clears all counters in the unTimed bin length This option is not available when clearing statistics for historical bins.	–	–

Related Documentation

- *show statistics*

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Sample Output

This clears the statistics in all historical bins (1Day, 1Minute, 15Minute) for the indicated interface.

```
bti7800# statistics historical 10ge:1/3/1/1 clear
```

statistics copy

Syntax **statistics copy remote-url** *protocol:url* **[password** *password* **]**

Description This command copies statistics to a remote location.

Options

Parameter	Description	Range	Default Value
remote-url *protocol:url*	The remote location where you want to copy the statistics	`sftp|ftp://[username@]host[:port]/[filepath]` *username* is the username to use on the remote server. *host* is the host name or IP address of the remote server. *port* is the protocol port number to use. *filepath* is the filepath on the remote server.	If *username* is not specified, the current CLI session's login name is used. If *port* is not specified, the standard default FTP or SFTP port is used. If *filepath* is not specified, the file is copied to the FTP/SFTP user's home directory.
password *password*	The password associated with the specified username If a password is not specified, the system prompts you for a password. NOTE: The password must contain alphanumeric characters only.	A character string	None

Related Documentation

- *show statistics*

Sample Output

```
bti7800# statistics copy remote-url sftp://user@10.1.1.1/statistics
Value for 'password' (<string>): ******
```


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system clock

Syntax **system clock set-date-time** *date-time*

Description This command sets the system clock.

Use this command to set the date and time if you are not using NTP servers.

Options

Parameter	Description	Range	Default Value
date-time	The date and the time to set	<YYYY>-<MM>-<DD>T<HH>:<MM>:<SS> <YYYY> = year <MM> = month {01-12} <DD> = day {01-31} Literal T separates data and time. <HH> = hour {00-23} <MM> = minute {00-59} <SS> = second {00-59}	–

Additional Information See the *BTI7800 Series Software Configuration Guide* for information on the following:

- For the time change to take effect, you must warm reload the CMMs after changing the time. See *Setting the Date and Time*.
- Changing the time affects PM timestamps. See *Effect of a Time Change on PMs*.

Related Documentation

- show system clock on page 300

Sample Output

```
bti7800# system clock set-date-time 2015-01-28T13:33:00
NOTE: If the system is using NTP, date and time would be overridden by NTP.
Proceed? [no,yes] yes
bti7800#
```

system database backup

Syntax

system database backup local
system database backup remote *protocol:url* **[password** *password* **]**

Release Information

The **remote** option was introduced prior to release 2.1.1.
Starting with release 2.1.1, the **local** option is supported for the BTI7801.
Starting with release 4.2, you are allowed to change the filename of the backed-up configuration database file after backing up with the **remote** option.

Description

This command backs up the system configuration database.

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Options

Parameter	Description	Range	Default Value
local	This backs up the configuration database to local chassis storage. This option is only available for the BTI7801 chassis.	–	–
remote *protocol:url*	This backs up the configuration database to the specified remote location using a filename assigned by the system. Starting with release 4.2, you can change the assigned filename of the backed-up configuration after you successfully transfer the file to the server. In earlier releases, you are not allowed to change the filename from the original filename assigned by the system.	`sftp|ftp://[`*`username`*`@]`*`host`*`[:`*`port`*`]/[`*`filepath`*`]` *username* is the username to use on the remote server. *host* is the host name or IP address of the remote server. *port* is the protocol port number to use. *filepath* is the filepath where you want to place the configuration database file.	If *username* is not specified, the current CLI session's login name is used. If *port* is not specified, the standard default FTP or SFTP port is used. If *filepath* is not specified, the file is copied to the FTP/SFTP user's home directory.
password *password*	The password associated with the specified username. If you do not specify a password, the system prompts you for a password. NOTE: The password must contain alphanumeric characters only.	A character string	None

Related Documentation

- system database restore on page 87
- show system database on page 303

Sample Output

```
bti7800# system database backup remote sftp://user@10.1.1.1/backups
Value for 'password' (<string>): ******
bti7800# show system database
Backup Status
-------------
CurrentStatus   : ready-to-backup
```

```
Module          : cmm:1/A
RemoteUrl       :
sftp://user@10.1.1.1/backups/10.75.0.5_BTI7800v2.0.0_22508_20160217_175219.tar.gz

NotificationMsg : Backup successful
```


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system database restore

Syntax

system database restore factory-default
system database restore local
system database restore remote *protocol:url* **[password** *password* **] [retain-ip true | false]**

Release Information

The **factory-default** and **remote** options were introduced prior to release 2.1.1.
Starting with release 2.1.1, the **local** option is supported for the BTI7801.
Starting with release 4.2, the **retain-ip** option is supported.
Starting with release 4.2, you are allowed to restore the database from a file with any filename.
Starting with release 4.2, you can restore the database from any backup as long as the backup is for a chassis of the same type (BTI7801 to BTI7801, BTI7802 to BTI7802, BTI7814 to BTI7814).

Description

This command restores the system to a backed-up database or to the factory-default database.

Options

Parameter	Description	Range	Default Value
factory-default	This restores the factory-default database.	–	–
local	This restores the backed-up database from local chassis storage. This option is only available for the BTI7801 chassis.	–	–
remote *protocol:url*	This restores the backed-up database found at the specified location. Starting with release 4.2, you are allowed to restore the database from a backed-up database file whose filename has been changed from the original filename assigned by the system during the backup operation. In earlier releases, you can only restore the database from a file whose filename is unchanged from the filename assigned by the system during the backup operation. Starting with release 4.2, you can restore from any backup as long as the backup configuration is for a chassis of the same chassis type. In earlier releases, you can only restore the database to the same chassis from which the database was backed up.	`sftp|ftp://[`*`username`*`@]`*`host`*`[:`*`port`*`]/`*`filename`* *username* is the username to use on the remote server. *host* is the host name or IP address of the remote server. *port* is the protocol port number to use. *filename* is the filepath and name of the configuration database file that you want to restore.	If *username* is not specified, the current CLI session's login name is used. If *port* is not specified, the standard default FTP or SFTP port is used.
password *password*		A character string	None

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Parameter	Description	Range	Default Value
	The password associated with the specified username. If a password is not specified, the system prompts you for a password. NOTE: The password must contain alphanumeric characters only.		
retain-ip true | false	Specify whether you want to retain the following existing settings when restoring a database from a different chassis: system name, system mgmt-address, system gateway-address, system controller-1 static-address, system controller-2 static-address.	true: retain existing settings false: overwrite settings	false

Additional Information

This procedure is service-affecting. The system performs an automatic cold reload of all modules immediately after restoring the database.

Software-based features on service modules (such as PM collection, APSD, APR, FSPD) are disabled temporarily as part of this procedure.

Related Documentation

- system database backup on page 84
- show system database on page 303

Sample Output

```
bti7800# system database restore factory-default
This is a service-affecting action that will overwrite the configuration database
 with default values and perform an automatic reload all cold. Do you wish to
continue? [no,yes] yes
```

```
bti7800# system database restore remote
sftp://user@10.1.1.1/backups/10.75.0.5_BTI7800v2.0.0_22508_20160217_175219.tar.gz
Value for 'password' (<string>): ******
This is a service-affecting action that will overwrite the configuration database
```

```
and perform an automatic reload all cold. Do you wish to continue? [no,yes] yes
```


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system reload

Syntax **system reload { cold | warm }** *module_id*

Release Information This command was introduced prior to release 2.1.1.
Starting with release 4.2, the system behavior when warm reloading a CMM has changed. See the **warm** option below.

Description This command reboots the specified module.

Options

Parameter	Description	Range	Default Value
cold *module_id*	This performs a cold reload of the specified module. In a cold reload, the hardware is reset, the software and device drivers are reloaded, and the configuration is re-applied. This is service affecting if you are reloading a service module. Traffic is stopped and software-based features on the service module (such as PM collection, APSD, APR, FSPD) are disabled while a service module reloads. NOTE: You cannot cold reload the sole CMM in a single CMM system. NOTE: You cannot cold reload both CMMs concurrently in a dual CMM system. You must wait until the first CMM becomes operationally up before cold reloading the second CMM. NOTE: You cannot cold reload both CMMs concurrently in a satellite chassis in a multichassis system. You must wait until the first CMM becomes operationally up before cold reloading the second CMM.	An installed and provisioned module See equipment chassis module for the correct syntax.	None
warm *module_id*		An installed and provisioned module See equipment chassis module for the correct syntax.	None

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Parameter	Description	Range	Default Value
	This performs a warm reload of the specified module. In a warm reload, the software is reloaded. This is not service affecting as transport and optical traffic continue to be passed in a warm reload, but software-based features on the service module (such as PM collection, APSD, APR, FSPD) are disabled while a service module reloads. NOTE: If you warm reload the CMM in a single CMM system or both CMMs in a dual CMM system, traffic is not affected but all service modules will undergo an automatic warm reload as follows: • In releases lower than 4.2, all service modules are warm reloaded immediately and do not come back up until the CMM becomes active and finishes warm reloading the service modules. • Starting with release 4.2, all service modules run normally while the CMM is reloading. When the CMM boots up and becomes active, the CMM warm reloads the service modules.		

Related Documentation

- system reload all on page 94

Sample Output

```
bti7800# system reload warm ufm:1/3
```

system reload all

Syntax **system reload all { cold | warm }**

Description This command reloads the software on all modules, including the CMM and all service modules.

Options

Parameter	Description	Range	Default Value
cold	This performs a cold reload of all modules. In a cold reload, the hardware is reset, the software and device drivers are reloaded, and the configuration is re-applied. This is service affecting on all modules. Traffic is stopped and software-based features on a service module (such as PM collection, APSD, APR, FSPD) are disabled while a service module reloads.	–	–
warm	This performs a warm reload of all modules. In a warm reload, the software is reloaded. This is not service affecting as transport and optical traffic continue to be passed in a warm reload, but software-based features on a service module (such as PM collection, APSD, APR, FSPD) are disabled while a service module reloads.	–	–

Related Documentation

- system reload on page 91

Sample Output

```
bti7800# system reload all cold
```


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system upgrade

Syntax

system upgrade cancel
system upgrade commit
system upgrade download
system upgrade firmware *options*
system upgrade remote-url *protocol:url* **[password** *password* **]**
system upgrade rollback

Release Information

This command was introduced prior to release 2.1.1.
Starting with release 4.2, the system automatically retries the **system upgrade commit** command if the initial commit fails.
Starting with release 4.3, you can issue this command with the provisioning privilege. In releases lower than release 4.3, you must have superuser privileges to issue this command.

Description

This command performs operations related to system software upgrades.

Options

Parameter	Description	Range	Default Value
cancel	Cancels a software download if one is in progress.	–	–
commit	Loads the new software on all modules. Software-based features on the service module (such as PM collection, APSD, APR, FPSD) are disabled temporarily until the module boots back up. NOTE: Starting with release 4.2, the system automatically retries the **commit** if the initial commit fails.	–	–
download	Downloads the new software package from the remote-url to local storage. The new software package must be in an RPM format.	–	–
firmware *options*	Upgrades the firmware on a specified module. See system upgrade firmware.		
remote-url *protocol:url*	The remote location where you want to copy the system log file(s).	`sftp|ftp://[username@]host[:port]/filename` *username* is the username to use on the remote server. *host* is the host name or IP address of the remote server. *port* is the protocol port number to use. *filename* is the filepath and filename of the software package. The file must be an RPM file.	If *username* is not specified, the current CLI session's login name is used. If *port* is not specified, the standard default FTP or SFTP port is used.
password *password*		A character string	None

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Parameter	Description	Range	Default Value
	The password associated with the specified username. If a password is not specified, the system prompts you for a password. NOTE: The password must contain alphanumeric characters only.		
rollback	Rolls back to the software and configuration in effect on all modules immediately prior to the upgrade. This command is service affecting. Software-based features on the service module (such as PM collection, APSD, APR, FPSD) are disabled temporarily until the module boots back up. NOTE: You might need to perform a cold reboot of all modules after rolling back. For more information, see the *BTI7800 Series Software Configuration Guide*.	–	–

Related Documentation

- show system upgrade on page 314

Sample Output

```
bti7800# system upgrade remote-url
ftp://user@172.25.5.100/sw/bti7800-sys-1.6.0-14211.x86_64.rpm
Value for 'password' (<string>): ********
bti7800# system upgrade download
bti7800# show system upgrade
Current Status : download-success
bti7800# system upgrade commit
CAUTION: Would you like to Proceed? [no,yes] yes
```

For more information on performing software upgrades, see the *BTI7800 Series Software Configuration Guide*.

system upgrade firmware

Syntax

system upgrade firmware ipmc module *module_id* **[force]**
system upgrade firmware l2-switch *chassis_id*
system upgrade firmware shmm *chassis_id*
system upgrade firmware retimer module *module_id* **port** *port*

Release Information

This command was introduced prior to release 2.1.1.
Starting with release 4.3, you can issue this command with the provisioning privilege. In releases lower than release 4.3, you must have superuser privileges to issue this command.
Starting with release 4.3, this command can be used to upgrade the re-timer firmware.

Description

This command performs operations related to firmware upgrades.

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Options

Parameter	Description	Range	Default Value
ipmc module *module_id*	Upgrades the ipmc firmware on the specified traffic module.	See equipment chassis module for the correct syntax for module identifiers.	None
l2-switch *chassis_id*	Upgrades the l2-switch firmware on the CMM.	A valid chassis identifier (for example, chassis:1)	None
shmm *chassis_id*	Upgrades the shmm firmware on the CMM.	A valid chassis identifier (for example, chassis:1)	None
force	Forces an ipmc firmware upgrade.	–	–
retimer module *module_id*	Specifies the containing UFM6 module for re-timer firmware upgrade.	See equipment chassis module for the correct syntax for module identifiers. The module identifier must refer to a UFM6 module.	None
port *port*		The following are the valid values: • **1** - client port 1 • **2** - client port 2 • **6** - client port 6 • **7** - client port 7 • **all** - client ports 1, 2, 6, and 7	None

Parameter	Description	Range	Default Value
	Upgrades the re-timer firmware on the specified dual-mode port. You can upgrade a specific dual-mode port or you can upgrade all dual-mode ports within the containing UFM6. You must change the admin-status of the transceiver to down before you can upgrade the re-timer firmware on the associated port. If you use the **all** option, you must change the admin-status of all[1] dual-mode transceivers to down before you can issue this command successfully. If the admin-status of any dual-mode transceiver is up, this command with the **all** option is rejected. This command does not affect service on ports (dual-mode or otherwise) that are not being upgraded.		

[1] If one or more of the dual-mode ports has already been upgraded and is carrying traffic, you should not use the **all** option because the **all** option requires you to disable all dual-mode transceivers regardless of whether they have been upgraded or not.

Related Documentation

- show system upgrade on page 314

Sample Output

```
bti7800# system upgrade firmware shmm chassis:1
```

For more information on performing firmware upgrades, see the *BTI7800 Series Software Configuration Guide*.

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traceroute

Syntax **traceroute** *hostname* | *ip_address*

Description This command issues a traceroute command.

Parameter		Description	Range	Default Value
hostname	**Options**	The name of the destination host to use in the traceroute attempt	A valid resolvable hostname. Usually only hosts on the management network are resolvable.	None
ip_address		The IP address of the destination host to use in the traceroute attempt	Standard dotted decimal notation (for example, 192.168.0.100).	None

Related Documentation

- ping on page 75

Sample Output

```
bti7800# traceroute 10.64.7.51
traceroute to 10.64.7.51 (10.64.7.51), 30 hops max, 46 byte packets
1  10.0.3.2 (10.0.3.2)  0.010 ms  0.009 ms  0.189 ms
2  172.25.0.8 (172.25.0.8)  0.960 ms  0.814 ms  1.356 ms
3  10.64.7.51 (10.64.7.51)  0.840 ms  *  1.329 ms
```

view file

Syntax **view file** *filename*

Description This command displays the contents of a file from the home directory.

Options

- *filename* - the name of the file to view

Related Documentation

- None

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who

Syntax **who**

Description This command displays information about the users currently logged in to the device.

Related Documentation

- None

Sample Output

```
bti7800# who
Session User  Context From         Proto Date       Mode
*1259   user  cli     192.168.7.64 ssh   09:44:56   operational
 124    user  netconf 10.127.41.31 ssh   2013-07-26 operational
bti7800#
```

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CHAPTER 4

Global Configuration Mode Commands

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- system mgmt-sources
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- users

alias

Syntax **[no] alias** *name* **expansion** *command*

Description This command creates an alias for an existing command.

Options

Parameter	Description	Range	Default Value
name	The name of the alias	A character string	None
expansion *command*	The command being aliased. Use quotation marks (") if the command includes a space.	An existing command	None

Related Documentation

- None

Sample Output

The following example configures **ss** as the alias of the command **show system**:

```
bti7800(config)# alias ss expansion "show system"
bti7800(config-alias-ss)# commit
Commit complete.
bti7800(config-alias-ss)# exit
bti7800(config)# exit
bti7800# ss
bti7800# show system
Model                      : BTI 7800
Network Element Type       : WDM
Software Version           : 4.1.0 25448
Software Branch            : trunk
Config DB Version          : 0.1
Time
             Boot          : 2017-02-22T15:38:41-05:00
             Current       : 2017-02-24T11:02:30-05:00
             Uptime        : 1 days, 19:23:49
             Time Zone     : America/New_York
Management Address         : 10.75.0.5/16
Management Sources         :
Management Gateway         :
NTP                        :
DNS                        :
Name                       :
Contact                    :
Location                   : UNKNOWN
Active Controller          : cmm:1/A
Backup Controller          : cmm:1/B
HA Status                  : In Sync
Shelf Mgr F/W autoupgrade  : disabled
```


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```
Proxy ARP                  : disabled
Auto Warm Boot             : CMM(enabled) PLD(enabled)
```

amp

Syntax **[no] amp [eqpt | eqpt-conn | group | osc | port | wdm]**

Description This command configures optical amplifiers.

Options

Parameter	Description
eqpt	Configures the optical layer equipment object and associated group and degree assignments. See amp eqpt.
eqpt-conn	Configures intra-group optical fiber patch connections between the amplifier and attached multiplexer/demultiplexer and DCM line ports. See amp eqpt-conn.
group	Creates an optical layer group. See amp group.
osc	Configures and monitors OSC-managed objects. See amp osc.
port	Manages optical ports on amplifiers assigned to optical layer groupings. See amp port.
wdm	Configures and monitors WDM managed objects on amplifiers assigned to optical layer groupings. See amp wdm.

Related Documentation

- amp eqpt on page 111
- amp eqpt-conn on page 113
- amp group on page 114
- amp osc on page 115
- amp port on page 117
- amp wdm on page 119

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amp eqpt

Syntax **[no] amp eqpt** *name:location_id* **[degreenum** *number* **| groupnum** *number* **]**

Description This command configures the optical layer equipment and associated group and degree assignments.

Options

Parameter	Description	Range	Default Value
eqpt *name:location_id*	This is the96-Channel Amplifier module or the DCM (Dispersion Compensation Module) or the multiplexer/demultiplexer associated with the amplifier.	**amp:*location_id*** **dcm:*location_id*** **md:*location_id*** where *location_id* is the equipment location identifier for the module. See "Location Identifiers" on page 31.	–
degreenum	This specifies the degree to route the wavelength.	1 to 4 NOTE: Only 1 degree is supported.	None
groupnum	This associates the module to an optical layer group.	1 to 255	None

Related Documentation

- amp on page 110
- amp eqpt-conn on page 113
- amp group on page 114
- amp osc on page 115
- amp port on page 117
- amp wdm on page 119

Sample Output

The following example configures the 96-Channel Amplifier and associates a DCM with that module:

```
bti7800(config)# amp eqpt amp:1/6 degreenum 1
bti7800(config-eqpt-amp:1/6)# groupnum 1
bti7800(config-eqpt-amp:1/6)# exit
bti7800(config)# amp eqpt dcmeqpt:0/15 degreenum 1
bti7800(config-eqpt-dcmeqpt:0/15)# groupnum 1
bti7800(config-eqpt-dcmeqpt:0/15)# exit
```

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```
bti7800(config)# commit
Commit complete.
```


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amp eqpt-conn

Syntax **[no] amp eqpt-conn** *<port-type>:<chassis-number>/<slot-number>/BIC-1/<port-number>*

Description This command configures intra-group optical fiber patch connections between the amplifier and multiplexer/demultiplexer, DCM, and ROADM line ports.

Related Documentation

- amp eqpt on page 111
- amp group on page 114
- amp osc on page 115
- amp port on page 117
- amp wdm on page 119

Sample Output

This example assumes that the 96-Channel Amplifier is configured and a DCM and multiplexer/demultiplexer are associated with the amplifier. Refer to the example for the command **amp eqpt**.

The following example configures a fiber patch connection between the 96-Channel Amplifier, a DCM and Mux/Demux:

The export value represents the configured DCM ID 0/1, and is considered the Source port.

The line value represents the configured Mux/Demux ID 0/2, and is considered the Destination port.

```
bti7800(config)# amp eqpt-conn dcm:1/8/1/1 export:0/1/1/1
bti7800(config-eqpt-conn-dcm:1/8/1/1/export:0/1/1/1)# commit
Commit complete.
bti7800(config)# amp eqpt-conn client:1/8/1/1 line:0/2/1/1
bti7800(config-eqpt-conn-client:1/8/1/1/line:0/2/1/1)# exit
bti7800(config)# commit
Commit complete.
```

amp group

Syntax **[no] amp group** *group-id* **[group-type** *type* **] [custom1** *string* **| custom2** *string* **| custom3** *string* **| ol-id** *string* **]**

Description This command configures an optical layer group. If the specified group does not exist, the group is created.

Options

Parameter	Description	Range	Default Value
group-id	Specifies the group identifier	1 to 255	None
custom1, 2, 3	User-specified information about the group	1 to 255 characters	An empty string
group-type	The optical layer group type of the network element	**noEqlzTerm** The only supported option is the non-equalizing terminal amplifier option.	–
ol-id	User-defined identifier for the optical layer equipment	String up to 32 characters	An empty string

Related Documentation

- amp eqpt on page 111
- amp eqpt-conn on page 113
- amp osc on page 115
- amp port on page 117
- amp wdm on page 119

Sample Output

```
bti7800(config)# amp group 1 group-type noEqlzTerm
bti7800(config-group-1)# commit
Commit complete.
```

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amp osc

Syntax **[no] amp osc:***<chassis-number>/<slot-number>/1/<portNum>.<oscNum>*

Description This command configures the OSC (Optical Supervisory Channel) on a terminal amplifier module.

Options

Parameter	Description	Range	Default Value
admin-status	The administrative status of the OSC data link	down up	up
custom1, custom2, custom3	Optional, user-defined information about the OSC	–	–
exp-fe-degree	The expected optical layer degree on the node at the far end of the OSC span	0 to 4	0
exp-fe-grp	The expected optical layer group on the node at the far end of the OSC span	0 to 255	0
exp-fe-ipaddr	The expected management IP address of the node at the far end of the OSC span	Valid IPv4 address	0.0.0.0
exp-fe-sysname	The expected system name of the node at the far end of the OSC span	String up to 20 characters	–
fe-im-mon	Specifies whether monitoring for a far end node ID mismatch is enabled (true) or disabled (false)	false true	false
ol-id	The user-defined identifier for the optical layer equipment	String up to 32 characters	–

Related Documentation

- amp on page 110

- amp eqpt on page 111
- amp eqpt-conn on page 113
- amp group on page 114
- amp port on page 117
- amp wdm on page 119

Sample Output

```
bti7800(config)# amp osc osc:1/6/1/1.1
bti7800(config-osc-osc:1/6/1/1.1)# exp-fe-grp 1
bti7800(config-osc-osc:1/6/1/1.1)# exit
bti7800(config)# commit
Commit complete.
```


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amp port

Syntax **[no] amp port** *<port-type>:<chassis-number>/<slot-number>*/**BIC-1**/*<port-number>*

Description This command manages optical ports on equipment modules assigned to optical layer groupings.

Options

Parameter	Description	Range	Default Value
custom1, 2, 3	User-defined information about the port	–	–
dwdm-type	The type of line port connection	**Native**: Inter-node connections between DLA and ROB modules **Alien**: Inter-node connections to other optical layer modules within an optical layer group, or to non-optical layer equipment at the same site	Native
grid-type	The DWDM grid spacing	50 GHz 100 GHz	–
ol-id	User-defined identifier for the optical layer equipment	–	–

Related Documentation

- amp on page 110
- amp eqpt on page 111
- amp eqpt-conn on page 113
- amp group on page 114
- amp osc on page 115
- amp wdm on page 119

Sample Output

`bti7800(config)#` **amp port client:1/6/1/1 dwdm-type native**

```
bti7800(config-port-client:1/6/1/1)# exit
bti7800(config) commit
Commit complete.
```


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amp wdm

Syntax **[no] amp wdm** *<type>:<chassis-number>/<slot-number>/BIC-1/<lineNum>*

Description This command configures and monitors WDM (Wavelength Division Multiplexing) on equipment modules assigned to optical layer groupings.

Options

Parameter	Description	Range	Default Value
admin-status	The administrative status of the WDM object	down up	up
amp-tilt-trim	The tilt control parameters	A decimal number, in the format: x.x	0.0
custom1, 2, 3	User-defined information about the WDM object	–	–
fiber-type	The fiber type that connects to the amplifier NOTE: Once configured, the system automatically compensates for the tilt.	**eleaf** **ssmf** **twcl** **twrs**	ssmf
ol-id	The user-defined identifier for the optical layer equipment	1 to 32 characters	–
post-amp-gain	The post-amp gain control in dB	A decimal number, in the format: x.x	4.0
span-loss-rxhighth	The span loss threshold in dB	A decimal number, in the format: x.x • If the OSC optical power received is ≤ -7 dBm, do not fit a pad. • If the OSC optical power received is between -2 and -7 dBm, fit a 5-dB pad to the Line port. • If the OSC optical power received is > -2 dBm, fit a 10-dB pad to the Line port.	0.0

Related Documentation

- amp on page 110
- amp eqpt on page 111
- amp eqpt-conn on page 113
- amp group on page 114
- amp osc on page 115

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- amp port on page 117

Sample Output

```
bti7800(config)# amp wdm wdm:1/6/1/1
bti7800(config-wdm-wdm:1/6/1/1)# fiber-type twcl
bti7800(config-wdm-wdm:1/6/1/1)#  exit
bti7800(config) commit
Commit complete.
```

commit

Syntax **commit**

Description This command causes the changed configuration to take effect and stores the changed configuration to the database.

Related Documentation

- None

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conditions

Syntax **[no] conditions [settings *condition_type* { disable | severity *severity* }]**

Description This command configures the reporting of faults.

Options

Parameter	Description	Range	Default Value
condition_type	The condition type or fault	See "Alarms and Conditions" on page 19.	None
disable	Disables the specified fault. When a fault is disabled, the fault is not alarmed and does not appear in the output of the **show alarms** or **show conditions** command.	–	By default, all faults are enabled.
severity	The severity of the fault	**critical**: A fault that is likely causing serious loss or interruption of traffic. **major**: A fault that can potentially lead to loss or interruption of traffic. **minor**: A fault that does not significantly affect traffic. **not-alarmed**: A fault that results in a standing condition, not an alarm. The fault does not appear in the output of the **show alarms** command. **not-reported**: A fault's severity is set to not-reported when it is being masked by another alarm. An alarm might be masked if it does not best isolate the fault causing the failure. The fault does not appear in the output of the **show alarms** command. This severity is assigned automatically, and is typically not set by the user.	See "Alarms and Conditions" on page 19.

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Related Documentation

- None

Sample Output

```
bti7800(config)# conditions settings eqptMism severity major
bti7800(config-settings-eqptMism)# commit
Commit complete.
```

cross-connect

Syntax **[no] cross-connect** *interface1 interface2* **[direction | rate | service-name]**

Description This command configures transponding and muxponding cross-connects for transport interfaces. For information on what interfaces can be cross-connected, see "Supported UFM Cross-Connects" on page 41.

Options

Parameter	Description	Range	Default Value
interface1 interface2	The two transport interfaces to be cross-connected	A pair of existing transport interfaces	None
direction	Specifies a bidirectional cross-connect	2way	2way
rate	The transport data rate of the cross-connect. This is set automatically based on the interfaces being cross-connected.	Varies depending on the interfaces	Varies depending on the interfaces
service-name	User-defined name for the cross-connect	Text string up to 32 characters	An empty string

Related Documentation

- show cross-connect on page 245

Sample Output

```
bti7800(config)# cross-connect 10ge:1/3/1/1 10ge:1/3/1/2
bti7800(config-cross-connect-10ge:1/3/1/1/10ge:1/3/1/2)# commit
Commit complete.
```

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do

Syntax do *command*

Description This command runs an operational mode command from configuration mode.

Options

- *command* - the operational mode command to run

Related Documentation

- None

Sample Output

```
bti7800(config)# do show inventory chassis:1 transceiver
Name                Type           Vendor         Vendor-Part-Num
---------------     --------       ------------   --------------
cfp:1/3/2/1         cfp            VM_VENDOR      VM_PN
sfpPlus:1/3/1/1     sfpPlus        VM_VENDOR      VM_PN
sfpPlus:1/3/1/2     sfpPlus        VM_VENDOR      VM_PN
sfpPlus:1/3/1/3     sfpPlus        VM_VENDOR      VM_PN
```

dol fiber-conn

Syntax **[no] dol fiber-conn** ***endpoint endpoint*** **[fe-im-mon { true | false } | fiber-type** ***type*** **]**

Description This command configures a DOL fiber connection between two ports. If the fiber connection does not exist, the fiber connection is created.

A fiber connection represents the physical fiber connection between modules within a DOL node (intra-nodal), or the physical fiber connection between modules across nodes (inter-nodal). Fiber connections are mandatory, and allow the system to check the provisioned connectivity against the actual physical connectivity.

NOTE: The local connection endpoints must exist before you can create the corresponding fiber connection.

NOTE: For inter-nodal connections (and for intra-nodal connections on a split ROADM node), the far end node is referred to by its management IP address.

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Options

Parameter	Description	Range	Default Value

fiber-conn *endpoint endpoint*	The two endpoints of the physical fiber connection. The fiber connections can be intra-nodal or inter-nodal.
	
	For intra-nodal connections, you can configure a fiber connection between the following ports:
	
	• add/drop fiber connections:
	  ◦ a client port on a ROADM to/from a line port on a multiplexer/demultiplexer
	  ◦ a client port on a multiplexer/demultiplexer to/from an interface on a UFM
	• passthrough fiber connection:
	  ◦ a client port on a ROADM to/from a client port on another ROADM
	  ◦ a client port on an ILA to/from a client port on another ILA
	
	For inter-nodal connections, you can configure a fiber connection between the following ports:
	
	• a line port on the local ROADM to/from a line port on the far-end ROADM
	• a line port on the local ILA to/from a line port on the far-end ILA
		The following are the valid endpoints for intra-nodal connections:
		
		• an existing ROADM or ILA client port (for example, **port:1/6/0/C2** or **port:1/8/0/C1@10.1.1.102**)
		• an existing multiplexer/demultiplexer client port (for example, **port:0/1/0/C40**)
		• an existing multiplexer/demultiplexer line port (for example, **port:0/1/0/L1**)
		• an existing OTU4 or 100GbE interface on a UFM (for example, **otu4:1/10/1/1**)
		
		The following are the valid endpoints for inter-nodal connections:
		
		• an existing local ROADM or ILA line port (for example, **port:1/6/0/L1**)
		• a far-end ROADM or ILA line port (for example, **port:1/6/0/L1@10.1.1.1**)
		
		The IP address, when present, is the management IP address of the network element at the other end of the fiber. It is present in intra-nodal fiber connections on a split ROADM node, and in all inter-nodal fiber connections.
			None.

fe-im-mon {**true**|**false**}		true false	false

Parameter	Description	Range	Default Value
	Enables or disables far end identifier mismatch monitoring for fiber connections. When enabled, the far end node identification mismatch alarm is raised when the configured fiber connection endpoints do not match the actual endpoints.		
fiber-type *type*	The type of fiber attached to the port. This attribute is applicable to inter-nodal fiber connections only.	leaf: Large Effective Area Fiber (LEAF®) ndsf: non-dispersion shifted fiber ssmf: standard single mode fiber teralight: TeraLight™ twrs: TrueWave® Reduced Slope	ndsf

Additional Information

You must configure all the intra-nodal fiber connections in an optical path before you can create the optical cross-connects that go over that optical path.

You cannot delete a fiber connection if an optical cross-connect exists over that path.

When creating a fiber connection between a UFM interface and a client port on a multiplexer/demultiplexer, the configured frequency on the UFM interface must match the frequency on the multiplexer/demultiplexer client port.

Related Documentation

- show dol fiber-conn on page 248

Sample Output

The following creates a fiber-conn between a UFM interface and a port on a multiplexer/demultiplexer:

```
bti7800(config)# dol fiber-conn otu4:1/1/1/1 port:0/1/0/C26
bti7800(config-fiber-conn-otu4:1/1/1/1/port:0/1/0/C26)# commit
Commit complete.
```


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dol och

Syntax [no] **dol och:***location_id* [**admin-status** *status* | **bandwidth** *bandwidth* | **central-frequency** *frequency* | **custom1** *string* | **custom2** *string* | **custom3** *string* | **ol-id** *string*]

Description This command sets parameters for the specified DOL optical channel (OCH) on a ROADM module. If the optical channel does not exist, the optical channel is created. An optical channel is a user-traffic-bearing channel (wavelength) that is cross-connected in the ROADM node as part of an overall optical service.

NOTE: Optical channels on line ports in a ROADM module must be manually created using this command. Optical channels on client ports in a ROADM module are automatically created when you create an optical cross-connect, and should not be manually created or deleted.

Options

Parameter	Description	Range	Default Value
och:*location_id*	The optical channel identifier The identifier consists of the chassis, module, and port locations, followed by a channel identifier.	The format of the OCH identifier is as follows: • **och:***chassis/slot/0/Cn/channel* for the client ports (1<=*n*<=*max_degrees*) • **och:***chassis/slot/0/L1/channel* for the line port where: • *channel* is an alphanumeric string up to 32 characters long	None
admin-status *status*	The administrative status of the optical channel	up down testing (not supported)	up
bandwidth *bandwidth*	The channel bandwidth (GHz)	50	50
central-frequency *frequency*	The central frequency (THz) of the optical channel A value must be specified.	A valid grid value from 191.35 to 196.10. Use the show dol fixed-grid command to see the valid grid values.	None
central-wavelength *wavelength*	The central wavelength (nm) of the optical channel The wavelength is automatically set based on the configured central-frequency setting. NOTE: Do not set this parameter directly.	A valid grid value from 1528.77 to 1566.72	None
custom1, **custom2**, **custom3** *string*	Customizable text field for operator's use	0 to 255 characters	An empty string
ol-id *string*	Customizable text identifying the optical layer managed object	0 to 32 characters	An empty string

Related Documentation

- show dol och on page 250

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Sample Output

The following creates an optical channel on a ROADM module:

```
bti7800(config)# dol och:1/2/0/L1/chan530
Value for 'central-frequency' (<decimal number, 191.35 .. 196.1>): 195.30
bti7800(config-dol-och:1/2/0/L1/chan530)# commit
Commit complete.
```

dol och-xcon

Syntax [no] **dol och-xcon** *endpoint1 endpoint2* [**service-name** *name*]

Description This command configures the specified DOL optical channel cross-connect on a ROADM node. If the optical channel cross-connect does not exist, the optical channel cross-connect is created. An optical channel cross-connect specifies how wavelengths are routed within a ROADM node.

NOTE: The cross-connect endpoints and the intra-nodal fiber connections must exist before you can create the corresponding inter-module cross-connect.

NOTE: This command automatically creates optical channels on client ports as needed.

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Options

Parameter	Description	Range	Default Value
och-xcon *endpoint1 endpoint2*	The two endpoints of the cross-connect. A cross-connect can be configured between the following endpoints: • passthrough: an optical channel on a ROADM module line port to/from an optical channel on another ROADM module line port • passthrough (split ROADM node): an optical channel on a ROADM module line port to/from an optical channel on the same ROADM module's client port • add/drop: an optical channel on a ROADM module line port to/from an interface on a UFM on the same system • add/drop (alien wavelength): an optical channel on a ROADM module line port to/from an optical channel on the same ROADM module's client port	The following are the valid endpoints: • an existing optical channel on a line port (for example, **och:1/6/0/L1/chan140**) • an optical channel on a client port (for example, **och:1/6/0/C1/chan140**) NOTE: If the optical channel on the client port does not exist, it is automatically created. This type of endpoint is for use with a split ROADM node or when connecting to an external endpoint (alien wavelength). • an existing OTU4 or 100GbE interface on a UFM (for example, **otu4:1/10/2/1**)	None
service-name *name*	The name of the cross-connect	0 to 255 characters	An empty string

Additional Information

This command is used to set up cross-connects for both passthrough and add/drop connections.

Passthrough connections are typically set up between optical channels on line ports on different ROADM modules. On split ROADM nodes, however, passthrough connections are set up between an optical channel on a line port and an optical channel on one of the same module's client ports.

Add/drop connections are set up between an optical channel on the add/drop ROADM module line port and a UFM interface.

Add/drop connections can also be set up between an optical channel on a line port and an optical channel on one of the same module's client ports. This is for alien wavelengths only.

In all cases, the endpoints must be configured with the same central frequency.

Additionally, the following fiber connections must exist:

Type of connection	Fiber connection required
Passthrough	A fiber-conn must exist between the client ports connecting the two ROADM modules.
Add/drop to a UFM through a multiplexer/demultiplexer	A fiber-conn must exist between the line interface on the multiplexer/demultiplexer and the add/drop client port on the ROADM module. A fiber-conn must exist between the UFM interface and the corresponding (same frequency) client interface on the multiplexer/demultiplexer.
Add/drop to an external endpoint (alien wavelength) through a multiplexer/demultiplexer	A fiber-conn must exist between the line interface on the multiplexer/demultiplexer and the add/drop client port on the ROADM module.

After this command is committed, the required client port optical channels are automatically created.

Related Documentation

- show dol och-xcon on page 252

Sample Output

The following creates a passthrough cross-connect, and shows the optical channels that are automatically created on the client ports. The channel name of each automatically-created optical channel is set to the channel name of the corresponding optical channel endpoint on the same module. This is shown below:

```
bti7800(config)# do show dol och | include 170
och:1/6/0/L1/C170   enabled      unknown     191.7      1563.86     50
och:1/8/0/L1/c170   enabled      unknown     191.7      1563.86     50

bti7800(config)# dol och-xcon och:1/6/0/L1/C170 och:1/8/0/L1/C170
bti7800(config-och-xcon-och:1/6/0/L1/C170/och:1/8/0/L1/C170)# commit
Commit complete.

bti7800(config)# do show dol och | include 170
och:1/6/0/C1/C170   enabled      unknown     191.7      1563.86     50
och:1/6/0/L1/C170   enabled      unknown     191.7      1563.86     50
och:1/8/0/C1/c170   enabled      unknown     191.7      1563.86     50
och:1/8/0/L1/c170   enabled      unknown     191.7      1563.86     50
```


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dol oms

Syntax [no] **dol oms:***location_id* [**admin-status** *status* | **custom1** *string* | **custom2** *string* | **custom3** *string* | **ol-id** *string* | **pre-state** { **enabled** | **disabled** }]

Description This command sets parameters for the specified DOL optical multiplex section (OMS).

There is one OMS for the line port and one OMS for each client port on ROADM and ILA modules.

NOTE: The OMS is automatically created when the corresponding port is created, and automatically deleted when the corresponding port is deleted. You do not need to create or delete OMS explicitly.

Options

Parameter	Description	Range	Default Value
oms:*location_id*	The OMS identifier. The location identifier consists of the chassis, module, and port locations.	• **oms:***chassis/slot*/0/C*n* for the client ports, where the range of *n* depends on the type of module • **oms:***chassis/slot*/0/L1 for the line port	None
admin-status *status*	The administrative status of the OMS. When the status is up, the corresponding port transmits WDM power. When the status is down, the corresponding port does not transmit WDM power and all optical channels on that port become non-operational.	up down testing (not supported)	up
custom1, **custom2**, **custom3** *string*	Customizable text field for operator's use	0 to 255 characters	An empty string
ol-id *string*	Customizable text identifying the optical layer managed object	0 to 32 characters	An empty string
pre-state {enabled|disabled}	Enables or disables the PRE module. When the PRE module is enabled, the incoming DWDM signal is passed to the PRE module for supplementary amplification. When the PRE module is disabled, the incoming DWDM signal is not passed to the PRE module for supplementary amplification. This attribute is only applicable to OMS line ports.	enabled disabled	disabled

Related Documentation

- show dol oms on page 253

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Sample Output

The following enables the PRE module on the line port:

```
bti7800(config)# dol oms:1/2/0/L1 pre-state enabled
bti7800(config-dol-oms:1/2/0/L1)# commit
Commit complete.
```

dol osc

Syntax [no] **dol osc:***location_id* [**admin-status** *status* | **custom1** *string* | **custom2** *string* | **custom3** *string* | **ol-id** *string*]

Description This command sets parameters for the specified DOL optical service channel (OSC).

There is one OSC for the line port and one OSC for each client port on ROADM and ILA modules.

NOTE: The OSC is automatically created when the corresponding port is created, and automatically deleted when the corresponding port is deleted. You do not need to create or delete OSC explicitly.

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Options

Parameter	Description	Range	Default Value
osc:*location_id*	The OSC identifier. The location identifier consists of the chassis, module, and port locations.	The format of the OSC identifier is as follows: • **osc:***chassis/slot*/0/C*n* for the client ports, where the range of *n* depends on the type of module • **osc:***chassis/slot*/0/L1 for the line port	None
admin-status *status*	The administrative status of the OSC. When the status is up, the OSC transmitter on the corresponding port is enabled. When the status is down, the OSC transmitter on the corresponding port is disabled. NOTE: If you disable the OSC, you are also disabling the ODCC, and therefore you might lose management connectivity to the node and to downstream nodes. If this occurs, you will not be able to re-enable OSC unless you have out-of-band management connectivity.	up down testing (not supported)	up
custom1, **custom2**, **custom3** *string*	Customizable text field for operator's use	0 to 255 characters	An empty string
ol-id *string*	Customizable text identifying the optical layer managed object	0 to 32 characters	An empty string

Related Documentation

- show dol osc on page 254

Sample Output

The following sets the optical layer identifier:

```
bti7800(config)# dol osc:1/2/0/L1 ol-id nyc-osc-2-L1
```

```
bti7800(config-dol-osc:1/2/0/L1)# commit
Commit complete.
```


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dol port

Syntax [no] **dol port:***location_id* [**custom1** *string* | **custom2** *string* | **custom3** *string* | **ol-id** *string*]

Description This command sets parameters for the specified DOL port.

NOTE: Ports are automatically created on a DOL module when the module is added, and automatically deleted when the module is deleted. You do not need to create or delete ports explicitly.

A DOL port can be any of the following:

- a ROADM client, line, or PRE port
- an ILA client, line, or PRE port
- a port on the PRE module
- a multiplexer/demultiplexer client or line port

When a port is created on a ROADM or ILA module, the corresponding OMS and OSC are automatically created. When a port is deleted on a ROADM or ILA module, the corresponding OMS and OSC are automatically deleted.

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Options

Parameter	Description	Range	Default Value
port:*location_id*	The port identifier. The location identifier consists of the chassi, module, and port locations.	ROADM/ILA: • **port:chassis/slot/0/Cn** for the client ports, where the range of **n** depends on the module • **port:chassis/slot/0/L1** for the line port • **port:chassis/slot/0/PRE** for the PRE port PRE: • **port:chassis/slot/1/PRE** for the port on the PRE module itself multiplexer/demultiplexer: • **port:0/slot/0/Cn** for the client ports • **port:0/slot/0/L1** for the line port	None
custom1, **custom2**, **custom3** *string*	Customizable text field for operator's use	0 to 255 characters	An empty string
ol-id *string*	Customizable text identifying the optical layer managed object	0 to 32 characters	An empty string

Related Documentation

- show dol port on page 255

Sample Output

The following sets the optical layer identifier:

```
bti7800(config)# dol port:1/2/0/L1 ol-id nyc-2-L1
bti7800(config-dol-port:1/2/0/L1)# commit
Commit complete.
```


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equipment

Syntax

[no] equipment { *chassis_id* | *passive_equip_id* [alias *string* | custom1 *string* | custom2 *string* | custom3 *string* | location *string* | pec pec] }

Description

This command configures equipment on the system. If the specified equipment does not exist, the specified equipment is added.

Options

Parameter	Description	Range	Default Value
chassis_id	See equipment chassis.		
passive_equip_id	The passive equipment identifier. NOTE: When you add a FMD96, the DOL ports on the module are automatically added.	*passive_equip_id*: • **muxdemux:**0/*slot* for the D96MD • **md:**0/*slot* for the FMD96 • **dcmeqpt:**0/*slot* for DCM equipment See "Slot Identifier Ranges" on page 28 for the slot range.	None
alias *string*	A user-defined name for the passive module	A character string.	An empty string
custom1, **custom2**, **custom3** *string*	Customizable text field for operator's use	0 to 255 characters.	An empty string
location *string*	The physical location of the passive module	A character string.	An empty string
pec *pec*	The product equipment code for the passive module NOTE: This parameter is mandatory.	*pec*: • D96MD: **BT8A96MD01**, **BT8A96MD02** • FMD96: **BT8A78MD03**	None

Related Documentation

- None

Sample Output

The following creates a 96-Channel DWDM Mux/Demux:

```
bti7800(config)# equipment muxdemux:0/5 pec BT8A96MD01
bti7800(config-equipment-muxdemux:0/5)# commit
Commit complete.
```

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equipment chassis

Syntax [no] **equipment** *chassis_id* [**admin-status** *status* | **alias** *string* | **chassis-type** *type* | **custom1** *string* | **custom2** *string* | **custom3** *string* | **location** *string* | **module** *module_id* | **pec** *pec*]

Description This command sets parameters for the specified chassis. If the chassis does not yet exist, the chassis is created. The first chassis created is assigned an identifier of 1 automatically.

Options

Parameter	Description	Range	Default Value
chassis_id	The chassis identifier	*chassis_id*: • Main chassis (hub): **chassis:1** • Satellite chassis: **chassis:2**	None The number 1 is always used for the first chassis installed.
admin-status *status*	Sets the administrative status of the chassis	*status*: • **up** • **down** • **testing** (not supported)	up
alias *string*	A user-defined name for the chassis	A character string.	An empty string
chassis-type *type*	The chassis type	*type*: • **1-Slot** • **2-Slot** • **6-Slot** (not supported) • **14-Slot**	None
custom1, **custom2**, **custom3** *string*	Customizable text field for operator's use	0 to 255 characters	An empty string
location *string*	The physical location of the chassis	A character string	An empty string
module *module_id*	The module identifier	See equipment chassis module.	None
pec *pec*	The chassis product equipment code	A pre-defined product code. You can set this attribute directly or you can let the system set this attribute automatically when you configure the **chassis-type**. • **BT8A78CH1** • **BT8A78CH2-I02** • **BT8A78CH14**	Depends on the chassis-type

Related Documentation

- show equipment on page 259

Sample Output

The following creates a BTI7814 chassis with a chassis identifier of 2.

```
bti7800(config)# equipment chassis:2 chassis-type 14-Slot
```


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```
bti7800(config-equipment-chassis:2)# commit
Commit complete.
```

equipment chassis module

Syntax [no] **equipment** *chassis_id* **module** *module_id* [**admin-status** *status* | **custom1** *string* | **custom2** *string* | **custom3** *string* | **pec** *pec*]

Description This command sets parameters for the specified module. If the module does not exist, the module is created.

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Options

Parameter	Description	Range	Default Value
chassis_id	The chassis identifier	*chassis_id*: • Main chassis (hub): **chassis:1** • Satellite chassis: **chassis:2**	None
module *module_id*	The module identifier	*module_id*: • **amp:***chassis/slot* • **cap:***chassis/slot* • **cmm:***chassis/slot* • **esl:***chassis/slot* • **fan:***chassis/slot* • **ila:***chassis/slot* (see equipment chassis module ila) • **pem:***chassis/slot* • **roadm:***chassis/slot* (see equipment chassis module roadm) • **ufm:***chassis/slot* (see equipment chassis module ufm) • **wps:***chassis/slot* The *slot* range depends on the module and the chassis type. See "Slot Identifier Ranges" on page 28.	None
admin-status *status*	Sets the administrative status of the module	*status*: • **up** • **down** • **testing** (not supported)	up
custom1, **custom2**, **custom3** *string*	Customizable text field for operator's use	0 to 255 characters	An empty string
pec *pec*	The module product equipment code NOTE: This parameter is mandatory for most modules.	A pre-defined product code	None

Related Documentation

- show equipment on page 259

Sample Output

The following adds a WPS4:

```
bti7800(config)# equipment chassis:2 module wps:1/2 pec BT8A78WPS4
bti7800(config-module-wps:1/2)# commit
Commit complete.
```


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equipment chassis module ila

Syntax

[no] equipment *chassis_id* **module** *module_id* **[admin-status** *status* **| custom1** *string* **| custom2** *string* **| custom3** *string* **| pec** *pec* **| preamplifier** *preamplifier_id* **]**

Description

This command sets parameters for the specified ILA module. If the ILA module does not yet exist, the ILA module is created.

Options

Parameter	Description	Range	Default Value
chassis_id	The chassis identifier	*chassis_id*: • Main chassis (hub): **chassis:1** • Satellite chassis: **chassis:2**	None
module *module_id*	The ILA module identifier	*module_id* • **ila:***chassis/slot*	None
admin-status *status*	The administrative status of the module	*status*: • **up** • **down** • **testing** (not supported)	up
custom1, **custom2**, **custom3** *string*	Customizable text field for operator's use	0 to 255 characters.	An empty string
pec *pec*	The ILA product equipment code	A pre-defined product code	None
preamplifier *preamplifier_id*	The preamplifier identifier. Specify only if you are adding a PRE module.	*preamplifier_id*: • **pre:***chassis/slot*/1	None

Additional Information

The following are automatically created when you create an ILA module:

- DOL client, line, and PRE ports
- DOL optical multiplex sections (OMS) for the client and line ports
- DOL optical service channels (OSC) for the client and line ports

Related Documentation

- show equipment on page 259

Sample Output

The following creates an ILA module:

```
bti7800(config)# equipment chassis:1 module ila:1/5
bti7800(config-module-ila:1/5)# pec BT8A78AMPL
bti7800(config-module-ila:1/5)# commit
Commit complete.
```


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equipment chassis module roadm

Syntax [no] equipment *chassis_id* module *module_id* [admin-status *status* | custom1 *string* | custom2 *string* | custom3 *string* | pec *pec* | preamplifier *preamplifier_id* | roadm-card-type *type*]

Description This command sets parameters for the specified ROADM module. If the ROADM module does not yet exist, the ROADM module is created.

Options

Parameter	Description	Range	Default Value
chassis_id	The chassis identifier	*chassis_id*: • Main chassis (hub): **chassis:1** • Satellite chassis: **chassis:2**	None
module *module_id*	The ROADM module identifier	*module_id* • **roadm:***chassis/slot*	None
admin-status *status*	The administrative status of the module	*status*: • **up** • **down** • **testing** (not supported)	up
custom1, **custom2**, **custom3** *string*	Customizable text field for operator's use	0 to 255 characters	An empty string
pec *pec*	The ROADM product equipment code	A pre-defined product code. You can set this attribute directly or you can let the system set this attribute automatically when you configure the **roadm-card-type**.	None
preamplifier *preamplifier_id*	The preamplifier identifier Specify only if you are adding a PRE module.	*preamplifier_id*: • **pre:***chassis/slot*/1	None
roadm-card-type *type*	The ROADM type	*type*: • **2-port**: ROADM2 • **9-port** (not supported) • **20-port** (not supported)	None

Additional Information The following are automatically created when you create a ROADM module:

- DOL client, line, and PRE ports
- DOL optical multiplex sections (OMS) for the client and line ports
- DOL optical service channels (OSC) for the client and line ports

Related Documentation

- show equipment on page 259

Sample Output

The following creates a ROADM2 module (output truncated for clarity):

```
bti7800(config)# equipment chassis:1 module roadm:1/6
Value for 'roadm-card-type' [2-port,8-port,20-port]: 2-port
bti7800(config-module-roadm:1/6)# commit
Commit complete.
```

```
bti7800(config-module-roadm:1/6)# do show dol
Dynamic Optical Layer Ports
---------------------------

Port Name           Span Length  OL Id               Custom1  Custom2  Custom3
------------------  -----------  ------------------  -------  -------  -------
port:1/6/0/C1
port:1/6/0/C2
port:1/6/0/L1
port:1/6/0/PRE

Dynamic Optical Layer Optical Multiplex Sections
------------------------------------------------

Oms Name       Admin State  Oper State  PreAmp State    OL Id   Custom1  Custo
-------------  -----------  ----------  --------------  ------  -------  -----
oms:1/6/0/C1   enabled      unknown     Not Applicable
oms:1/6/0/C2   enabled      unknown     Not Applicable
oms:1/6/0/L1   enabled      unknown     disabled

Dynamic Optical Layer Optical Service Channels
----------------------------------------------

OSC Name        Admin State  Oper State  OL Id       Custom1  Custom2  Custom3
--------------  -----------  ----------  ----------  -------  -------  -------
osc:1/6/0/C1    enabled      unknown
osc:1/6/0/C2    enabled      unknown
osc:1/6/0/L1    enabled      unknown
```


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equipment chassis module ufm

Syntax [no] equipment *chassis_id* module *module_id* [admin-status *status* | bic *bic_id* | custom1 *string* | custom2 *string* | custom3 *string* | pec *pec* | transceiver *transceiver_id* | ufm-type *type*]

Description This command sets parameters for the specified UFM. If the UFM does not yet exist, the UFM is created.

Options

Parameter	Description	Range	Default Value
chassis_id	The chassis identifier	*chassis_id*: • Main chassis (hub): **chassis:1** • Satellite chassis: **chassis:2**	None
module *module_id*	The UFM module identifier	*module_id*: • **ufm:***chassis/slot*	None
admin-status *status*	Sets the administrative status of the module NOTE: Changing the administrative status from **up** to **down** and back to **up** is equivalent to performing a cold reload of the module.	*status*: • **up** • **down** • **testing** (not supported)	up
bic *bic_id*	The BIC identifier. See equipment chassis module ufm bic.		
custom1, **custom2**, **custom3** *string*	Customizable text field for operator's use	0 to 255 characters	An empty string
pec *pec*	The UFM product equipment code	A pre-defined product code. You can set this attribute directly or you can let the system set this attribute automatically when you configure the **ufm-type**.	None
transceiver *transceiver_id*	The transceiver identifier. This is only applicable for the UFMs with the integrated transceivers (UFM4, UFM6). See equipment chassis module ufm transceiver.		
ufm-type *type*	The UFM type		None

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Parameter	Description	Range	Default Value
		type: • **msa-switching**: deprecated • **dual-bic-switching**: deprecated • **dual-bic-non-switching**: UFM3, contains two BIC slots and does not provide fabric access • **msa-non-switching**: UFM4, contains one 100G Coherent MSA XCVR and one BIC slot, and does not provide fabric access • **msa400-10g-100g-client**: UFM6, contains one 400G Coherent MSA XCVR on the line side and transceiver ports on the client side	

Related Documentation

- show equipment on page 259

Sample Output

The following creates a UFM3:

```
bti7800(config)# equipment chassis:2 module ufm:1/1
Value for 'ufm-type'
[dual-bic-non-switching,dual-bic-switching,msa-non-switching,msa-switching]:
dual-bic-non-switching
bti7800(config-module-ufm:1/1)# commit
Commit complete.
```

equipment chassis module ufm transceiver

Syntax **[no] equipment** *chassis_id* **module** *module_id* **transceiver** *transceiver_id* **[admin-status** *status* **| custom1** *string* **| custom2** *string* **| custom3** *string* **| optical-format** *format* **| pec** *pec* **]**

Release Information This command was introduced prior to release 2.1.1.
Starting in release 4.1, the **msa400**, **qsfp**, and **qsfp28** transceiver options and **tunableX2** optical format are supported.

Description This command sets parameters for transceivers installed on UFMs directly (UFM4, UFM6) including integrated transceivers. If the transceiver does not yet exist, the transceiver is created.

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Options

Parameter	Description	Range	Default Value
chassis_id	The chassis identifier.	*chassis_id*: • Main chassis (hub): **chassis:1** • Satellite chassis: **chassis:2**	None
module *module_id*	The UFM module identifier.	*module_id*: • **ufm:***chassis/slot*	None

transceiver *transceiver_id*	The identifier of the integrated transceiver on a UFM4 or UFM6 or the client side transceiver on a UFM6.	*transceiver_id*:
		• UFM4: **msa:***chassis/slot*/1/1
		• UFM6:
		  • **msa400:***chassis/slot*/2/1
		  • **qsfp:***chassis/slot*/1/*port*
		  • **qsfp28:***chassis/slot*/1/*port*
		
		NOTE: The **msa400**, **qsfp**, and **qsfp28** options are supported starting in release 4.1.
			None

admin-status *status*	Sets the administrative status of the transceiver.	*status*: • **up** • **down** • **testing** (not supported)	up
custom1, **custom2**, **custom3** *string*	Customizable text field for operator's use.	0 to 255 characters.	An empty string
optical-format *format*	The optical format.	*format*: • UFM4: **tunableX1** for a tunable single-channel transceiver • UFM6: **tunableX2** for a tunable dual-channel transceiver NOTE: The **tunableX2** option is supported starting in release 4.1. For more information on optical formats, see "Optical Formats" on page 39.	None
pec *pec*			None

Parameter	Description	Range	Default Value
	The transceiver product equipment code. This is optional. If you specify a PEC, it must match the PEC of the transceiver that you install.	A pre-defined product code. For transceivers that have a 740-xxxxxx code assigned, enter the 740-xxxxxx code. NOTE: Integrated transceivers do not have PECs.	

Related Documentation

- show equipment on page 259

Sample Output

The following creates a UFM and an integrated transceiver on the UFM.

```
bti7800(config)# equipment chassis:2 module ufm:2/1
Value for 'ufm-type'
[dual-bic-non-switching,dual-bic-switching,msa-non-switching,msa-switching]:
msa-non-switching
bti7800(config-module-ufm:2/1)# transceiver msa:2/1/1/1 Value for 'optical-format'
 [fixedX1,fixedX4,fixedX10,tunableX1,...]: tunableX1
bti7800(config-transceiver-msa:2/1/1/1)# commit
Commit complete.
```


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equipment chassis module ufm bic

Syntax [no] equipment *chassis_id* module *module_id* bic *bic_id* [admin-status *status* | bic-type *type* | custom1 *string* | custom2 *string* | custom3 *string* | pec *pec*| transceiver *transceiver_id*]

Description This command sets parameters for the specified BIC. If the BIC does not yet exist, the BIC is created.

Options

Parameter	Description	Range	Default Value
chassis_id	The chassis identifier	*chassis_id*: • Main chassis (hub): **chassis:1** • Satellite chassis: **chassis:2**	None
module *module_id*	The UFM module identifier	*module_id*: • **ufm:***chassis/slot*	None
bic *bic_id*	The BIC identifier	*bic_id*: • **bic:***chassis/slot/subslot*	None
admin-status *status*	Sets the administrative status of the BIC	*status*: • **up** • **down** • **testing** (not supported)	up
bic-type *type*	The BIC type	*type*: • **sfp-bic** for the 12x SFP+ BIC • **cfp-bic** for the 1x CFP BIC • **qsfp-bic** (not supported)	None
custom1, **custom2**, **custom3** *string*	Customizable text field for operator's use	0 to 255 characters	An empty string
pec *pec*	The BIC product equipment code	A pre-defined product code. You can set this attribute directly or you can let the system set this attribute automatically when you configure the **bic-type**.	None
transceiver *transceiver_id*	The transceiver identifier. See equipment chassis module ufm bic transceiver.		

Related Documentation

- show equipment on page 259

Sample Output

The following example creates a 1x CFP BIC.

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```
bti7800(config)# equipment chassis:1 module ufm:1/1 bic bic:1/1/2
Value for 'bic-type' [cfp-bic,qsfp-bic,sfp-bic]: cfp-bic
bti7800(config-bic-bic:1/1/2)# commit
Commit complete.
```

equipment chassis module ufm bic transceiver

Syntax [no] equipment *chassis_id* module *module_id* bic *bic_id* transceiver *transceiver_id* [admin-status *status* | custom1 *string* | custom2 *string* | custom3 *string* | optical-format *format* | pec *pec*]

Description This command sets parameters for the specified transceiver within a BIC. If the transceiver does not yet exist, the transceiver is created.

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Options

Parameter	Description	Range	Default Value
chassis_id	The chassis identifier	*chassis_id*: • Main chassis (hub): **chassis:1** • Satellite chassis: **chassis:2**	None
module *module_id*	The UFM module identifier	*module_id*: • **ufm:***chassis/slot*	None
bic *bic_id*	The BIC identifier	*bic_id*: • **bic:***chassis/slot/subslot*	None
transceiver *transceiver_id*	The transceiver identifier	*transceiver_id*: • **sfpPlus:***chassis/slot/subslot/port* • **cfp:***chassis/slot/subslot/port*	None
admin-status *status*	Sets the administrative status of the transceiver	*status*: • **up** • **down** • **testing** (not supported)	up
custom1, **custom2**, **custom3** *string*	Customizable text field for operator's use	0 to 255 characters.	An empty string
optical-format *format*	The optical format	*format*: • **fixedX1** for a fixed wavelength single channel transceiver • **fixedX4** for a fixed wavelength 4-channel transceiver • **fixedX10** for a fixed wavelength 10-channel transceiver • **tunableX1** for a tunable single channel transceiver • **tunableX4** for a tunable 4-channel transceiver • **tunableX10** for a tunable 10-channel transceiver NOTE: Depending on the transceiver, the channels can represent wavelengths or be physically separate. See "Optical Formats" on page 39.	None
pec *pec*	The transceiver product equipment code	A pre-defined product code	None

Related Documentation

- show equipment on page 259

Sample Output

The following example configures an 12x SFP+ BIC with a fixedX1 transceiver type.

```
bti7800(config)# equipment chassis:2 module ufm:2/1 bic bic:2/1/1 transceiver
sfpPlus:2/1/1/3
Value for 'optical-format' [fixedX1,fixedX4,fixedX10,tunableX1,...]: fixedX1
bti7800#(config-transceiver-sfpPlus:2/1/1/3)# commit
Commit complete.
bti7800#(config-transceiver-sfpPlus:2/1/1/3)#
```


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end

Syntax **end [no-confirm]**

Description This command terminates a configuration session.

Options

- no-confirm - terminates the configuration session without a confirmation prompt. All uncommitted changes are discarded.

Related Documentation

- None

exit

Syntax **exit**

Description When executed in operational mode, this command disconnects the user session.

When executed in configuration mode, this command causes the user session to exit configuration mode and return to operational mode.

Related Documentation

- None

Sample Output

```
bti7800(config)# exit
bti7800#
bti7800# exit
Connection to 10.1.2.3 closed.
[user]$
```


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help

Syntax **help [*command*]**

Description This command displays the help text for the specified command. If no command is specified, a list of commands available at the current level is displayed.

Options

- *command* - displays help text for the specified command

Related Documentation

- None

Sample Output

```
bti7800# help system
Help for command: system
   Global system settings
bti7800#
```

insert

Syntax

insert system { radius | tacacs-plus } server *ip_address* [after | before *ip_address*]
insert system { radius | tacacs-plus } server *ip_address* [first | last]

Description

This command allows you to insert a new RADIUS or TACACS+ server at the indicated position within a list of servers.

Options

- **radius** - inserts a RADIUS server
- **tacacs-plus** - inserts a TACACS+ server
- **server** *ip_address* - the IP address of the RADIUS or TACACS+ server
- **after** *ip_address* - inserts the new server after the indicated server
- **before** *ip_address* - inserts the new server before the indicated server
- **first** - inserts the new server at the beginning of the list
- **last** - appends the new server to the end of the list. This is the default setting.

Related Documentation

- None

Sample Output

```
bti7800(config)# insert system tacacs-plus server 10.10.1.33 before 192.168.1.45
```


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interface

Syntax **[no] interface** *name:location* **[type** *type* **] [** *options* **]**

Release Information This command was introduced prior to release 2.1.1.
Starting with release 2.1.1, this command can be used for mgt interfaces.
Starting with release 4.1, this command can be used for interfaces on the UFM6.
Starting with release 4.2, this command supports QPSK modulation for an optical channel interface on the 400G Coherent MSA XCVR on a UFM6.
Starting with release 4.3, this command supports extended-los-mode for optical channel interfaces on the 400G Coherent MSA XCVR.

Description This command configures an interface. If the interface does not exist, the interface is created.

Options

Table 19: Interface Definition Parameters

Parameter	Description	Range	Default Value
name:location	The interface name followed by the location identifier.	The following names are allowed: • UFM interfaces: See "UFM Interfaces" on page 32. • mgt	None
type *type*	The interface type. The interface type must be consistent with the interface name.	The following types are allowed: • UFM interfaces: See "UFM Interfaces" on page 32. • virtual (mgt)	None

Table 20: General Administrative Parameters (Varies with Interface)

Parameter	Description	Range	Default Value
ains {**true**|**false**}	Enables or disables auto-in- service (AINS) on the interface.	true false	false
ains-timer *timer*	The AINS countdown timer (HH:MM) on the interface.	00:00 to 99:59	08:00
custom1, **custom2**, **custom3***string*	Customizable text field for operator's use.	0 to 255 characters	An empty string.
description *string*	A user-defined description of the interface.	0 to 64 characters	An empty string.

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Table 20: General Administrative Parameters (Varies with Interface) *(continued)*

Parameter	Description	Range	Default Value
disabled	Sets the administrative state of the interface to disabled.	Not applicable.	Not applicable.
enabled	Sets the administrative state of the interface to enabled.	Not applicable.	The default administrative state is enabled.
laser-enabled {**true**|**false**}	Enables or disables the transmit laser on a port. If set to true, the transceiver is enabled for signal transmission subject to other enabling factors, such as interface enabling, traffic provisioning and fault propagation mode. If set to false, the laser is shut down regardless of all other enabling factors.	true false	true

Table 21: Physical Layer Parameters (Varies with Interface)

Parameter	Description	Range	Default Value
cprws *size*	Carrier phase recovery window size (applicable to interfaces on the 100G Coherent MSA XCVR, 400G Coherent MSA XCVR, and the 100G Coherent CFP only). NOTE: For the 400G Coherent MSA XCVR, this attribute is configured on the optical channel interface only.	100G Coherent MSA XCVR: • 4-symbols, 8-symbols, 32-symbols 400G Coherent MSA XCVR: • 4-symbols, 8-symbols, 16-symbols, 32-symbols, 64-symbols 100G Coherent CFP: • 3-symbols, 6-symbols, 48-symbols	100G Coherent MSA XCVR: 32-symbols 400G Coherent MSA XCVR: 32-symbols 100G Coherent CFP: 48-symbols
expected-section-trace *string*	The section level trace message expected in the received SONET/SDH signal. This applies to SONET/SDH interfaces only.	0 to 62 characters	An empty string, which means no section trace expected.
expected-trace *string*	The trace message expected in the received OTU signal.	0 to 64 characters	An empty string, which means no trace message expected.

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Table 21: Physical Layer Parameters (Varies with Interface) *(continued)*

Parameter	Description	Range	Default Value
fec-type *type*	The forward error correction (FEC) type used in the OTU link. NOTE: This attribute is not supported on an OTU4 interface on the UFM6 400G Coherent MSA XCVR. You cannot configure the FEC on an individual OTU4 on the UFM6. You can only configure the FEC for the optical channel interface only.	The following are the allowed types: • no-fec • g-fec • s-fec-i4 • s-fec-i7 • sd-fec-25pc • soft-fec • swiz-fec NOTE: Not all FEC types are supported for all protocols and transceivers. See "Forward Error Correction (FEC) Types" on page 38 for more details.	100G Coherent MSA XCVR: soft-fec 400G Coherent MSA XCVR: sd-fec-25pc 100G Coherent CFP: soft-fec QSFP28 100GE Ethernet/OTN LR4: g-fec
fpsd {**true** | **false**}	Enables or disables fault propagation shutdown (FPSD) for ethernetCsmacd interfaces. If a fault is detected upstream (in the receive from backplane direction) and this parameter is set to true, the system turns off the laser to propagate the fault signal. If this parameter is set to false, the system transmits a Local Fault indication instead. In either case, the signal in the link receive direction is unaffected.	true false NOTE: This parameter is set to true for Fibre Channel (8gfc, 10gfc) interfaces and cannot be changed.	true

Table 21: Physical Layer Parameters (Varies with Interface) *(continued)*

Parameter	Description	Range	Default Value
frequency *frequency*	The frequency of the optical signal in THz. For a single-channel transceiver, this indicates the frequency at which the transceiver operates. For a multi-channel transceiver, this indicates the frequency of the first channel (channel with the highest frequency number). NOTE: A frequency or wavelength value is required to create an interface on tunable transceivers. You do not need to configure both a frequency and a wavelength. If you configure both a frequency and a wavelength, the values must be consistent. NOTE: For the 400G Coherent MSA XCVR, this attribute is configured on the optical channel interface only.	Refer to "DWDM 50-GHz Wavelength Plan" on page 54 for valid DWDM frequency and wavelength grid values. The specified frequency must match a valid grid frequency.	None
grid {**f50GHz**|**f100GHz**|**f200GHz**}	The frequency spacing of channels on the WDM composite signal.	f50GHz: 50 GHz grid spacing f100GHz: 100 GHz grid spacing f200GHz: 200 GHz grid spacing	None
lldp-snoop {**disable**|**enable**}	Configures LLDP snooping. NOTE: Supported only on Ethernet interfaces.	disable enable	disable
loopback-mode {**facility**|**noLoopback**|**terminal**}	Configures or releases loopback of traffic on an interface.	facility noLoopback terminal	noLoopback
mapping {**asynchronous**|**bit-synchronous**}	Specifies the type of mapping of the SONET/SDH signal onto an ODU payload.	asynchronous synchronous	asynchronous
multiplex-mode {**no-multiplex**|**gmp-capable**}	This is used to configure the OPU payload of the ODU for multiplexing lower order OPUs. When set to gmp-capable, the ODU multiplex structure supports multiplexing of ODTUk.ts or ODTUk.ts and ODTUjk (payload type 0x21).	no-multiplex gmp-capable	no-multiplex

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Table 21: Physical Layer Parameters (Varies with Interface) *(continued)*

Parameter	Description	Range	Default Value
odtg	This is the list of optical data tributary groups (ODTG) that are configured on the ODU if the payload type is set to gmp-capable. Each ODTG contains a lower order ODU.		
prbs-mode {**egress**|**ingress**|**no-prbs**}	Configures PRBS signal generation on the interface. Refer to prbs-mode for usage. NOTE: This parameter is not supported on UFM6 interfaces.	egress ingress no-prbs	no-prbs
sd-deg-thr *percent*	The threshold used to evaluate whether a 1-second interval is considered a degraded interval for OTU interfaces. The threshold is the percentage of errored blocks in a 1-second interval. If the percentage of errored blocks detected in a 1-second interval exceeds this threshold, the interval is considered degraded.	0.0001 to 100.0	0.1
sd-degm *num_intervals*	The number of consecutive degraded intervals required to raise a signal degrade fault for OTU interfaces. When the value is set to 0, signal degrade monitoring is disabled.	0, 2 to 10	8
sd-thr *neg_exponent*	The threshold used to evaluate whether a SONET/SDH signal degrade fault has occurred. If the bit error rate exceeds the specified threshold, a signal degrade fault is raised. The value entered is a negative exponent. For example, a value of 4 is interpreted as 10×10^{-4}. When the value is set to 0, signal degrade monitoring is disabled.	0, 4 to 12	6

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Table 21: Physical Layer Parameters (Varies with Interface) *(continued)*

Parameter	Description	Range	Default Value
signaling-mode {**legacy**|**standard**}	The signaling mode for interworking with legacy equipment on Ethernet interfaces. See the *BTI7800 Series Software Configuration Guide* for details.	legacy standard	standard
tx-power *power*	The desired output signal power in dBm (applicable to interfaces on the 100G Coherent MSA XCVR, the 400G Coherent MSA XCVR, and the 100G Coherent CFP only). NOTE: For the 400G Coherent MSA XCVR, this attribute is configured on the optical channel interface only.	Varies depending on the transceiver. See the transceiver specifications in the *BTI7800 Series Hardware Overview and Installation Guide* for details.	Varies depending on the transceiver.
tx-trace *string*	The trace message inserted into the transmitted OTU signal.	0 to 64 characters	UFM6: A combination of the management IP address and the ifIndex. Other UFMs: A combination of the management IP address and the interface identifier.
wavelength *wavelength*	Wavelength of the optical signal (nm). This attribute is set automatically when you set the frequency. For a single-channel transceiver, this indicates the wavelength at which the transceiver operates. For a multi-channel transceiver, this indicates the wavelength of the first channel (channel with the lowest wavelength number). NOTE: A frequency or wavelength value is required to create an interface on tunable transceivers. You do not need to configure both a frequency and a wavelength. If you configure both a frequency and a wavelength, the values must be consistent. NOTE: For the 400G Coherent MSA XCVR, this attribute applies to the optical channel interface only.	Refer to "DWDM 50-GHz Wavelength Plan" on page 54 for valid DWDM frequency and wavelength grid values. The specified wavelength does not need to match a valid grid wavelength. The BTI7800 converts the specified wavelength to a frequency rounded to the nearest 50 GHz. The resulting frequency is then checked against valid grid values. If the frequency matches a valid grid value, the CLI updates the **frequency** attribute with the resulting frequency when you commit the change. If the frequency does not match a valid grid value (that is, outside the range), the CLI returns an error when you try to commit the change.	None

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Table 22: Parameters Specific to an Interface Type (Varies with Interface)

Parameter	Description	Range	Default Value
Interfaces of type *mgt* (releases 2.1.1 and higher)			
channel {**odcc** | **mcc**}	The channel to be used for management traffic on this interface. Management traffic can be carried on the optical data communications channel, which is carried within the OSC on optical interfaces.	mcc: not supported odcc: optical data communications channel	odcc
l1-interface *interface*	The physical interface on which the management channel resides.	An existing physical interface, subject to the following: The interface must match the channel selection. If the channel is odcc, then the l1-interface must be an OSC interface.	None
Parameter	**Description**	**Range**	**Default Value**
Interfaces of type *opticalChannel*			
extended-los-mode {**true**|**false**}	This specifies whether the LOS threshold of the 400G Coherent MSA XCVR should be extended to accommodate unamplified applications.	true: extend LOS threshold false: do not extend LOS threshold	false
modulation {**16-qam** | **qpsk**}	The modulation format.	16-qam: two OTU4 signals are modulated onto the single optical carrier qpsk: not supported (releases lower than release 4.2) qpsk: one OTU4 signal is modulated onto the single optical carrier (releases 4.2 and higher)	16-qam

Related Documentation

- show interface on page 266

Sample Output

```
bti7800(config)# interface 100ge:1/13/1/1 type ethernetCsmacd
bti7800(config-interface-100ge:1/13/1/1)# frequency 191.35
bti7800(config-interface-100ge:1/13/1/1)# commit
Commit complete
```

logging customer-log

Syntax **[no] logging customer-log facility-id** *id*

Description This command specifies the facility identifier used in syslog files.

Options

Parameter	Description	Range	Default Value
facility-id *id*	The facility identifier used to identify BTI7800 logs	local0 local1 local2 local3 local4 local5 local6 local7	local1

Related Documentation

- logging logrotate on page 181
- logging module on page 184
- logging protocol on page 185
- logging remote-server on page 188

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logging logrotate

Syntax

[no] logging logrotate maxage *days*
[no] logging logrotate remote-url *protocol:url* **[password** *password* **]**
[no] logging logrotate { rotate *number* **| size** *size***}**

Description

This command allows you to manage the **system.log** files.

Options

Parameter	Description	Range	Default Value
maxage *days*	Sets the number of days that a log file is kept. At the end of this period, the log file is deleted.	1 to 31	30
remote-url *protocol:url*	Specifies the remote server to which to move the log file when the file is rotated out of local storage. When a log file is rotated out, it is transferred to the specified server, and then deleted from local storage. The log file is deleted regardless of whether the transfer is successful or not.	`scp|sftp|ftp://[`*`username`*`@]`*`host`*`[:`*`port`*`]/[`*`filepath`*`]` *username* is the username to use on the remote server. *host* is the host name or IP address of the remote server. *port* is the protocol port number to use. *filepath* is the directory where you want to place the log file. This is the path only and does not include the file name, which is auto-generated.	sftp://None This default means that remote-url is not used. If *username* is not specified, the current CLI session's login name is used. If *port* is not specified, the standard default SCP, FTP, or SFTP port is used. If *filepath* is not specified, the file is copied to the SCP/FTP/SFTP user's home directory.
password *password*	The password associated with the specified username If a password is not specified, the system prompts you for a password. NOTE: The password must contain alphanumeric characters only.	A character string	None
rotate *number*		1 to 3	3

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Parameter	Description	Range	Default Value
	Sets the number of files to include in the data collection. Once this number is reached, the next log rotation causes the oldest log file to be deleted or transferred out (if remote-url is configured). This number corresponds to the number of rotations that can occur before the currently active log file is removed or transferred out.		
size *size*	Sets the size of the log files (MB). When this limit is reached on the currently active log file, log rotation is performed.	1 to 50	15

Related Documentation

- None

Sample Output

```
bti7800(config)# logging logrotate remote-url sftp://user@mycompany.com/logs
maxage 10 size 30
bti7800(config)# commit
Commit complete.
```

logging module

Syntax **[no] logging module** *module* **{ debug | off | trace }**

Description This command allows you to specify which software modules to trace or log. By default, none of the modules is enabled for logging.

Options

Parameter	Description	Range	Default Value
module *module*	The module to log	See the example below for the list of modules.	None
debug	Sets the log level to debug	–	–
off	Disables logging for the specified module	–	This is the default setting.
trace	Sets the log level to trace	–	–

Related Documentation

- show running-config logging module

Sample Output

The modules can vary from release to release.

```
bti7800(config)# logging module ?
Possible completions:
 ampagent     ampmgr            arpmgr   board-agent    db           digi-agent

 discovery    dolagent          dolcomms dolnlcmdrv     env-agent
equipment-agent
 equipmentmgr evip              faultmgr front-panel    global       ifmgr
 logmgr       nodemgr           oamagent oammgr         portagent    portmgr
 protocolmgr  rph               showrsvp stat-collector switch-agent switchmgr

 testdrvherc  transceiver-agent wpsagent wpsdrv         wpsmgr
bti7800(config)# logging module equipmentmgr debug
bti7800(config)# commit
Commit complete.
```

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logging protocol

Syntax **[no] logging protocol [bfd | cspf | internal-trace-level *level*| ips-tracing | isis { database | signalling } | log-level *level* [detail] | meta-cli *level* | router-dcl *level* | rsvp { neighbour | signalling }]**

Description This command configures logging at the protocol level.

Options

Parameter	Description	Range	Default Value
internal-trace-level *level*	The internal trace level dictates the quantity of information that is logged. Information marked at the specified trace level and at all lower levels is logged.	0 to 20	8
ips-tracing	Enables low level signal tracing	–	Low level signal tracing is disabled by default.
isis {**database**|**signalling**}	Enables IS-IS logging	database: enables IS-IS database logs signalling: enables IS-IS signalling logs	IS-IS logging is disabled by default.
log-level *level* [**detail**]	The log level specifies the type of information logged	audit: enables problem, exception, and audit logs dev: enables all logs exception: enables problem and exception logs problem: enables problem logs only The **detail** selection is a modifier that specifies whether more or less detail is desired.	exception
meta-cli *level*	Enables meta-CLI logging	debug error info trace warning	warning
router-dcl *level*	Enables router DCL logging		warning

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Parameter	Description	Range	Default Value
		debug error info trace warning	

Related Documentation

- logging customer-log on page 180
- logging logrotate on page 181
- logging module on page 184
- logging remote-server on page 188
- show log on page 282

Sample Output

```
bti7800(config)# logging protocol isis signalling
bti7800(config)# commit
Commit complete.
```

logging remote-server

Syntax **[no] logging remote-server** *index* **[ip-address** *ip_address* **[port** *number* **]]**

Description This command specifies the remote syslog servers to use. You can configure up to four syslog servers.

Options

Parameter	Description	Range	Default Value
remote-server *index*	A user-defined index for the remote-server	1 to 4	None
ip-address *ip-address*	The IP address of the remote-server	Standard dotted decimal notation (for example, 192.168.0.100)	None
port *number*	The port number to use to reach the remote-sever	A valid IANA port number	514

Related Documentation

- show running-config logging remote-server

Sample Output

```
bti7800(config)# logging remote-server 1 ip-address 10.1.1.1
bti7800(config-remote-server-1)# commit
Commit complete.
```


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mgt static

Syntax **[no] mgt static** *ip_address* **interface** *name:identifier* **[metric** *number* **]**

Description This command configures a static route on the management network.

Options

Parameter	Description	Range	Default Value
static *ip_address*	The IP address or subnet of the static route	Standard dotted decimal notation with prefix (for example, **192.168.1.0/24**). To specify a default route, use **0.0.0.0/0**.	None
interface *name:identifier*	The egress management interface for the static route	The following interfaces are allowed: • mgt	None
metric *number*	The cost for this static route	0 to 4294967295	0

Related Documentation

- show mgt static on page 285

Sample Output

The following configures a static route for the management network.

```
bti7800(config)# mgt static 10.10.1.1/32 interface mgt:3
bti7800(config-static-10.10.1.1/32/mgt:3/mgt)# commit
Commit complete.
```

prbs-mode

Syntax **[no] prbs-mode { egress | ingress | no-prbs }**

Description This command configures PRBS signal generation.

Related Documentation

- None

Sample Output

```
bti7800(config)# interface otu4:1/7/1/1
bti7800(config-interface-otu4:1/7/1/1)# disabled
bti7800(config-interface-otu4:1/7/1/1)# prbs-mode egress
bti7800(config-interface-otu4:1/7/1/1)# commit
```

The outputs of the following commands have been edited and formatted for clarity. Only the relevant attributes are shown.

```
bti7800# show interface otu4:1/7/1/1
Admin State                             : disabled
Operational State                       : testing
PRBS Mode                               : egress
PRBS Status                             : synchronized
Conditions                              : PRBS test active
```

```
bti7800# show statistics current otu4:1/7/1/1
PRBS loss of sequence sync. seconds ...  0
PRBS bit errors ......................  0
PRBS bit error ratio .................  0
PRBS min. bit error ratio ............  0
PRBS max. bit error ratio ............  0
PRBS avg. bit error ratio ............  0
```

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protection wavelength group

Syntax [no] **protection wavelength group wpsgroup:***location_id* [**protid** *string* | **remote-protid** *string* | **custom** *string* | **revertive-type** *type* | **working wpsport:***location_id* | **protecting wpsport:***location_id* | **revertive-time** *time*]

Description This command sets parameters for the specified wavelength protection group (wpsgroup) on the WPS4. If the wavelength protection group does not exist, the wavelength protection group is created.

NOTE: Creating the wavelength protection group will automatically create the client and line ports associated with the group.

Options

Parameter	Description	Range	Default Value
wpsgroup:*location_id*	Protection wavelength group identifier	See "Location Identifiers" on page 31.	None
protid *string*	A user-defined identifier of the protection group	0 to 32 alphanumeric characters	An empty string
protid-remote *string*	A user-defined identifier of the remote protection group	0 to 32 alphanumeric characters	An empty string
custom *string*	User-defined string	0 to 255 alphanumeric characters	An empty string
revertive-type *type*	Determines whether traffic will revert to the working line following a protection switch when the defect on the line clears. Applies to automatic, manual, forced and lockout switches.	revertive non-revertive	non-revertive
working wpsport:*location_id*	The line port designated as the working port. This parameter is automatically assigned by the system. If specified, the port must be line port A associated with the group.	See "Location Identifiers" on page 31.	Port A is the working port associated with the wavelength protection group.
protecting wpsport:*location_id*	The line port designated as the protecting port. This parameter is automatically assigned by the system If specified, the port must be line port B associated with the group.	See "Location Identifiers" on page 31.	Port B is the protecting port associated with the wavelength protection group.
revertive-time *time*		600	600

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Parameter	Description	Range	Default Value
	The time, in seconds, that must pass before activity reverts to the working line after the conditions causing the protection switch have cleared. Applies only if the group is in revertive mode. This parameter is not configurable.		

Related Documentation

- show protection wavelength group on page 289
- protection wavelength switch on page 77

Sample Output

```
bti7800(config)# protection wavelength group wpsgroup:1/3/1
```

protection wavelength port

Syntax [no] **protection wavelength port wpsport:***location_id* [**id** *string* | **remote-id** *string* | **custom** *string* | **lolight-rxth** *threshold*]

Description This command sets parameters for the specified wavelength protection port on the WPS4.

NOTE: Wavelength protection ports cannot be created or deleted. To create or delete a wavelength protection port you must create or delete the wavelength protection group associated with the ports.

Options

Parameter	Description	Range	Default Value
wpsport:*location_id*	The protection wavelength port identifier	See "Location Identifiers" on page 31.	None
id *string*	A user-defined identifier of the local wavelength protection port	0 to 32 alphanumeric characters	An empty string
remote-id *string*	A user-defined identifier of the remote wavelength protection port	0 to 32 alphanumeric characters	An empty string
custom *string*	User-defined string	0 to 255 alphanumeric characters	An empty string
lolight-rxth *threshold*	The loss of light threshold monitored on the receiving ports of the WPS4 NOTE: The lolight-rxth must be configured according to the optical link budget in order for the protection switch to operate as per specification.	-35.0 to 35.0 dBm	-35.0 dBm

Related Documentation

- show protection wavelength port on page 290

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Sample Output

```
bti7800(config)#protection wavelength port wpsport:1/3/L1A lolight-rxth -25.0
```

protection wavelength switch

Syntax **protection wavelength switch** *switch-type* **wpsport:***location*

Description This command executes a protection switch on the specified WPS port.

Options

Parameter	Description	Range	Default
protection wavelength switch *switch-type*	Denotes the type of wavelength protection switch the operator wants to invoke	forced lockout manual release	None
wpsport:*location*	The line port on which the user wants to invoke the wavelength protection switch	A valid WPS port See "Location Identifiers" on page 31.	None

Related Documentation

- show protection wavelength port on page 290
- protection wavelength group on page 191

Sample Output

```
bti7800#protection wavelength switch manual wpsport:1/3/L1B
```


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router isis

Syntax **[no] router isis** *area* **[** *options* **]**

Description This command configures router-wide IS-IS parameters.

Options

Parameter	Description	Range	Default Value
isis *area*	The IS-IS area tag	1 to 2,147,483,647	None
administrative-status {**up**|**down**}	Sets the administrative status of the IS-IS control plane for this router instance	up down	down
hostname	The hostname that is advertised to other routers	1 to 32 characters	None
interface	Configures IS-IS parameters on a virtual management interface. See router isis interface.		
net *net*	The network entity title, consisting of a 3-octet area address, a 6-octet system identifier, and a 1-octet NSAP selector (which must be 00)	aa.aaaa.ssss.ssss.ssss.00 aa.aaaa - 6 hexadecimal digits for the area (consisting of a 2-digit format identifier followed by a domain) ssss.ssss.ssss - 12 hexadecimal digits for the system identifier, which must be unique to the area.	None

Related Documentation

- router isis interface on page 198
- show isis on page 275

Sample Output

```
bti7800(config)# router isis 1 net 49.0001.0000.0000.1111.00
bti7800(config-isis-1)# commit
Commit complete.
```

router isis interface

Syntax **[no] router isis interface mgt:*identifier* administrative-status [up | down]**

Description This command configures IS-IS parameters on a virtual managment interface.

Options

Parameter	Description	Range	Default Value
interface mgt:*identifier*	The virtual management interface to configure	1 to 20 For example, **mgt:1**, **mgt:2**.	None
administrative-status	Sets the administrative status of IS-IS on this interface	up down	up

Related Documentation

- router isis on page 197
- show isis interface on page 279

Sample Output

```
bti7800(config)# router isis 1
bti7800(config-isis-1)# interface mgt:1 administrative-status up
bti7800(config-isis-1)# commit
Commit complete.
```

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show configuration

Syntax **show configuration [** *branch* **]**

Description This command displays the uncommitted configuration changes in the entire system, or the uncommitted configuration changes of the specified branch if a branch is specified.

Options

Parameter	Description
branch	The subsystem branch. Type **?** to see the list of branches.

Related Documentation

- show full-configuration on page 200

Sample Output

```
bti7800(config)# show configuration
% No configuration changes found.
bti7800(config)# snmp-server community RO xxxxxxxx
bti7800(config-community-RO)# show configuration
snmp-server community RO   xxxxxxxx !
```

show full-configuration

Syntax **show full-configuration [*branch*]**

Description This command displays the committed configuration of the entire system, or the committed configuration of the specified branch if a branch is specified.

Options

Parameter	Description
branch	The subsystem branch. Type **?** to see the list of branches.

Related Documentation

- show running-config on page 292

Sample Output

```
bti7800(config)# show full-configuration snmp-server community
snmp-server community RW   xxxxxxxx !
snmp-server community RO   yyyyyyyy !
```

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show history

Syntax **show history [*number*]**

Description This command displays the most recent commands in the CLI configuration mode command history.

Options

Parameter	Description	Range
number	The number of most recent commands to show	0 to 32,000

Related Documentation

- None

Sample Output

```
bti7800(config)# show history
17:21:52 -- interface 10ge:1/3/1/5
17:22:42 -- custom1 if-1315
17:22:53 -- fpsd false
17:22:58 -- commit
17:23:16 -- show history
```

snmp-server community

Syntax **[no] snmp-server community { RO | RW }** *string*

Release Information This command was introduced prior to release 2.1.1.
Starting with release 4.3, you can issue this command with the provisioning privilege. In releases lower than release 4.3, you must have superuser privileges to issue this command.

Description This command sets the SNMP community strings.

Options

Parameter	Description	Range	Default Value
RO	Indicates the string is the read-only community string	–	–
RW	Indicates the string is the read-write community string	–	–
string	The SNMP community string	A character string	The default read-only community string is public. The default read-write community string is private.

Related Documentation

- show running-config snmp-server community

Sample Output

```
bti7800(config)# snmp-server community RO xxxxxxxx
bti7800(config-community-RO)# commit
Commit complete.
bti7800(config-community-RO)# do show running-config snmp-server community RO
snmp-server community RO   xxxxxxxx !
```

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snmp-server host

Syntax **[no] snmp-server host** *ip_address* **[udp-port** *number* **]**

Description This command sets the IP address and port of the SNMP trap receiver.

NOTE: **This command provides the same function as the system snmp notify-target command.**

Options

Parameter	Description	Range	Default Value
ip_address	The destination IP address of the host receiving trap notifications	A valid IP address in dotted decimal format (for example, **10.1.1.1**)	–
udp-port *number*	The UDP port to use	0 to 65,535	162

Additional Information To create a list of trap receivers, repeat this command for each trap receiver. Each trap receiver must have a different IP address. The list cannot contain more than one trap receiver with the same IP address.

Related Documentation

- show snmp host on page 294

Sample Output

```
bti7800(config)# snmp-server host 10.1.1.1
bti7800(config-host-10.1.1.1)# commit
Commit complete.
bti7800(config-host-10.1.1.1)# do show snmp host
Target-Name     IP-Address     Port     TimeOut-Value   Retry-Count     Tag-Lis
--------------- -------------- -------- --------------- --------------- -------
10.1.1.1 v2     10.1.1.1       162       1500           3               std_v2_
10.2.2.2 v2     10.2.2.2       162       1500           3               std_v2_
```

statistics bin-settings

Syntax **statistics bin-settings { 1Day | 1Minute | 15Minute | unTimed } [number-of-bins** *number* **]**

Release Information This command was introduced prior to release 2.1.1.
Starting with release 4.2, the **no** form of the command is no longer supported.

Description This command configures the number of historical bins to keep for each bin length.

Options

Parameter	Description	Range	Default Value
1Day number-of-bins *number*	Configures the number of bins for the 1Day bin length	1 to 7	7
1Minute number-of-bins *number*	Configures the number of bins for the 1Minute bin length	1 to 60	15
15Minute number-of-bins *number*	Configures the number of bins for the 15Minute bin length	1 to 96	96
unTimed number-of-bins *number*	Configures the number of bins for the unTimed bin length. The unTimed bin accumulates counts from the time performance monitoring on the module starts. The unTimed bin does not roll over into a historical bin.	1	1

Additional Information Starting with release 4.2, the **no** form of the command is no longer supported.

In earlier releases, the **no** form of the command behaves as follows:

- The **no** form of the command with the **number-of-bins** parameter (for example, **no statistics bin-settings 15Minute number-of-bins**) sets the **number-of-bins** back to its default value.
- The **no** form of the command without the **number-of-bins** parameter (for example, **no statistics bin-settings 15Minute**) removes the specified bin length and should not be used. If you accidentally removed a bin length, you can add it back. For example, **statistics bin-settings 15Minute** adds the 15Minute bin length back.
- The **no** form of the command without the **number-of-bins** parameter and without a specified bin length (for example, **no statistics bin-settings**) removes all bin lengths and should not be used. If you accidentally removed all bin lengths, you will have to add them back individually.

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Related Documentation

- *show statistics*

Sample Output

```
bti7800(config)# statistics bin-settings 15Minute number-of-bins 24
bti7800(config-bin-settings-15Minute)# commit
Commit complete.
```

statistics threshold entity

Syntax **[no] statistics threshold entity** *name* **[profileName** *name* **]**

Description This command applies an existing profile to an entity (usually an interface).

Options **entity** ***name*** — the name of the entity or interface to which you want to apply the profile

profileName ***name*** — the name of the profile to apply

Additional Information You must create the profile before you can use this command to apply it to an entity.

Related Documentation

- statistics threshold profile on page 207

Sample Output

The following example applies the obrProfile1 profile to the osc:1/8/0/L1 interface.

```
bti7800(config)# statistics threshold entity osc:1/8/0/L1 profileName obrProfile1
bti7800(config-entity-osc:1/8/0/L1)# commit
Commit complete.
```

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statistics threshold profile

Syntax **[no] statistics threshold profile** *name* **[entityType** *type* **[statistic** *statistic-name threshold-type binLength* **[dec64ClearValue** *value* **| dec64RaiseValue** *value* **| disabled | enabled]]]**

Description This command creates a threshold profile that you can apply to different entities (usually interfaces). A threshold profile contains the threshold crossing alert levels for specified alarms.

Options **profile** ***name***— the name of the profile

Values: The profile name cannot begin with “def-”. All profiles that begin with “def-” are default profiles and cannot be created or changed by the user.

entityType ***type***— the type of interface to which this profile applies

Values: osc

statistic ***statistic-name***— the statistic that you are setting the thresholds for

Values: opt-back-ref-ratio

threshold-type — the type of threshold

Values: alarmHigh

binLength — the bin length

Values: unTimed

dec64ClearValue ***value*** — the alarm clear threshold

dec64RaiseValue ***value*** — the alarm set threshold

disabled — disables this profile

enabled — enables this profile

Additional Information This command allows you to create profiles for many different entities with many different options but only the entities and options listed above are supported. Note that this command only creates and configures the profile. You still need to apply this profile to an interface for the profile to take effect for that interface.

Related Documentation

- statistics threshold entity on page 206

Sample Output

The following example configures and enables a profile that sets the opt-back-ref-ratio high alarm set and clear thresholds to -21 dB and -22 dB, respectively.

```
bti7800(config)# statistics threshold profile obrProfile1 entityType osc
bti7800(config-profile-obrProfile1)# statistic opt-back-ref-ratio alarmHigh unTimed
 dec64RaiseValue -21 dec64ClearValue -22 enabled
bti7800(config-statistic-opt-back-ref-ratio/alarmHigh/unTimed)# commit
Commit complete.
```


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system ains

Syntax **[no] system ains [default-ains | default-ains-timer]**

Description This command configures system-wide Auto-In-Service (AINS) for new interfaces.

Options

Parameter	Description	Range	Default Value
default-ains	Enables or disables AINS on new interfaces	**true**: Enable AINS **false**: Disable AINS	false
default-ains-timer	Sets the AINS countdown duration on new interfaces, in hours and minutes, in the format: HH:MM	00:00 to 99:59	08:00

Related Documentation

- ains, at the interface level
- ains-timer, at the interface level

Sample Output

```
bti7800(config)# system ains default-ains true
bti7800(config-system)# system ains default-ains-timer 04:00
bti7800(config-system)#commit
Commit complete.
```

system auto-prov

Syntax **system auto-prov [false | true]**

Description This command enables or disables auto provisioning. By default, auto provisioning is enabled—true. Auto provisioning allows an unprovisioned hardware component, such as a module or port to be automatically provisioned when the component is inserted into the chassis.

Related Documentation

- None

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system auto-warm-boot

Syntax **[no] system auto-warm-boot disabled { ALL | CMM | PLD }**

Description This command determines whether the system automatically reboots an unresponsive module or not.

Options

Parameter	Description	Default
ALL	Disables auto-warm-boot for all modules (that is, for all service modules and for the standby CMM)	By default, auto-warm-boot is enabled for all modules.
CMM	Disables auto-warm-boot for the standby CMM	By default, auto-warm-boot is enabled for all modules.
PLD	Disables auto-warm-boot for all service modules	By default, auto-warm-boot is enabled for all modules.

Additional Information When auto-warm-boot is enabled, the active CMM automatically warm reloads a service module and/or a standby CMM up to 3 times if the service module and/or standby CMM is unresponsive.

Warm reloading modules is not service affecting as transport and optical traffic continue to be passed in a warm reload, but software-based features on the service module (such as PM collection, APSD, APR, FSPD) are disabled while a service module reloads.

Related Documentation

- None

Sample Output

To disable auto-warm-boot for the service modules:

```
bti7800(config)# system auto-warm-boot disabled PLD
bti7800(config-system)# commit
Commit complete.
```

To enable auto-warm-boot for all modules:

```
bti7800(config)# no system auto-warm-boot disabled
bti7800(config)# commit
Commit complete.
```

system chassis

Syntax **system chassis [** *<chassis serial number>* **chassis-id** *<chassis ID number>*

Description This command commissions the second chassis in a multiple chassis configuration.

Related Documentation

- None

Sample Output

```
bti7800(config)# system chassis 2013VM-0002 chassis-id 2
```


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system clock timezone-location

Syntax **[no] system clock timezone-location** *timezone*

Description This command configures the system time zone.

Options

Parameter	Description	Range	Default Value
timezone	The time zone to use	The BTI7800 uses the industry standard time zone database.	–

Additional Information Changing the time affects PM timestamps. See the *BTI7800 Series Software Configuration Guide* for details.

Related Documentation

- show running-config system clock timezone-location

Sample Output

Use tab completions to see the entries below the top level.

```
bti7800(config)# system clock timezone-location Europe/<tab>
Possible completions:
  Amsterdam  Andorra    Athens      Belfast     Belgrade    Berlin     Bratislava
  Brussels    Bucharest
  Budapest   Busingen   Chisinau     Copenhagen  Dublin      Gibraltar  Guernsey
    Helsinki    Isle_of_Man
  Istanbul   Jersey     Kaliningrad  Kiev        Lisbon      Ljubljana  London
    Luxembourg  Madrid
  Malta      Mariehamn  Minsk        Monaco      Moscow      Nicosia    Oslo
    Paris       Podgorica
  Prague     Riga       Rome         Samara      San_Marino  Sarajevo   Simferopol
  Skopje      Sofia
  Stockholm  Tallinn    Tirane       Tiraspol    Uzhgorod    Vaduz      Vatican
    Vienna      Vilnius
  Volgograd  Warsaw     Zagreb       Zaporozhye  Zurich
bti7800(config-system)# commit
Commit complete.
```

system contact

Syntax **[no] system contact** *string*

Description This command configures the system point-of-contact. The value is a string up to 255 characters.

Related Documentation

- None

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system controller-1

Syntax **system controller-1 [name cmm:** *<chassID/slot>* **| static-address** *<static IP address>*

Description This command configures the specified Chassis Management Module (CMM) as the first System Controller Manager (SCM). This involves specifying the chassis ID and slot of the CMM and assigning a static IP address.

Related Documentation

- system chassis on page 212
- system controller-2 on page 216

Sample Output

```
bti7800(config)# system controller-1 name cmm:1/A
 bti7800(config-system)# system controller-1 name cmm:1/A static-address <static IP
address>
bti7800(config-system)# commit
```

system controller-2

Syntax **system controller-2 [name cmm:** *<chassID/slot>* **| static-address** *<static IP address>*

Description This command configures the specified Chassis Management Module (CMM) as the second System Controller Manager (SCM). This involves specifying the chassis ID and slot of the CMM and assigning a static IP address.

Related Documentation

- system chassis on page 212
- system controller-1 on page 215

Sample Output

```
bti7800(config)# system controller-2 name cmm:1/B
bti7800(config-system)# system controller-2 name cmm:1/B static-address <static IP
address>
bti7800(config-system)# commit
```

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system dns

Syntax **[no] system dns server** *ip_address* **[** *ip_address* **]**

Description This command configures one or more DNS servers.

Options

- *ip_address* - the IP address of the DNS server

Related Documentation

- None

Sample Output

```
bti7800(config-system)# system dns server 10.1.1.1 10.2.2.2
```

system gateway-address

Syntax **[no] system gateway-address** *ip_address*

Description This command configures the IP address of the default gateway.

Options
- *ip_address* - the IP address of the gateway

Related Documentation
- None

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system location

Syntax **[no] system location** *string*

Description The physical location of the BTI7800 system. The value is a string up to 255 characters.

Related Documentation

- None

system mgmt-address

Syntax **[no] system mgmt-address***ip_address*

Description This command configures the shared management IP address and subnet mask.

Options
- *ip_address* - the IP address and subnet mask

Related Documentation
- None

Sample Output

```
bti7800(config)# system mgmt-address 10.75.0.5/16
```


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system mgmt dynamic

Syntax **[no] system mgmt dynamic**

Description This command configures dynamic inband management. When configured, IS-IS is enabled on eth1.

Related Documentation

- None

Sample Output

```
bti7800(config)# system mgmt dynamic
```

system mgmt-sources

Syntax **[no] system mgmt-sources** *ip_address* **[** *ip_address* **]**

Description This command configures the management sources (IP addresses) that are allowed to connect to the BTI7800 management interface.

Options

Parameter	Description	Range	Default Value
ip_address	The IP address or prefix of the management source allowed to connect. Up to 16 IP addresses and/or prefixes can be specified.	Standard dotted decimal notation with subnet length (for example, **10.1.2.0/24**).	The default is to allow all management sources.

Additional Information If one or more management sources are configured, a management device must be in this source list in order to connect to certain protocol ports on the BTI7800. If no management sources are configured, all management devices are allowed to connect.

If one or more management sources are configured, management source verification works as follows: If a connection request arrives on the CMM management Ethernet port (eth1) or inband on the optical network, and if the request is destined for any of the protocol ports in the following list, the system validates the source IP address in the connection request with the list of allowed management sources. If the source IP address in the connection request is not in the allowed management source list, the connection is rejected.

- SSH (port 22)
- CLI (port 2024)
- NETCONF (port 2022)
- SNMP (port 161)

NOTE: **Management source verification does not take place if the connection request is destined for a protocol port not in the above list.**

This command only governs new connection requests. Existing established management connections are not affected. Connection requests on the craft Ethernet port (eth0) are also not affected. Any source can connect to the craft Ethernet port.

Related Documentation

- show system on page 297

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Sample Output

```
bti7800(config)# system mgmt-sources 10.1.2.0/24 10.1.100.25/32
```

system name

Syntax **[no] system name***string*

Description This command sets the user-defined name of the system. The value is a string up to 255 characters.

Related Documentation

- show system on page 297

Sample Output

```
bti7800(config)# system name SampleName
```


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system ntp

Syntax **[no] system ntp server** *ip_address* **[** *ip_address* **]**

Description This command configures the IP address of one or more NTP servers.

Options

- *ip_address* - the IP address of the NTP server

Additional Information See the *BTI7800 Series Software Configuration Guide* for information on the following:

- For the time change to take effect, you must warm reload the CMMs after changing the NTP server. See *Configuring NTP Servers and Time Zones*.
- Changing the time affects PM timestamps. See *Effect of a Time Change on PMs*.

Related Documentation

- show running-config system ntp

Sample Output

```
bti7800(config)# system ntp server 10.1.1.1 10.2.2.2
```

system proxy arp

Syntax **[no] system proxy arp**

Description This command enables proxy ARP on the gateway.

Related Documentation

- None

Sample Output

```
bti7800(config)# system proxy arp
```


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system radius

Syntax

[no] system radius options { attempts *number* **} | { timeout** *seconds* **}**
[no] system radius server *ip_address* **[authentication-port** *number* **| shared-secret** *string* **]**

Release Information

This command was introduced prior to release 2.1.1.
Starting with release 4.3, you can issue this command with the provisioning privilege. In releases lower than release 4.3, you must have superuser privileges to issue this command.

Description

This command configures the settings for connecting to a RADIUS server.

Options

Table 23: RADIUS Configuration Parameters

Parameter	Description	Range	Default
attempts *number*	The number of attempts to contact a RADIUS server before attempting to contact the next configured RADIUS server	1 to 255	2
timeout *seconds*	The number of seconds the client waits for a response from the RADIUS server before sending another request to the RADIUS server	1 to 255	5
server *ip_address*	The IP address of the RADIUS server	A valid IP address in dotted decimal format (for example, 10.1.1.1)	None
authentication-port *number*	The UDP port number to use NOTE: The port number must not be changed from the default value.	1812	1812
shared-secret *string*	The authentication key used to connect to the RADIUS server and to encrypt user credentials NOTE: The key on the RADIUS client and RADIUS server must match.	The key must be 6-256 case-sensitive alphanumeric characters	None

Additional Information

You can specify multiple RADIUS servers by issuing this command for each server. The BTI7800 attempts to connect to the first RADIUS server entered. If the BTI7800 fails to connect to the server after the specified number of attempts and timeouts, the BTI7800 tries the next server in the list, and so on.

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Related Documentation

- show running-config system radius

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system root

Syntax **system root password [*<password>*]**

Description This command configures the root password.

NOTE: **You must have superuser privileges to use this command.**

Options

- *<password>* - the password to set. If the password is not specified in the command, the system prompts you for the password. See "Inputting Character Strings and Passwords" on page 14 for information on using special characters.

Related Documentation

- None

system shmm-firmware autoupgrade

Syntax **[no] system shmm-firmware autoupgrade { enabled | disabled }**

Description This command configures automatic upgrades for the CMM SHMM firmware.

Additional Information When SHMM auto-upgrade is enabled, the CMM automatically upgrades the SHMM firmware, as follows.

- When a CMM boots up, it checks whether its SHMM firmware and whether the SHMM firmware on the other CMM match the firmware version associated with the currently active software. This occurs every time a CMM boots up, including when a CMM is being upgraded to new software.
- If there is a mismatch, the CMM raises a Firmware Upgrade Required (firmUpgrdReqd) alarm and proceeds to upgrade the SHMM firmware. The automatic upgrade starts only when all CMMs have come up and are synchronized.
- If more than one CMM in a single or multi-chassis system requires SHMM firmware upgrades, the firmware is upgraded on the CMMs sequentially.
- Once an automatic SHMM firmware upgrade is in progress, it cannot be cancelled and it should not be interrupted. CLI commands that conflict with this are rejected.

Related Documentation

- system upgrade firmware shmm
- show system on page 297

Sample Output

```
bti7800(config)# system shmm-firmware autoupgrade enabled
bti7800(config)# commit
Commit complete.
```

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system snmp notify-target

Syntax **[no] system snmp notify-target** *ip_address* **[udp-port** *number* **]**

Description This command sets the IP address and port of the SNMP trap receiver.

NOTE: **This command provides the same function as the snmp-server host command.**

Options

Parameter	Description	Range	Default Value
ip_address	The destination IP address of the host receiving trap notifications	A valid IP address in dotted decimal format (for example,**10.1.1.1**).	–
udp-port *number*	The UDP port to use	0 to 65,535	162

Additional Information To create a list of trap receivers, repeat this command for each trap receiver. Each trap receiver must have a different IP address. The list cannot contain more than one trap receiver with the same IP address.

Related Documentation

- show system snmp on page 313

Sample Output

```
bti7800(config)# system snmp notify-target 10.1.1.1
bti7800(config-notify-target-10.1.1.1)# commit
Commit complete.
bti7800(config-notify-target-10.1.1.1)# do show system snmp
Target-Name     IP-Address     Port     TimeOut-Value   Retry-Count     Tag-List

--------------- -------------- -------- --------------- ---------------
-----------------------------------
10.1.1.1 v2     10.1.1.1       162       1500           3              std_v2_trap
 std_trap std_v2_inform
172.25.7.219 v2 172.25.7.219   162       1500           3              std_v2_trap
 std_trap std_v2_inform
```

system tacacs-plus

Syntax

[no] system tacacs-plus options timeout *seconds*
[no] system tacacs-plus server *ip_address* **[authentication-port** *number* **| shared-secret** *string* **]**

Release Information

This command is new in release 4.1.
Starting with release 4.3, you can issue this command with the provisioning privilege. In releases lower than release 4.3, you must have superuser privileges to issue this command.

Description

This command configures the settings for connecting to a TACACS+ server.

Options

Table 24: TACACS+ Configuration Parameters

Parameter	Description	Range	Default
timeout	The number of seconds the client waits for a response from the TACACS+ server before trying to connect to the next configured TACACS+ server	1 to 255	5
server *ip_address*	The IP address of the TACACS+ server	A valid IP address in dotted decimal format (for example, 10.1.1.1).	None
authentication-port *number*	The TCP port number to use	A valid IANA port number	49
shared-secret *string*	The authentication key used to encrypt TACACS+ packets NOTE: The key on the TACACS+ client and TACACS+ server must match.	A character string	None

Additional Information

You can specify multiple TACACS+ servers by issuing this command for each server. The BTI7800 attempts to connect to the first TACACS+ server entered. If the BTI7800 fails to connect to the server after the specified timeout, the BTI7800 tries the next server in the list, and so on.

Related Documentation

- show running-config system tacacs-plus

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user-profile

Syntax

[no] user-profile *username* **alias** *string* **expansion** *command*
[no] user-profile *username* **description** *string*
[no] user-profile *username* **session** *parameter* **{ true | false |** *value* **}**

Description

This command configures the user environment settings.

Options

Parameter	Description	Range	Default Value
alias *string* **expansion** *command*	Creates an alias for a command name	Text string followed by a command	None
description *string*	Description for the user	Text string	None
session *parameter* **{ true | false |** *value* **}**	Sets CLI session parameters		Depends on the parameter

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Parameter	Description	Range	Default Value
		autowizard: Automatically queries the user for mandatory elements if true. The default is true. **complete-on-space**: Supports command completion on space if true. The default is false. **display-level**: Sets the maximum depth to show when displaying configuration. **history**: Sets the number of past commands to keep in the command history. **idle-timeout**: Sets the duration of time to keep a CLI session open during session inactivity. **ignore-leading-space**: Ignores leading white space if true. **paginate**: Paginates CLI output if true. The default is true. **prompt1**: Sets the prompt for operational mode. The default prompt is **bti7800#** if the system name is not configured. If the system name is configured, the default prompt is the system name. **prompt2**: Sets the prompt for configuration mode. The default prompt is **bti7800(config)#** if the system name is not configured. If the system name is configured, the default prompt is the	

Parameter	Description	Range	Default Value
		system name. **show-defaults**: Displays default configuration values if true.	

Related Documentation

- None

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users

Syntax **[no] users** *username* **{ password "***password***" | group** *group* **}**

Description This command manages users, user passwords, and user group affiliations. If the specified user does not exist, the user is created.

NOTE: **You must have superuser privileges to use this command.**

Options

Parameter	Description	Range	Default Value
users *username*	The username of the account NOTE: The system is installed with one predefined user called admin, which cannot be removed.	4 to 30 alphanumeric characters	None
password "*password***"**	The password required to access the account. This parameter is mandatory if you are creating a new user.	All alphanumeric and special characters. Since passwords are stored in digest form, there is no pre-determined limit on the length of the password. NOTE: Use quotation marks around the password. See usage guidelines below.	None
group *group*	The group (or role) associated with the specified user. This parameter is mandatory if you are creating a new user.	• **provisioning**: Ability to configure the system but lacks the ability to manage other users • **superuser**: Full system access. • **surveillance**: Allowed to monitor system activity. This group does not have configuration privilege. • **btiuser**: Deprecated, do not use.	None

Additional Information There are two methods to enter the password:

- In clear text on the command line with enclosing quotation marks. If the password contains a quotation mark (`"`), then use the escape backslash (`\`) immediately preceding the quotation mark.
- In hidden text via the interactive prompt. When you create a new user without specifying a password, the system prompts you for the password. Enter the password without the enclosing quotation marks.

See "Inputting Character Strings and Passwords" on page 14 for information on entering special characters.

Related Documentation

- show running-config users

Sample Output

The following example creates the user **user** with password **abc123\!@#def**.

```
bti7800(config)# users user group superuser password "abc123\!@#def"
```

The following example creates the user **user** with password **abc#123"def**.

```
bti7800(config)# users user group superuser password "abc#123\"def"
```


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CHAPTER 5

Show Commands

- show alarms
- show amp
- show conditions
- show cross-connect
- show dol
- show dol fiber-conn
- show dol fixed-grid
- show dol och
- show dol och-power
- show dol och-xcon
- show dol oms
- show dol osc
- show dol port
- show environment
- show equipment
- show equipment module
- show history
- show interface
- show interface lldp
- show inventory
- show ip route
- show ip route unicast
- show isis
- show isis counters
- show isis database
- show isis interface
- show isis neighbors
- show isis reachable address

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- show log
- show mgt static
- show netconf-state
- show netconf-state streams
- show protection wavelength group
- show protection wavelength port
- show running-config
- show session
- show snmp host
- show statistics current
- show statistics historical
- show system
- show system chassis
- show system clock
- show system controller
- show system cpu
- show system database
- show system dnslookup
- show system firmware
- show system mgmt-interface
- show system memory
- show system ntpstat
- show system process
- show system reload
- show system snmp
- show system upgrade
- show system version
- show tech-support

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show alarms

Syntax **show alarms**

Description This command displays the current alarms.

Related Documentation

- conditions on page 123

Sample Output

```
bti7800# show alarms

Entity-Name     Code           Time-Stamp                 Severity  Service   Des
                                                                        A
                                                             Affecting
--------------  -------------  -------------------------  --------  ---------
----
fan:1/5         fanSpeedLowTh  2014-01-14T12:17:50+00:00  major     true      Fan

fan:1/6         fanSpeedLowTh  2014-01-14T12:17:50+00:00  major     true      Fan
ufm:1/1         envVoltLowTh   2014-01-14T12:17:50+00:00  major     true      Env
ufm:1/14        eqptMiss       2014-01-14T12:17:46+00:00  critical  true      Equ
chassis:2       eqptMiss       2014-01-14T12:17:46+00:00  critical  true      Equ

otu2:1/1/1/2    los            2014-01-14T12:19:27+00:00  critical  true      Los
otu2:1/1/1/3    los            2014-01-14T12:19:27+00:00  critical  true      Los
otu2:1/8/2/2    los            2014-01-14T12:20:28+00:00  critical  true      Los

bti7800#
```

show amp

Syntax **show amp [*identifier* | detail | table]**

Description This command displays information for the amplifier module.

Options

Parameter	Description
identifier	Displays detailed information for the specified amplifier module
detail	Displays detailed information for all amplifier modules
table	Displays information for all amplifier modules in table format

Additional Information You must assign the amplifier to a group before the amplifier can be displayed.

Related Documentation

- amp eqpt on page 111
- amp eqpt-conn on page 113
- amp group on page 114
- amp osc on page 115
- amp port on page 117
- amp wdm on page 119

Sample Output

```
bti7800# show amp amp:1/6

Amp Name                      : amp:1/6
Group                         : 1
Group  type                   : noEqlzTerm
Degree                        : 1
Port Name                     : osc:1/6/1/1.1
Admin Status                  : enabled
Operational State             : up
ID                            :
Optical Power RX              :   0.0 dBm
Optical Power TX              :   0.0 dBm
Optical Back Reflection       :   0.0 dBm
Far-end Node Mismatch         : disabled
Expected Far-end System ID    :
Expected Far-end IP Address   : 0.0.0.0
Expected Far-end Degree       : 0
Expected Far-end Group        : 0
Actual Far-end System ID      :
```

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```
Actual Far-end IP Address     : 10.1.220.74
Actual Far-end Degree         : 1
Actual Far-end Group          : 1
Actual Far-end Group type     : noEqlzTerm
Conditions                    :
Alarms                        :

Port Name                     : line:1/6/1/1
Operational State             : up
AINS Admin State              : disabled
AINS Timer                    : 08:00
AINS Countdown Timer          :
ID                            :
Optical Power RX              :   0.0 dBm
Optical Power TX              :   0.0 dBm
Optical Loss in RX Direction  :   0.0 dB
Optical Loss in TX Direction  :   0.0 dB
Conditions                   : tLossRxHt: Loss high threshold exceeded, receive.

Alarms                       : tLossRxHt: Loss high threshold exceeded, receive.


Port Name                     : client:1/6/1/1
Operational State             : up
AINS Admin State              : disabled
AINS Timer                    : 08:00
AINS Countdown Timer          :
ID                            :
Optical Power RX              :   0.0 dBm
Optical Power TX              :   0.0 dBm
APR Optical Back Reflection   :   0.0 dB
Optical Loss in TX Direction  :   0.0 dB
Conditions                    :
Alarms                        :

Port Name                     : wdm:1/6/1/1
Admin Status                  : enabled
Operational  State            : up
ID                            :
Fiber-Type                    : ssmf
Post Amp Gain                 : 4.0 dB
Amp Tilt Trim                 : 0.0 dB
Length of Span                : 0  km
Span Loss RX High Threshold   : 10.0 dB
Conditions                    :
Alarms                        :

Port Name                     : dcm:1/6/1/1
Operational State             : up
AINS Admin State              : disabled
AINS Timer                    : 08:00
AINS Countdown Timer          :
ID                            :
Optical Power Loss RX         : 0.0 dB
Conditions                    :
Alarms                        :
```

The unit for back reflection is different on the OSC and Client ports. On the OSC, the unit is dBm. It is a directly-measured power reading since the OSC transmit power is fixed. On the Client port, the unit is dB, since the power reading is the reflected power relative to the transmit power.

show conditions

Syntax **show conditions**

Description This command displays current conditions and alarms.

Related Documentation

- conditions on page 123

Sample Output

```
bti7800# show conditions
conditions
Entity Name   Code           Report Type   Timestamp                 Severity
  Service   Description

Affecting
------------  -------------  -----------   ------------------------- -----------
  --------- ---------------------------------
amp:1/4       eqptComm       non-alarmed   2016-02-17T16:31:48-05:00  not-alarmed
 true      Equipment Mgmt. Communications
amp:1/4       envVoltLowTh   alarmed       2016-02-17T16:31:21-05:00  major
  true      Environment voltage below low threshold
ila:1/5       eqptComm       non-alarmed   2016-02-17T16:31:48-05:00  not-alarmed
 true      Equipment Mgmt. Communications
ila:1/5       envTempHighTh  alarmed       2016-02-17T16:31:21-05:00  major
  true      Environment temperature above high threshold
ufm:1/1       eqptComm       non-alarmed   2016-02-17T16:31:48-05:00  not-alarmed
 true      Equipment Mgmt. Communications
ufm:1/1       envVoltLowTh   alarmed       2016-02-17T16:31:21-05:00  major
  true      Environment voltage below low threshold
ufm:1/10      eqptComm       non-alarmed   2016-02-17T16:31:48-05:00  not-alarmed
 true      Equipment Mgmt. Communications
```

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show cross-connect

Syntax **show cross-connect [all | table]**

Description This command displays detailed information about the configured cross-connects.

Related Documentation

- cross-connect on page 126

Sample Output

The following is the output when using the **all** option:

```
bti7800# show cross-connect all

Cross-connect 001  Source-name                : 10ge:2/1/2/1
Cross-connect 001  Destination-name           : odu2:2/1/1/1.1
Cross-connect 001  Directionality             : 2way
Cross-connect 001  Rate                       : odu2
Cross-connect 001  Service-name               : <null>

Cross-connect 002  Source-name                : 10ge:2/11/2/1
Cross-connect 002  Destination-name           : odu2:2/11/1/1.1
Cross-connect 002  Directionality             : 2way
Cross-connect 002  Rate                       : odu2
Cross-connect 002  Service-name               : <null>
bti7800#
```

The following is the output when using the **table** option:

```
bti7800# show cross-connect table

Cross-Connect     Source-Name           Destination-Name      Directionality
----------------  --------------------  --------------------  --------------
1                 10ge:2/1/2/1          odu2:2/1/1/1.1        2way
2                 10ge:2/11/2/1         odu2:2/11/1/1.1       2way
bti7800#
```

show dol

Syntax **show dol [detail | table]**

Description This command shows all the provisioned DOL components.

Options

Parameter	Description	Range
detail	Displays all DOL components in detailed form	–
table	Displays all DOL components in tabular form. This is the default.	–

Related Documentation

- None

Sample Output

The following output has been truncated for clarity.

```
bti7800# show dol
Dynamic Optical Layer Ports
---------------------------

Port Name           Span Length  OL Id               Custom1  Custom2  Custom3
------------------  -----------  ------------------  -------  -------  -------
port:0/1/0/C1
port:0/1/0/C10

Dynamic Optical Layer Optical Multiplex Sections
------------------------------------------------

Oms Name       Admin State  Oper State  PreAmp State    OL Id  Custom1  Custom2
 Custom3
-------------  -----------  ----------  --------------  -----  -------  -------
 -------
oms:1/5/0/C1   enabled      unknown     Not Applicable
oms:1/5/0/L1   enabled      unknown     disabled

Dynamic Optical Layer Optical Service Channels
----------------------------------------------

OSC Name        Admin State  Oper State  OL Id      Custom1  Custom2  Custom3
--------------  -----------  ----------  ---------  -------  -------  -------
osc:1/5/0/C1    enabled      unknown
osc:1/5/0/L1    enabled      unknown

Dynamic Optical Layer Optical Channels
--------------------------------------

Och Name            Admin State  Oper State  Frequency  Wavelength  Bandwidth
OL Id  Custom1  Custom2  Custom3
```

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```
------------------  -----------  ----------  ---------  ----------  ---------
-----  -------  -------  -------
och:1/6/0/C1/C160   enabled      unknown     191.6      1564.68     50

och:1/6/0/C2/C145   enabled      unknown     191.45     1565.9      50
och:1/6/0/L1/C160   enabled      unknown     191.6      1564.68     50
och:1/8/0/C1/C160   enabled      unknown     191.6      1564.68     50
och:1/8/0/L1/C160   enabled      unknown     191.6      1564.68     50

Dynamic Optical Layer Fiber Connections
---------------------------------------

Endpoint 1     Endpoint 2     Fiber Type  FE Mismatch Mon  Endpoint 1 FE Port
Endpoint 2 FE Port  Endpt 1 Conn Type   En
-------------  -------------  ----------  ---------------  ------------------
------------------  ------------------  --
100ge:1/3/2/1  port:0/1/0/C3  n/a         false
                   ADD-DROP            AD
port:0/1/0/L1  port:1/6/0/C2  n/a         false
                   ADD-DROP            AD
port:1/6/0/C1  port:1/8/0/C1  n/a         false
                   NOT-CONNECTED       NO

Dynamic Optical Layer Optical Channel Cross Connects
----------------------------------------------------

Endpoint 1          Endpoint 2          Name
------------------  ------------------  ------------------
och:1/6/0/L1/C145   100ge:1/3/2/1
och:1/6/0/L1/C160   och:1/8/0/L1/C160
```

show dol fiber-conn

Syntax **show dol fiber-conn [** *endpoint1* **[** *endpoint2* **] | detail | table]**

Description This command shows information on all fiber connections, or information on a particular fiber connection if a particular fiber connection is specified.

Options

Parameter	Description	Range
endpoint1 endpoint2	Displays informatiion for the fiber connection that has the specified endpoints	Existing **fiber-conn** endpoints (for example, **otu4:1/3/2/1**).
detail	Displays informatiion in detailed form	–
table	Displays information in tabular form. This is the default.	–

Related Documentation

- dol fiber-conn on page 128

Sample Output

```
bti7800# show dol fiber-conn
Dynamic Optical Layer Fiber Connections
---------------------------------------

Endpoint 1       Endpoint 2                    Fiber Type  Endpoint 1 FE Port
        Endpoint 2 FE Port
---------------  ----------------------------  ----------
----------------------------  ------------------
otu4:1/2/1/1     port:0/30/0/C49               n/a         NOT-CONNECTED
        NOT-CONNECTED
port:0/30/0/L1   port:1/1/0/C1                 n/a         NOT-CONNECTED
        NOT-CONNECTED
port:1/1/0/C2    port:1/2/0/C2                 n/a         port:1/2/0/C2
        port:1/1/0/C2
port:1/1/0/L1    port:1/1/0/L1@10.228.221.35   ndsf
port:1/1/0/L1@10.228.221.35  REMOTE
```

The **NOT-CONNECTED** designation means that the fiber-conn endpoints are unable to exchange endpoint information. This can occur when the physical fiber is not connected, or when one endpoint is on a UFM or on a multiplexer/demultiplexer. (Sometimes this is shown as a blank instead of **NOT-CONNECTED**).

The **REMOTE** designation under **Endpoint 2 FE Port** occurs when the two endpoints reside on different network elements. This is typically the case for a fiber-conn between line ports, but can also occur for a fiber-conn between client ports in a split ROADM node configuration.

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show dol fixed-grid

Syntax **show dol fixed-grid [** *frequency* **| ch-cw** *wavelength* **| ch-name** *name* **]**

Description This command shows the fixed-grid mapping between frequency, wavelength, and channel name. If no options are specified, the complete fixed-grid mapping is displayed.

Options

Parameter	Description	Range
frequency	Displays the fixed grid mapping for the specified frequency (THz)	191.35 to 196.10
ch-cw *wavelength*	Displays the fixed grid mapping for the specified wavelength (nm)	1528.77 to 1566.72
ch-name *name*	Displays the fixed grid mapping for the specified channel name.	C1 to C96

Related Documentation

- None

Sample Output

```
bti7800# show dol fixed-grid 191.45

CH              CH
FREQ    CH CW   NAME
----------------------
191.45  1565.9  C3
```

show dol och

Syntax **show dol och[:*identifier*] [detail | table]**

Description This command shows information on all optical channels, or information on a particular optical channel if a particular optical channel is specified.

Options

Parameter	Description	Range
och:*identifier*	Displays information on the specified optical channel	An existing optical channel (for example,**och:1/6/0/L1/C160**)
detail	Displays information in detailed form	–
table	Displays informationin tabular form. This is the default.	–

Related Documentation

- dol och on page 131

Sample Output

The following output has been truncated for clarity.

```
bti7800# show dol och

Dynamic Optical Layer Optical Channels
--------------------------------------

Och Name            Admin State  Oper State  Frequency  Wavelength  Bandwidth
OL Id   Cus
------------------  -----------  ----------  ---------  ----------  ---------
------  ---
och:1/6/0/C1/C160   enabled      unknown     191.6      1564.68     50

och:1/6/0/C2/C145   enabled      unknown     191.45     1565.9      50

och:1/6/0/L1/C145   enabled      unknown     191.45     1565.9      50

och:1/6/0/L1/C160   enabled      unknown     191.6      1564.68     50

och:1/8/0/C1/C160   enabled      unknown     191.6      1564.68     50

och:1/8/0/L1/C160   enabled      unknown     191.6      1564.68     50
```

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show dol och-power

Syntax **show dol och-power [och:*identifier*] [detail | table]**

Description This command shows the optical powers for all DOL optical channels, or the optical powers for a particular optical channel if a particular optical channel is specified.

Options

Parameter	Description	Range
och:*identifier*	Displays optical powers for the specified optical channel	An existing optical channel (for example,**och:1/6/0/C1/C160**).
detail	Displays optical powers in detailed form	–
table	Displays optical powers in tabular form. This is the default	–

Related Documentation

- dol och on page 131

Sample Output

```
bti7800# show dol och-power

Och name            Frequency (THz)  Receive (dBm)  Transmit (dBm)
------------------  ---------------  -------------  --------------
och:1/6/0/C1/C160   191.6
och:1/6/0/C2/C145   191.45
och:1/6/0/L1/C145   191.45
och:1/6/0/L1/C160   191.6
och:1/8/0/C1/C160   191.6
och:1/8/0/L1/C160   191.6
```

show dol och-xcon

Syntax **show dol och-xcon [*endpoint*] [detail | table]**

Description This command shows information on all optical channel cross-connects, or information on a particular optical channel cross-connect if a particular optical channel cross-connect endpoint is specified.

Options

Parameter	Description	Range
endpoint	Displays the optical channel cross-connect that includes the specified endpoint	An existing optical channel cross-connect endpoint (for example, **och:1/6/0/C2/C145**)
detail	Displays information in detailed form	–
table	Displays information in tabular form. This is the default.	–

Related Documentation

- dol och-xcon on page 134

Sample Output

```
bti7800# show dol och-xcon och:1/8/0/L1/C160 detail

Endpoint 1               : och:1/6/0/L1/C160
Endpoint 2               : och:1/8/0/L1/C160
Service Name             :
```

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show dol oms

Syntax **show dol oms[:*identifier*] [detail | table]**

Description This command shows information on all optical multiplex sections, or information on a particular optical multiplex section if a particular optical multiplex section is specified.

Options

Parameter	Description	Range
oms:*identifier*	Displays information on the specified OMS	An existing optical multiplex section (for example, **oms:1/5/0/C1**)
detail	Displays information in detailed form	–
table	Displays information in tabular form. This is the default	–

Related Documentation

- dol oms on page 137

Sample Output

The following output has been truncated for clarity.

```
bti7800# show dol oms

Dynamic Optical Layer Optical Multiplex Sections
------------------------------------------------

Oms Name       Admin State  Oper State  PRE State       OL Id  Custo
-------------  -----------  ----------  --------------  -----  -----
oms:1/5/0/C1   enabled      unknown     Not Applicable
oms:1/5/0/L1   enabled      unknown     disabled
oms:1/6/0/C1   enabled      unknown     Not Applicable
oms:1/6/0/C2   enabled      unknown     Not Applicable
oms:1/6/0/L1   enabled      unknown     disabled
oms:1/8/0/C1   enabled      unknown     Not Applicable
oms:1/8/0/C2   enabled      unknown     Not Applicable
oms:1/8/0/L1   enabled      unknown     disabled
oms:1/9/0/C1   enabled      unknown     Not Applicable
oms:1/9/0/C2   enabled      unknown     Not Applicable
oms:1/9/0/L1   enabled      unknown     disabled
```

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show dol osc

Syntax **show dol osc[:*identifier*] [detail | table]**

Description This command shows information on all optical service channels, or information on a particular optical service channel if a particular optical service channel is specified.

Options

Parameter	Description	Range
osc:*identifier*	Displays information on the specified OSC	An existing optical service channel (for example, **osc:1/5/0/L1**)
detail	Displays information in detailed form	–
table	Displays information in tabular form. This is the default.	–

Related Documentation

- dol osc on page 140

Sample Output

```
bti7800# show dol osc

Dynamic Optical Layer Optical Service Channels
----------------------------------------------

OSC Name        Admin State  Oper State  OL Id  Custom1  Custom2  Custom3
--------------  -----------  ----------  -----  -------  -------  -------
osc:1/5/0/C1    enabled      unknown osc:1/5/0/L1    enabled      unknown
osc:1/6/0/C1    enabled      unknown osc:1/6/0/C2    enabled      unknown
osc:1/6/0/L1    enabled      unknown osc:1/8/0/C1    enabled      unknown
osc:1/8/0/C2    enabled      unknown osc:1/8/0/L1    enabled      unknown
osc:1/9/0/C1    enabled      unknown osc:1/9/0/C2    enabled      unknown
osc:1/9/0/L1    enabled      unknown
```

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show dol port

Syntax **show dol port[:*identifier*] [detail | table]**

Description This command shows information on all DOL ports, or information on a particular DOL port if a particular DOL port is specified.

Options

Parameter	Description	Range
port:*identifier*	Displays information on the specified port	An existing DOL port (for example, **port:1/5/0/L1**)
detail	Displays information in detailed form	–
table	Displays information in tabular form. This is the default.	–

Related Documentation

- dol port on page 143

Sample Output

```
bti7800# show dol port:1/5/0/PRE

Dynamic Optical Layer Ports
---------------------------

Port Name           OL Id  Custom1  Custom2  Custom3
------------------  -----  -------  -------  -------
port:1/5/0/PRE
```

show environment

Syntax **show environment [all | current | fanspeed | power | temperature | voltage]**

Description This command displays the environmental sensor readings for installed and provisioned equipment.

Options

Parameter	Description
all	Displays all sensor readings. This is the default setting.
current	Displays the (electrical) current sensor readings on BTI7814 AC PEMs
fanspeed	Displays the fan speed sensor readings
power	Displays the power module sensor readings
temperature	Displays the temperature sensor readings for all equipment
voltage	Displays the input voltage sensor readings for all the equipment

Related Documentation

- None.

Sample Output

```
bti7800# show environment
Results collected on Fri Nov 22 05:00:11 2013:

Fan Speed

Chassis:1
Module      Sensor                  Measurement
---------   ---------------------   -------------
fan:1/1     Fan RPM                 1800 rpm(34%)
fan:1/2     Fan RPM                 1760 rpm(33%)
fan:1/3     Fan RPM                 1680 rpm(32%)
fan:1/4     Fan RPM                 1760 rpm(33%)
fan:1/5     CBM FAN1 RPM            3036 rpm(58%)
fan:1/6     CBM FAN2 RPM            3082 rpm(59%)

Power

Chassis:1
Module      Sensor                  Measurement
---------   ---------------------   -------------
pem:1/1     PEM A1 Input 48V        Power Present
pem:1/2     PEM A2 Input 48V        Power Present
```

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```
Temperatures

Chassis:1
Module      Sensor                  Measurement
---------   ---------------------   -------------
amp:1/4     Line card Temp           49 deg C
bic:1/1/1   BIC Temp                 63 deg C
bic:1/1/2   BIC Temp                 50 deg C
bic:1/3/1   BIC Temp                 36 deg C
bic:1/3/2   BIC Temp                 35 deg C
bic:1/10/1  BIC Temp                 73 deg C
bic:1/10/2  BIC Temp                 55 deg C
bic:1/12/1  BIC Temp                 76 deg C
bic:1/12/2  BIC Temp                 52 deg C
cmm:1/A     CMM Temp                 61 deg C
cmm:1/B     CMM Temp                 55 deg C
fan:1/1     Exhaust Temp             26 deg C
fan:1/1     FAN Temperature          29 deg C
fan:1/2     Exhaust Temp             27 deg C
fan:1/2     FAN Temperature          28 deg C
fan:1/3     Exhaust Temp             27 deg C
fan:1/3     FAN Temperature          28 deg C
fan:1/4     Exhaust Temp             28 deg C
fan:1/4     FAN Temperature          28 deg C
fan:1/5     CBM FAN1 Exhaust         28 deg C
fan:1/6     CBM FAN2 Exhaust         27 deg C
pem:1/1     PEM A1 Temperatu         28 deg C
pem:1/2     PEM A1 Temperatu         27 deg C
ufm:1/1     Line card Temp           47 deg C
ufm:1/3     Line card Temp           37 deg C
ufm:1/10    Line card Temp           46 deg C
ufm:1/12    Line card Temp           49 deg C
ufm:1/13    Line card Temp           49 deg C

Voltages

Chassis:1
Module      Sensor                  Measurement
---------   ---------------------   -------------
amp:1/4     12V_MAIN                  1.980 Volts
amp:1/4     2V5_CORE                  2.479 Volts
amp:1/4     2V5_IO                    2.479 Volts
amp:1/4     3V3_MAIN                  3.281 Volts
amp:1/4     3V3_STBY                  0.674 Volts
amp:1/4     5V_MAIN                   4.920 Volts
ufm:1/1     12V_MAIN                  1.980 Volts
ufm:1/1     2V5_CORE                  2.479 Volts
ufm:1/1     2V5_IO                    2.439 Volts
ufm:1/1     3V3_MAIN                  3.281 Volts
ufm:1/1     3V3_STBY                  0.674 Volts
ufm:1/1     5V_MAIN                   4.920 Volts
ufm:1/10    12V_MAIN                  1.980 Volts
ufm:1/10    2V5_CORE                  2.439 Volts
ufm:1/10    2V5_IO                    2.479 Volts
ufm:1/10    3V3_MAIN                  3.281 Volts
ufm:1/10    3V3_STBY                  0.674 Volts
ufm:1/10    5V_MAIN                   4.840 Volts
ufm:1/12    12V_MAIN                  1.980 Volts
ufm:1/12    2V5_CORE                  2.479 Volts
ufm:1/12    2V5_IO                    2.479 Volts
ufm:1/12    3V3_MAIN                  3.281 Volts
```

```
ufm:1/12    3V3_STBY                  0.674 Volts
ufm:1/12    5V_MAIN                   4.920 Volts
ufm:1/13    12V_MAIN                  1.980 Volts
ufm:1/13    2V5_CORE                  2.479 Volts
ufm:1/13    2V5_IO                    2.479 Volts
ufm:1/13    3V3_MAIN                  3.281 Volts
ufm:1/13    3V3_STBY                  0.674 Volts
ufm:1/13    5V_MAIN                   4.920 Volts
```


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show equipment

Syntax **show equipment [all | bic | preamplifier | transceiver]**

Description This command displays provisioned equipment.

Options

Parameter	Description	Range	Default
all	Displays all provisioned equipment in the system	–	By default, all provisioned equipment is displayed
bic	Displays all provisioned BICs in the system	–	By default, all provisioned equipment is displayed
chassis	See show equipment module.		
module	See show equipment module.		
preamplifier	Displays all provisioned PRE modules in the system	–	By default, all provisioned equipment is displayed
transceiver	Displays all provisioned transceivers in the system	–	By default, all provisioned equipment is displayed

Additional Information The operational state or status can take on the following values:

- up - The specified equipment is present, administratively enabled, and functioning normally.
- down - The specified equipment is either administratively disabled, mismatched, or alarmed with a fault that makes it unable to provide its provisioned function.
- notPresent - The equipment is not present in the location for which it is provisioned.
- lowerLayerDown - Supporting equipment is reporting an operational state of down.
- unknown - The operational state of the specified equipment cannot be determined, possibly because it is rebooting.

Related Documentation

- equipment on page 145

Sample Output

```
bti7800# show equipment

Chassis          PEC          Admin State  Oper State  Custom1  Custom2  Custo
---------------  -----------  -----------  ----------  -------  -------  ----
chassis:1        BT8A78CH14   enabled      up
```

```
Module      PEC             Admin State  Oper State  Custom1  Custom2  Custom3
----------  --------------  -----------  ----------  -------  -------  -------
amp:1/4     BT8A78AMP1      enabled      down
cmm:1/A     BT8A78CMM1      enabled      up
cmm:1/B     BT8A78CMM1      enabled      up
fan:1/1     BT8A78FAN1      enabled      up
fan:1/2     BT8A78FAN1      enabled      up
fan:1/3     BT8A78FAN1      enabled      up
fan:1/4     BT8A78FAN1      enabled      up
fan:1/5     BT8A78FAN5      enabled      up
fan:1/6     BT8A78FAN5      enabled      up
ila:1/5     BT8A78AMPL      enabled      down
pem:1/1     BT8A78PEM3-DC   enabled      up
pem:1/2     BT8A78PEM3-DC   enabled      up
roadm:1/8   BT8A78RDM2      enabled      down
roadm:1/9   BT8A78RDM2      enabled      down
ufm:1/1     BT8A78UFM3      enabled      down
ufm:1/3     BT8A78UFM3      enabled      up
ufm:1/10    BT8A78UFM3      enabled      down
ufm:1/13    BT8A78UFM4      enabled      down
wps:1/12    BT8A78WPS4      enabled      down

BIC            PEC           Admin State  Oper State  Custom1  Custom2  Custom3
-------------  ------------  -----------  ----------  -------  -------  -------
bic:1/1/1      BT8A78SFP12G  enabled      down
bic:1/1/2      BT8A78CFP1G   enabled      down
bic:1/3/1      BT8A78SFP12G  enabled      up
bic:1/3/2      BT8A78CFP1G   enabled      up
bic:1/10/1     BT8A78SFP12G  enabled      down
bic:1/10/2     BT8A78CFP1G   enabled      down

Transceiver          PEC           Admin State  Oper State   Optical Format
-------------------  ------------  -----------  -----------  --------------
sfpPlus:1/3/1/1                    enabled      up           fixedX1
sfpPlus:1/3/1/2                    enabled      up           fixedX1
sfpPlus:1/3/1/3                    enabled      up           fixedX1
sfpPlus:1/3/1/4                    enabled      up           fixedX1
sfpPlus:1/3/1/5                    enabled      up           fixedX1
sfpPlus:1/3/1/6                    enabled      up           fixedX1
sfpPlus:1/3/1/7                    enabled      up           tunableX1
sfpPlus:1/3/1/8                    enabled      up           tunableX1
sfpPlus:1/3/1/9                    enabled      up           tunableX1
sfpPlus:1/3/1/10                   enabled      up           tunableX1
sfpPlus:1/3/1/11                   enabled      up           tunableX1
sfpPlus:1/3/1/12                   enabled      up           tunableX1
cfp:1/3/2/1          BP3AMDTL      enabled      up           tunableX1

Preamplifier         PEC           Oper State       Custom1  Custom2  Custom3
-------------------  ------------  ---------------  -------  -------  -------
pre:1/8/1            BT8A78AMPP    notPresent
```


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show equipment module

Syntax

show equipment [*chassis_id* **] module [** *module_id* **[bic [** *bic_id* **[transceiver [** *transceiver_id* **]]]] [operational-status [** *status* **]]]**
show equipment [*chassis_id* **] module [** *module_id* **[transceiver [** *transceiver_id* **]] [operational-status [** *status* **]]]**

Description

This command displays provisioned modules and provisioned equipment that the modules contain (at varying levels of specificity).

Options

Parameter	Description	Range	Default
chassis_id	Restricts displayed equipment to the specified chassis. NOTE: The information displayed for the same equipment differs slightly depending on whether the chassis is or is not specified. See examples below.	A valid chassis identifier (for example, **chassis:1**)	If no chassis is specified, the displayed equipment can be from any chassis.
module [*module_id*]	Restricts displayed equipment to the specified module.	A valid module identifier (for example, **ufm:1/3**)	If no module is specified, the displayed equipment can be from any module.
bic [*bic_id*]	Restricts displayed equipment to the specified BIC. This option is only available if the containing module is a UFM.	A valid BIC identifier (for example, **bic:1/3/1**) for the specified module	If no BIC is specified, the displayed equipment can be from any BIC.
transceiver [*transceiver_id*]	Restricts displayed equipment to the specified transceiver. This option is only available if the containing module is a UFM.	A valid transceiver identifier (for example, **cfp:1/3/2/1**) for the specified BIC or UFM	If no transceiver is specified, the displayed equipment can be from any transceiver.
operational-status [*status*]	Restricts displayed equipment to the specified operational status.	The following are the valid status values: • dormant • down • lowerLayerDown • notPresent • testing • unknown • up	If no *status* is specified, the displayed equipment can contain any operational status.

Additional Information

The operational state or status can take on the following values:

- up - The specified equipment is present, administratively enabled, and functioning normally.
- down - The specified equipment is either administratively disabled, mismatched, or alarmed with a fault that makes it unable to provide its provisioned function.

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- notPresent - The equipment is not present in the location for which it is provisioned.
- lowerLayerDown - Supporting equipment is reporting an operational state of down.
- unknown - The operational state of the specified equipment cannot be determined, possibly because it is rebooting.

Related Documentation

- equipment on page 145

Sample Output

To display all modules:

```
bti7800# show equipment module
Module      PEC             Admin State  Oper State  Custom1  Custom2  Custom3
----------  --------------  -----------  ----------  -------  -------  -------
amp:1/4     BT8A78AMP1      enabled      down
cmm:1/A     BT8A78CMM1      enabled      up
cmm:1/B     BT8A78CMM1      enabled      up
fan:1/1     BT8A78FAN1      enabled      up
fan:1/2     BT8A78FAN1      enabled      up
fan:1/3     BT8A78FAN1      enabled      up
fan:1/4     BT8A78FAN1      enabled      up
fan:1/5     BT8A78FAN5      enabled      up
fan:1/6     BT8A78FAN5      enabled      up
ila:1/5     BT8A78AMPL      enabled      down
pem:1/1     BT8A78PEM3-DC   enabled      up
pem:1/2     BT8A78PEM3-DC   enabled      up
roadm:1/8   BT8A78RDM2      enabled      down
roadm:1/9   BT8A78RDM2      enabled      down
ufm:1/1     BT8A78UFM3      enabled      down
ufm:1/3     BT8A78UFM3      enabled      up
ufm:1/10    BT8A78UFM3      enabled      down
ufm:1/13    BT8A78UFM4      enabled      down
wps:1/12    BT8A78WPS4      enabled      down
```

To display all transceivers on a specific BIC:

```
bti7800# show equipment chassis:1 module ufm:1/3 bic bic:1/3/1 transceiver

Transceiver        PEC            Optical-Format  Admin    Oper  Custom1  Custom2
  Custom3
------------------ -------------- --------------- -------- ----  -------  -------
  -------
sfpPlus:1/3/1/1                    fixedX1         up       up
sfpPlus:1/3/1/2                    fixedX1         up       up
sfpPlus:1/3/1/3                    fixedX1         up       up

sfpPlus:1/3/1/4                    fixedX1         up       up
sfpPlus:1/3/1/5                    fixedX1         up       up
sfpPlus:1/3/1/6                    fixedX1         up       up
sfpPlus:1/3/1/7                    tunableX1       up       up
sfpPlus:1/3/1/8                    tunableX1       up       up
sfpPlus:1/3/1/9                    tunableX1       up       up
sfpPlus:1/3/1/10                   tunableX1       up       up

sfpPlus:1/3/1/11                   tunableX1       up       up
sfpPlus:1/3/1/12                   tunableX1       up       up
```

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show history

Syntax **show history [*number*]**

Description This command displays the most recent commands in the CLI operational mode command history.

Options

Parameter	Description	Range
number	The number of most recent commands to show	0 to 32000

Related Documentation

- None

Sample Output

```
bti7800# show history

16:16:28 -- config
16:22:45 -- config
16:58:25 -- show running-config
16:59:33 -- show running-config equipment module bic transceiver
16:59:37 -- show running-config equipment module bic transceiver sfpPlus:1/3/1/2

17:02:39 -- config
```

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show interface

Syntax **show interface [*name:identifier*] | [ethernet | odu | otu | sonet | virtual] [detail | table | counters]**

Description This command displays information on a specific interface, or on all interfaces if an interface is not specified.

Options

Parameter	Description
interface *name:identifier*	The interface to display. If no interface is specified, then all interfaces matching the subsequent qualifiers are displayed. See interface for syntax.
ethernet	Displays Ethernet interfaces
odu	Displays ODU interfaces
otu	Displays OTU interfaces
sonet	Displays SONET interfaces
virtual	Displays virtual (mgt) interfaces
detail	Displays detailed information
table	Displays information in table form
counters	Displays counters in table form. This option is only available when **virtual** is selected.

Related Documentation

- interface on page 173

Sample Output

The following example displays all configured OTU interfaces in table form. The output has been truncated for clarity.

```
bti7800# show interface otu table

OTU Interface Table
Name                Admin State  Oper State      Frequency    Wavelength  Laser
Admin  Laser Oper    Loopback    FE
------------------  -----------  --------------  -----------  ----------
-----------  ------------  ----------  --
otu2:1/3/1/3        enabled      up                      n/a         n/a  enabled
      unknown       noloopback  g_f
```

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```
otu2:1/3/1/4        enabled      up                        n/a         n/a  enabled
      unknown       noloopback  g_f
```

show interface lldp

Syntax **show interface lldp [detail | table] [*name:identifier*]**

Description This command can display information for Ethernet interfaces with LLDP snooping enabled.

Options

Parameter	Description
detail	Displays detailed information
table	Displays information in table form
name:identifier	The interface to display. If no interface is specified, then all interfaces matching the subsequent qualifiers are displayed. See interface for syntax. NOTE: When an LLDP-enabled interface is operationally down, LLDP data can be retrieved only until the Time-to-Live counter expires.

Related Documentation

- interface on page 173

Sample Output

The following example displays all Ethernet interfaces with LLDP snoooping enabled in table format:

```
bti7800# show interface lldp table

Lldp Interface Table
Local Interface Chassis ID         Port ID                Port Description
SystemName Management Address
--------------- ---------------    -----------------      -----------------
---------- ------------------
10ge:1/1/1/2/4  194:88:2.1         00:12:95:00:00:03      Test Port         Test
 Ctr   10.10.96.235
100ge:1/1/1/7/2 193:88:2.1         00:12:95:00:00:04
```

The following example displays neighbor data for an Ethernet interface with LLDP snooping enabled:

```
bti7800# show interface lldp 10ge:1/1/1/2/4

Local Name: 10ge:1/2/2/1
Time To Live: 240 seconds
Chassis ID type: MAC address
Chassis ID: 194:88:2.1
Port ID Type: interface name
Port ID: 00:12:95:00:00:03
```

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```
Port Description: Test
Port System Name: Test Ctr
System Description: Juniper Networks ex4200-49p
System Capabilities Supported: Bridge Router
System Capabilities Enabled: Bridge Router
Management Address Type: IPv4
Management Address: 10.10.96.235
Management Interface Subtype: if-index
Management Interface Number: 35
Management Address OID: 1.3.6.1.2.1.31.1.1.1.1.34
```

show inventory

Syntax

show inventory [bic | module | preamplifier | transceiver] [*name:location* **] [** *options* **]**
show inventory [*chassis_id* **] [** *options* **]**
show inventory bic [*bic_id* **] [** *options* **]**
show inventory module [*module_id* **] [** *options* **]**
show inventory preamplifier [*preamplifier_id* **] [** *options* **]**
show inventory transceiver [*transceiver_id* **] [** *options* **]**

Description

This command displays a list of the specified components in the chassis. If no components are specified, all components are listed.

Options

- *options* - You can choose to display only those components that match a particular field, such as all components produced by a specified vendor. The available fields to match vary depending on the component. Type ? for *options* to see the full list of fields.

Related Documentation

- None

Sample Output

The following example shows the inventory for chassis 1 (partial output only):

```
bti7800# show inventory chassis:1

inventory chassis:1
 short-name    Chassis
 full-name     "BTI ATLAS 14 Slot System"
 pec           BT8A78CH14
 CLEI          ""
 revision      1
 issue         1
 serial-number 2013VM-0001
 vendor        "Comtel Electronics GmbH"
Name      Short-Name  Full-Name                          PEC            Se
--------- ----------  ------------------------------     ------------   --
amp:1/4   AMP         Universal Forwarding Modules       BT8A78AMP1     BT
app:1/1   APP         ATCA-7480                                         BT
cmm:1/A   CMM         Chassis Management Module          BT8A78CMM1     BT
cmm:1/B   CMM         Chassis Management Module          BT8A78CMM1     BT
fan:1/1   FAN         BLOWER,RICOOL3/A04                 BT8A78FAN1     RL
fan:1/2   FAN         BLOWER,RICOOL3/C21                 BT8A78FAN1     RL
fan:1/3   FAN         BLOWER,RICOOL3/A04                 BT8A78FAN1     RL
```

The following example shows all modules that match the specified PEC:

```
bti7800# show inventory chassis:1 module pec BT8A78FAN1

Name      Short-Name  Full-Name                          PEC            Se
--------- ----------  ------------------------------     ------------   --
fan:1/1   FAN         BLOWER,RICOOL3/A04                 BT8A78FAN1     RL
fan:1/2   FAN         BLOWER,RICOOL3/C21                 BT8A78FAN1     RL
```


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```
fan:1/3   FAN        BLOWER,RICOOL3/A04                BT8A78FAN1     RL
fan:1/4   FAN        BLOWER,RICOOL3/A04                BT8A78FAN1     RL
```

show ip route

Syntax **show ip route [summary]**

Description This command shows current routes in the routing information base.

Options

Parameter	Description	Range
summary	Displays summary information only	–

Related Documentation

- show ip route unicast on page 274

Sample Output

```
bti7800# show ip route

Codes: E1 - OSPF external type 1, E2 - OSPF external type 2
IA - OSPF inter area, iA - OSPF intra area,
L1 - IS-IS level-1, L2 - IS-IS level-2
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
* - candidate default

Prot Type   Dest Address/Mask   Next-hop        Age         Interface name
 Metric
---- ----   -----------------   --------        ---         --------------
 ------
ISIS        0.0.0.0/0           0.0.0.0         00:20:28    mgt:2
 115/20
connected   10.229.17.100/30    10.229.17.101   00:33:37    sysmgt
local       10.229.17.101/32    0.0.0.0         00:33:37    directly connected
ISIS        10.229.17.104/30    0.0.0.0         00:19:43    mgt:1
 115/20
ISIS        10.229.17.108/30    0.0.0.0         00:19:43    mgt:1
 115/30
ISIS        10.229.17.112/30    0.0.0.0         00:20:29    mgt:2
 115/20
ISIS        10.229.17.116/30    0.0.0.0         00:19:59    mgt:2
 115/30
ISIS        10.229.17.120/30    0.0.0.0         00:19:44    mgt:1
 117/63
ISIS        10.229.17.124/30    0.0.0.0         00:19:44    mgt:1
```

```
bti7800# show ip route summary

IP routing table name is Default-IP-Routing-Table
Family          Total routes
ipv4 unicast    8

RTM ID     Admin     Oper status     Number routes
------     -----     -----------     -------------
1          up        up              8
```

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show ip route unicast

Syntax **show ip route unicast** *ip_address*

Description This command shows all current dynamic IP unicast routes, or a specific route if an IP address or subnet is specified.

Options

Parameter	Description	Range
ip_address	The IPv4 address or the IP subnet of the dynamic route to be displayed	Standard dotted decimal notation with or without prefix length (for example, 192.168.1.0/24 or 192.168.1.100)

Related Documentation

- show ip route on page 272

Sample Output

```
bti7800# show ip route unicast 10.229.17.104/30

Routing entry for 10.228.17.104 (mask 255.255.255.252)
Known via 'isis', distance 115, metric 20
   Redistributing via isis
   Last update from 0.0.0.0 00:00:00 ago
Routing Descriptor Blocks:
* 0.0.0.0 directly connected, via mgt:1 00:00:00 ago
```


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show isis

Syntax **show isis [brief | detail | extensive]**

Description This command shows information on the IS-IS protocol.

Options

Parameter	Description	Range
brief	Displays brief or summary information for IS-IS. This is the default.	–
detail	Displays detailed information for IS-IS	–
extensive	Displays extensive information for IS-IS	–

Related Documentation

- router isis on page 197

Sample Output

```
bti7800# show isis detail

IS-IS instance: 1; Version: one; Oper status: up
Updates pending: 0; Updates merged: 0
Checksum pending: 0
Timers:
Wait time: 60 secs; LSP refresh interval: 900 secs
Max LSP lifetime: 65535 secs; Zero age lifetime: 60 secs
RTM purge time: 60 secs; SPF max wait time: 5000 secs
```

```
bti7800# show isis extensive

SVT-101# show isis extensive
IS-IS instance: 1; Version: one; Oper status: up
Updates pending: 0; Updates merged: 0     C
hecksum pending: 0
Timers:
Wait time: 60 secs; LSP refresh interval: 900 secs
Max LSP lifetime: 65535 secs; Zero age lifetime: 60 secs
RTM purge time: 60 secs; SPF max wait time: 5000 secs
Level-1, Overload state:on
Min LSP generation: 30000 msecs
System ID: 1119.2222.3378.00
Router hostname: n/a
```

show isis counters

Syntax **show isis counters [control-packets | system-counters [level-1 | level-2]]**

Description This command shows IS-IS protocol counters.

Options

Parameter	Description	Range
control-packets	Displays IS-IS control packet counters.	–
system-counters [level-1|level-2]	Displays IS-IS system counters. This is the default. If the IS-IS level is not specified, system counters for both levels are displayed.	–

Related Documentation

- router isis on page 197

Sample Output

```
bti7800# show isis counters system-counters level-1

IS-IS Level-1 System Counters:
Authenticate failures:                  0; ID field length mismatch:       0

Authenticate type mismatch:             0; Partition changes:              0

Discarded CSNP:                         0; Received own lsp:               0

Discarded PSNP:                         0; Sequence numbers skipped:       1

Dropped manual address:                 0; SPF runs:                       11

Exceeded max sequence:                  0

LSP corrupted:                          0; LSP overloaded database:        1

LSP count:                              14; LSP queue length:              0

LSP discarded:                          0; LSP regenerated:                6

LSP initiated purges:                   0; LSP retransmited:               0

LSP local frag generated:               7

LSP purges init locally:                0; Expired LSP purges:             0

LSP purges init remotely:               0; Peer restart LSP purges:        0

LSP purges init by SNP:                 0
```

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```
IS-IS Control Packet Counters:
IS-IS Instance: 1; Interface Name: mgt:1
Level-1: sending
IS-IS Hello PDU:       749; Unknown PDU:                0;
ES-IS Hello PDU:         0; Discarded IIH PDUs:         0;
ES Hello PDU:            0; Discarded LSPs:             0;
IS-IS LSP:              25; Discarded CNSPs:            0;
IS-IS CNSP:            195; Discarded PSNPs:            0;
IS-IS PSNP:             14;

IS-IS Instance: 1; Interface Name: mgt:1
Level-1: receiving
IS-IS Hello PDU:       739; Unknown PDU:                0;
ES-IS Hello PDU:         0; Discarded IIH PDUs:         0;
ES Hello PDU:            0; Discarded LSPs:             0;
IS-IS LSP:              14; Discarded CNSPs:            0;
IS-IS CNSP:            195; Discarded PSNPs:            0;
```

show isis database

Syntax **show isis database [level1 | level2] [brief | detail | extensive]**

Description This command shows the IS-IS routing database.

Options

Parameter	Description	Range
level1/level2	Displays the IS-IS database. If the IS-IS level is not specified, both the level 1 and level 2 databases are displayed.	–
brief	Displays brief or summary information. This is the default.	–
detail	Displays detailed information.	–
extensive	Displays extensive information.	–

Related Documentation

- router isis on page 197

Sample Output

```
bti7800# show isis database level1 brief

IS-IS Level-1 Link State Database
LSPID                  LSP Seq Num  LSP Checksum  LSP Holdtime  ATT/P/OL
-----                  -----------  ------------  ------------  --------
0000.0000.1116.00-00*   0x000004A8    0x000065D6           937     0/0/0
0000.0000.1116.00-01*   0x00000501    0x000040FB           976     0/0/0
0000.0000.1116.00-02*   0x00000133    0x0000B945          1187     0/0/0
0000.0000.1116.00-03*   0x00000135    0x0000A565           574     0/0/0
0000.0000.1116.00-04*   0x00000136    0x0000BB20          1079     0/0/0
0000.0000.1116.00-05*   0x00000133    0x000047AB          1008     0/0/0
0000.0000.1116.00-06*   0x00000137    0x00006E7C           395     0/0/0
0000.0000.1116.00-07*   0x00000136    0x00000AD7          1036     0/0/0
0000.0000.1116.00-08*   0x00000131    0x0000F212           827     0/0/0
0000.0000.1116.00-09*   0x00000132    0x00005C9F          1089     0/0/0
0000.0000.1116.00-0a*   0x00000132    0x00009553          1141     0/0/0
0000.0000.1116.00-0b*   0x0000005E    0x0000D9D9           487     0/0/0
0000.0000.1116.00-0c*   0x0000005E    0x000009A6           932     0/0/0
0810.8108.1081.00-00    0x00000526    0x00002E2A           447     0/0/0
0810.8108.1081.02-00    0x0000050B    0x0000E8D1           498     0/0/0
```

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show isis interface

Syntax **show isis interface [brief | detail | extensive]**

Description This command shows IS-IS interface information.

Options

Parameter	Description	Range
brief	Displays brief or summary information. This is the default.	–
detail	Displays detailed information.	–
extensive	Displays extensive information. This option provides the most information.	–

Related Documentation

- router isis interface on page 198

Sample Output

```
bti7800# show isis detail

Interface: mgt:1; Oper state : up; Admin state : enable
Routing Protocol: IS-IS; IS-IS instance : 1
IS-IS oper state: up; T1 timer running: no
Last time circuit up:  0 days, 00:41:32; Manual or automatic: both
Three-way handshake: yes; Extended three-way Circuit ID: 306

Interface: mgt:2; Oper state : up; Admin state : enable
Routing Protocol: IS-IS; IS-IS instance : 1
IS-IS oper state: up; T1 timer running: no
Last time circuit up:  0 days, 00:41:32; Manual or automatic: both
Three-way handshake: yes; Extended three-way Circuit ID: 562

Interface: sysmgt; Oper state : up; Admin state : enable
Routing Protocol: IS-IS; IS-IS instance : 1
IS-IS oper state: up; T1 timer running: no
Last time circuit up:  0 days, 00:55:16; Manual or automatic: both
Three-way handshake: yes; Extended three-way Circuit ID: 28165
```

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show isis neighbors

Syntax **show isis neighbors [brief | detail | extensive]**

Description This command shows IS-IS neighbor information.

Options

Parameter	Description	Range
brief	Displays brief or summary information. This is the default.	–
detail	Displays detailed information.	–
extensive	Displays extensive information. This option provides the most information.	–

Related Documentation

- router isis on page 197

Sample Output

```
bti7800# show isis neighbors detail

Type : level-1; Op state : up
System ID : 1119.2222.3338.00; IS-IS instance : 1
Interface name : mgt:1       SNPA : 64:69:65:01:00:00; Circuit ID : 306
Hostname : none; Three-way state : up
Usage type : level-1; Up time :  0 days, 00:44:23
Hold time : 27 secs; Priority : 0; Suppressed : no
Restart supported : no; Restart state : not restarting
LAN ID : ; LAN hostname : none

Type : level-1; Op state : up
System ID : 1119.2222.3335.00; IS-IS instance : 1
Interface name : mgt:2       SNPA : 64:69:65:02:00:00; Circuit ID : 562
Hostname : host_1; Three-way state : up
Usage type : level-1; Up time :  0 days, 00:44:40
Hold time : 29 secs; Priority : 0; Suppressed : no
Restart supported : no; Restart state : not restarting
LAN ID : ; LAN hostname : none
```

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show isis reachable address

Syntax **show isis reachable address [brief | detail | extensive]**

Description This command shows information about IS-IS IP/IPv6 reachable addresses manually configured on the system or learned from another protocol.

Options

Parameter	Description	Range
brief	Displays brief or summary information. This is the default.	–
detail	Displays detailed information.	–
extensive	Displays extensive information. This option provides the most information.	–

Related Documentation

- router isis on page 197

Sample Output

```
bti7800# show isis reachable address detail

IS-IS instance : 1
Destination address: 10.229.17.100; Length : 30
Dest type: ipv4; Dest admin: enable; Learned type: automatic
Metric: 10; Full metric: 10; Metric type: internal
Route source: direct; MT ID: 0
```

show log

Syntax **show log [from *time* | monitor | to *time*]**

Description This command displays system activity logs and allows you to monitor and view information for performance monitoring, troubleshooting, and debugging purposes.

Options

Parameter	Description
from *time*	Shows system logs from the time specified, in the format YYYY-MM-DDTHH:MM:SS
monitor	Shows the current system activity. Type Ctrl-C to exit.
to *time*	Shows system logs up to the time specified, in the format YYYY-MM-DDTHH:MM:SS
from *time* **to** *time*	Shows system logs between the times specified

Additional Information The output is interpreted based on the following log message types:

Message Type	Log Description	Information Displayed
Audit	Messages associated with user login and logout events	Username User group Time Interface used to access (if available) Login/Logout
Configuration	Messages associated with system configuration, including modifications and deletions	Username Time Creating/Modification/Deletion Committed configuration changes
Command action	Messages associated with system commands	Username Time Command Command success/failure

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Message Type	Log Description	Information Displayed
Operational state change logs	Messages associated with the following: 1. Interface Operational State: Up/Down 2. Alarms/Conditions: Raised/Cleared 3. Equipment Operational State: Up/Down/LowerLayerDown/AINS/NotPresent	Time Interface/Equipment/Entity Name State/Alarm/Condition

Related Documentation

- None

Sample Output

The following example is a portion of a log display:

```
bti7800# show log

2017-02-27T14:29:40.235377-05:00 [system.0] INFO/EM.EQPT-OPER-STATE-CHG:
operational state change for chassis:1 down (from unknown)
2017-02-27T14:29:40.414225-05:00 [system.0] INFO/EM.EQPT-OPER-STATE-CHG:
operational state change for pem:1/2 down (from unknown)
2017-02-27T14:29:42.183976-05:00 [system.0] INFO/EM.EQPT-OPER-STATE-CHG:
operational state change for fan:1/5 down (from unknown)
2017-02-27T14:29:42.489986-05:00 [system.0] INFO/EM.EQPT-OPER-STATE-CHG:
operational state change for cmm:1/A down (from unknown)
2017-02-27T14:29:42.845581-05:00 [system.0] INFO/EM.EQPT-OPER-STATE-CHG:
operational state change for cmm:1/B down (from unknown)
2017-02-27T14:29:42.952157-05:00 [system.0] INFO/EM.EQPT-OPER-STATE-CHG:
operational state change for app:1/1 down (from unknown)
2017-02-27T14:29:43.382195-05:00 [system.0] INFO/EM.EQPT-OPER-STATE-CHG:
operational state change for ufm:1/3 down (from unknown)
2017-02-27T14:29:43.687889-05:00 [system.0] INFO/EM.EQPT-OPER-STATE-CHG:
operational state change for ufm:1/10 down (from unknown)
2017-02-27T14:29:43.917687-05:00 [system.0] INFO/EM.EQPT-OPER-STATE-CHG:
operational state change for wps:1/12 down (from unknown)
2017-02-27T14:29:44.175796-05:00 [system.0] INFO/EM.EQPT-OPER-STATE-CHG:
operational state change for ufm:1/13 down (from unknown)
2017-02-27T14:29:44.519900-05:00 [system.0] INFO/EM.EQPT-OPER-STATE-CHG:
operational state change for amp:1/4 down (from unknown)
2017-02-27T14:29:44.914429-05:00 [system.0] INFO/EM.EQPT-OPER-STATE-CHG:
operational state change for ila:1/5 down (from unknown)
2017-02-27T14:29:45.868214-05:00 [system.0] INFO/EM.EQPT-OPER-STATE-CHG:
operational state change for roadm:1/8 down (from unknown)
2017-02-27T14:29:46.364552-05:00 [system.0] INFO/EM.EQPT-OPER-STATE-CHG:
operational state change for roadm:1/9 down (from unknown)
2017-02-27T14:29:47.843331-05:00 [system.0] INFO/EM.EQPT-OPER-STATE-CHG:
operational state change for fan:1/1 down (from unknown)
2017-02-27T14:29:49.387580-05:00 [system.0] INFO/EM.EQPT-OPER-STATE-CHG:
operational state change for fan:1/2 down (from unknown)
2017-02-27T14:29:50.889741-05:00 [system.0] INFO/EM.EQPT-OPER-STATE-CHG:
operational state change for fan:1/3 down (from unknown)
2017-02-27T14:29:52.319773-05:00 [system.0] INFO/EM.EQPT-OPER-STATE-CHG:
operational state change for fan:1/4 down (from unknown)
```

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```
2017-02-27T14:29:53.847338-05:00 [system.0] INFO/EM.EQPT-OPER-STATE-CHG:
operational state change for fan:1/6 down (from unknown)
2017-02-27T14:29:54.368759-05:00 [system.0] INFO/EM.EQPT-OPER-STATE-CHG:
operational state change for pem:1/1 down (from unknown)
```


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show mgt static

Syntax show mgt static

Description This command shows the static routes configured on the management interfaces.

Related Documentation

- mgt static on page 189

Sample Output

```
bti7800# show mgt static
Static Route    Interface  Admin   Admin Distance  Metric
--------------  ---------  ------  --------------  ------
10.3.3.1/32     mgt:1      up      1               10
```

show netconf-state

Syntax **show netconf-state [capabilities | datastores | files [file *filename*] | schemas | sessions | statistics | streams]**

Description This command displays information on the NETCONF interface.

Options

Parameter	Description
capabilities	Displays supported capabilities
datastores	Displays supported datastores
files [file *filename*]	Displays information on the specified file. If no file is specified, all files are displayed.
schemas	Displays the list of yang files
sessions	Displays the active sessions
statistics	Displays NETCONF protocol statistics
streams	See show netconf-state streams.

Additional Information If this command is issued with no parameters, all information is displayed.

Related Documentation

- show netconf-state streams on page 287

Sample Output

```
bti7800# show netconf-state datastores

         LOCKED
         BY       LOCKED                          LOCK
NAME     SESSION  TIME    TRANSACTION ID          ID
-------------------------------------------------------
running  -        -       1456-428676-544789@scm1
```

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show netconf-state streams

Syntax **show netconf-state streams [stream [*stream*] [description *string* | replay-log-aged-time *time* | replay-log-creation-time *time* | replay-support { false | true } | subscriber { start-time | stop-time } *time*]]**

Description This command displays information on NETCONF streams.

Options

Parameter	Description	Range
stream [*stream*]	Displays the specified stream. If no stream is specified, all streams are displayed.	The following streams can be specified: • DBRestoreBackup • DatabaseChange • NETCONF • ProtectionSwitch • StatusChange • UpgradeEvent
description *string*	Displays streams matching the specified description	A character string
replay-log-aged-time *time*	Displays streams matching the specified replay-log-aged-time	CCYY-MM-DDTHH:MM:SS
replay-log-creation-time *time*	Displays streams matching the specified replay-log-creation-time	CCYY-MM-DDTHH:MM:SS
replay-support {false|true}	Displays streams matching the specified replay-support capability	false true
subscriber {start-time|stop-time} *time*	Displays streams matching the specified subscriber start or stop time	CCYY-MM-DDTHH:MM:SS

Additional Information If this command is issued with no parameters, all streams are displayed.

Related Documentation

- show netconf-state on page 286

Sample Output

```
bti7800# show netconf-state streams

                                                                        REPLAY
NAME              DESCRIPTION                                           SUPPORT
-------------------------------------------------------------------------------
```

```
NETCONF           default NETCONF event stream                        false
DBRestoreBackup   Stream for Config Database Restore backup and Undo  false
DatabaseChange    Stream for Database Change Notifications            false
ProtectionSwitch  Stream for Protection Switch Notifications          false
StatusChange      Stream for Status Attribute Change Notifications    false
UpgradeEvent      Stream for Software Upgrade Notifications           false
```


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show protection wavelength group

Syntax **show protection wavelength group [table]**

Description This command displays the provisioning details and the status of all provisioned wavelength protection groups on the WPS4s. The information can be displayed in list or in table format.

Related Documentation

- None

Sample Output

```
bti7800# show protection wavelength group

Group Name            : wpsgroup:1/1/1
Working               : wpsport:1/1/L1A
Working status        : Active
Protecting            : wpsport:1/1/L1B
Protecting status     : Standby
Protection Id         : WPS456A
Remote Id             : WPS456BR
Revertive Type        : Non-Revertive
Revertive Time        : 600 seconds
Custom                : WPS456


bti7800# show protection wavelength group table

Group Name       Working             Working Status      Protecting
Protecting Status   Revertive Type
---------------  ------------------  ------------------  ------------------
------------------  ------------------
wpsgroup:1/1/1   wpsport:1/1/L1A     Active              wpsport:1/1/L1B
Standby        Non-Revertive
wpsgroup:1/1/2   wpsport:1/1/L2A     Active              wpsport:1/1/L2B
Standby        Non-Revertive
```

show protection wavelength port

Syntax **show protection wavelength port [table]**

Description This command displays the provisioning details and the status of all provisioned wavelength protection ports on the WPS4. The information can be displayed in list or in table format.

Related Documentation

- None

Sample Output

```
bti7800# show protection wavelength port

Port Name            : wpsport:1/1/C1
Protection Status    :
Id                   : WPS43811C1
Remote Id            : WPS43811C1R
Custom               : RED346711C1
LoLightRx Th         : -35.0 dBm
Opt.Pw.RX            : -3.5 dBm

Port Name            : wpsport:1/1/C2
Protection Status    :
Id                   : WPS43811C2
Remote Id            : WPS43811C2R
Custom               : RED346711C2
LoLightRx Th         : -35.0 dBm
Opt.Pw.RX            : -3.5 dBm

Port Name            : wpsport:1/1/L1A
Protection Status    : Active
Id                   : WPS43811L1A
Remote Id            : WPS43811L1AR
Custom               : RED346711L1A
LoLightRx Th         : -35.0 dBm
Opt.Pw.RX            : -2.5 dBm

Port Name            : wpsport:1/1/L1B
Protection Status    : Standby
Id                   : WPS43811L1B
Remote Id            : WPS43811L1BR
Custom               : RED346711L1B
LoLightRx Th         : -35.0 dBm
Opt.Pw.RX            : -2.6 dBm

Port Name            : wpsport:1/1/L2A
Protection Status    : Active
Id                   : WPS43811L2A
Remote Id            : WPS43811L2AR
Custom               : RED346711L2A
LoLightRx Th         : -35.0 dBm
Opt.Pw.RX            : -2.5 dBm

Port Name            : wpsport:1/1/L2B
```

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```
Protection Status    : Standby
Id                   : WPS43811L2B
Remote Id            : WPS43811L2BR
Custom               : RED346711L2B
LoLightRx Th         : -35.0 dBm
Opt.Pw.RX            : -2.6 dBm
```

show running-config

Syntax **show running-config [*branch*]**

Description This command displays the committed configuration of the entire system, or the committed configuration of the specified branch if a branch is specified.

NOTE: **If you intend to use the running-config output as input to the CLI, you should disable autowizard.**

Options

Parameter	Description
branch	The subsystem branch. Type **?** to see the list of branches.

Related Documentation

- show full-configuration on page 200

Sample Output

```
bti7800# show running-config equipment module bic transceiver sfpPlus:1/3/1/2

equipment chassis:1
 module ufm:1/3
  bic bic:1/3/1
   transceiver sfpPlus:1/3/1/2
    optical-format fixedX1
   !
  !
 !
!
```

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show session

Syntax **show session**

Description This command displays the settings of the current CLI session environment.

Related Documentation

- set on page 78

Sample Output

```
bti7800# show session

idle-timeout          1800
ignore-leading-space  false
paginate              true
prompt1               \bti7800\M#
prompt2               \bti7800(\m)#
screen-length         24
screen-width          80
terminal              xterm
bti7800#
```

show snmp host

Syntax **show snmp host**

Description This command displays the SNMP trap receiver configuration.

NOTE: This command provides the same output as the **show system snmp** command.

Related Documentation

- snmp-server host on page 203

Sample Output

```
bti7800# show snmp host

Target-Name     IP-Address     Port     TimeOut-Value   Retry-Count     Tag-List

--------------- -------------- -------- --------------- ---------------
-----------------------------------
10.1.1.1 v2     10.1.1.1       162      1500            3               std_v2_trap
 std_trap std_v2_inform
10.1.1.2 v2     10.1.1.2       162      1500            3               std_v2_trap
 std_trap std_v2_inform
172.25.7.219 v2 172.25.7.219   162      1500            3               std_v2_trap
 std_trap std_v2_inform
```


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show statistics current

Syntax **show statistics current [** *module_id* | *interface_id* **[binLength** *bin* **[** *counter* **]]]**

Description This command displays current performance monitoring (PM) statistics for the specified module or interface. If no module or interface is specified, statistics for all modules and interfaces are displayed.

Options

Parameter	Description	Range	Default Value
module_id	The module identifier of the module to display (for example,**ufm:1/3**)	An existing module	None If no module or interface is specified, all modules and interfaces are displayed.
interface_id	The interface identifier of the interface to display (for example, **100ge:1/1/1/1**)	An existing interface	None If no module or interface is specified, all modules and interfaces are displayed.
binLength *bin*	The bin to display	• 1Day • 1Minute • 15Minute • unTimed	None If no binLength is specified, all bins are displayed.
counter	The counter to display (for example, **cpu-load-avg**)	A valid counter for the specified module or interface	None If no counter is specified, all counters are displayed.

Related Documentation

- show statistics historical on page 296

Sample Output

```
bti7800# show statistics current cmm:1/A binLength 1Minute

       TIMESTAMP          LENGTH  VALIDITY %SAMPLES                NAME             VALUE
2013-09-11T01:31:00+00:00     1m   partial    100.0  CPU 1-minute load avg.  ......  1.54 %
2013-09-11T01:31:00+00:00     1m   partial    100.0  Min. value of load avg. ......  1.35 %
2013-09-11T01:31:00+00:00     1m   partial    100.0  Max. value of load avg. ......  1.64 %
```

show statistics historical

Syntax **show statistics historical** ***module_id*** **|** ***interface_id*** **[binLength** ***bin*** **[interval** ***interval*** **[statisticList** ***counter*** **]]]**

Description This command displays historical performance monitoring (PM) statistics.

Options

Parameter	Description	Range	Default Value
module_id	The module identifier of the module to display (for example,**ufm:1/3**)	An existing module	None
interface_id	The interface identifier of the interface to display (for example, **100ge:1/1/1/1**)	An existing interface	None
binLength *bin*	The bin to display	• 1Day • 1Minute • 15Minute	None If no binLength is specified, all bins are displayed.
interval *interval*	The interval to display (for example, **2016-04-18T14:45:00-04:00**)	A valid interval Type ? to see the valid intervals.	If no intervals are specified, all intervals are displayed.
statisticList *counter*	The counter to display (for example, **cpu-load-avg**)	A valid counter for the specified module or interface	None If no counter is specified, all counters are displayed.

Related Documentation

- *show statistics*
- show statistics current on page 295

Sample Output

```
bti7800# show statistics historical cmm:1/A binLength 15Minute interval
2017-07-18T15:15:00-04:00 statisticList cpu-load-avg

         TIMESTAMP           LENGTH    VALIDITY  %SAMPLES           NAME
         VALUE
--------------------------  ---------  --------  ---------  ---------------------
  ------------
2017-07-18T15:15:00-04:00   15Minute   complete  100.0      CPU 1-minute load
avg. ..... 3.04 %
```

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show system

Syntax **show system**

Description This command displays system parameters.

Additional Information The HA Status in the output displays the status of the file system synchronization between the active and standby System Controller Managers (SCMs):

- **In Sync**: The file systems match on the Active and Backup SCMs.
- **Not Ready**: The file system on the Active SCM is not synchronized with the Backup SCM. The following issues might be the cause:

  - The Backup controller is not physically inserted.

  - The Backup controller is present but not operationally up (lost communication with active controller, for example: rebooting, booted from USB as part of the System Recovery procedure)
- **Syncing**: The update of the file system to the standby SCM is still in progress.

Related Documentation
- None

Sample Output

```
bti7800# show system

Model                      : BTI 7800
Network Element Type       : WDM
Software Version           : 4.1.0 25448
Software Branch            : trunk
Config DB Version          : 0.1
Time
             Boot          : 2017-02-27T14:28:12-05:00
             Current       : 2017-02-27T18:01:41-05:00
             Uptime        : 0 days, 03:33:29
             Time Zone     : America/New_York
Management Address         : 10.75.0.5/16
Management Sources         :
Management Gateway         :
NTP                        :
DNS                        :
Name                       :
Contact                    :
Location                   : UNKNOWN
Active Controller          : cmm:1/A
Backup Controller          : cmm:1/B
HA Status                  : In Sync
Shelf Mgr F/W autoupgrade  : disabled
Proxy ARP                  : disabled
Auto Warm Boot             : CMM(enabled) PLD(enabled)
```

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show system chassis

Syntax **show system chassis**

Description This command displays the serial number and chassis ID for configured system chassis.

Related Documentation

- show system on page 297

Sample Output

The following example displays chassis information for a single chassis configuration:

```
bti7800# show system chassis

Serial-Number     Chassis ID
----------------  ----------
2013VM-0001       1  bti7800#
```

The following example displays chassis information for a multiple chassis configuration:

```
bti7800# show system chassis

Serial-Number     Chassis ID
----------------  ----------
2013VM-0001       1
2013VM-0002       2
```

show system clock

Syntax **show system clock**

Description This command displays system clock information.

Related Documentation

- show system on page 297

Sample Output

```
bti7800# show system clock

current-datetime          : 2017-02-27T18:04:40-05:00
boot-datetime             : 2017-02-27T14:28:12-05:00
uptime                    : 0 days,03:36:28
timezone                  : America/New_York
```


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show system controller

Syntax **show system controller**

Description This command displays the system controllers and associated static IP addresses configured on the system.

Related Documentation

- show system on page 297

Sample Output

```
bti7800# show system controller

Controller    Controller-Name   IpAddress
------------  ---------------   ---------
controller-1  cmm:1/A           10.127.45.102
controller-2  cmm:1/B           10.127.45.101
```

show system cpu

Syntax **show system cpu**

Description This command displays CPU status and memory utilization for active Chassis Management Module (CMM).

Related Documentation

- None

Sample Output

```
bti7800# show system cpu

Up Time: 3:47, Average Load: 4.91,
Mem:    628016k total,   574988k used,    53028k free,    14144k buffers
PID             %CPU            %MEM            COMMAND
4679            2.0             1.4             OCHManager
4686            2.0             1.4             OSCManager
3468            2.0             1.2             StartDiscovery
4656            2.0             0.9             VMIBMAgent
4777            2.0             0.6             qpid_wrapper
4960            2.0             0.6             confd_wrapper
3816            2.0             0.2             top
1               0.0             0.1             init
2               0.0             0.0             kthreadd
3               0.0             0.0             ksoftirqd/0
```


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show system database

Syntax **show system database**

Description This command displays information about the system database.

Related Documentation

- None

Sample Output

The following example shows the database status for a BTI7801 chassis:

```
bti7800# show system database

Backup Status
-------------
CurrentStatus   : ready-to-backup
RemoteUrl       :
sftp://user@10.1.1.1/10.75.0.5_BTI7800v2.1.0_23151_20160309_205021.tar.gz
NotificationMsg : Backup successful

Restore Status
--------------
CurrentStatus   : ready-to-restore

Factory Defaults
----------------
CurrentStatus   : ready-to-restore

Local Chassis Backup Status
---------------------------
CurrentStatus   : Primary:   Valid
                  Secondary: Valid
LastBackup      : 2016-02-20T21:31:43+00:00
```

show system dnslookup

Syntax **show system dnslookup** *IP_address* | *domain_name*

Description This command queries the DNS server to retrieve the IP addresses associated with the specified domain, or the domain related to the specified IP address.

Related Documentation

- None

Sample Output

```
bti7800# show system dnslookup example.org

Server:    172.25.0.61
Address 1: 172.25.0.61 server1.example.org

Name:      example.org
Address 1: 172.25.0.61 server1.example.org
Address 2: 172.16.8.11
Address 3: 172.27.80.35 pc8.example.org
Address 4: 172.25.0.186 pc3.example.org
Address 5: 172.16.8.10
Address 6: 172.25.0.62 pc2.example.org
Address 7: 172.16.10.10 pc.example.org
```

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show system firmware

Syntax **show system firmware [** *module_id* **| retimer | all]**

Release Information This command was introduced prior to release 2.1.1.
Starting with release 4.3, this command can be used to display information on the re-timer firmware.

Description This command displays the firmware version for all the system components or a particular component.

Related Documentation

- show system on page 297

Sample Output

The following example displays the firmware version for all system components:

```
bti7800# show system firmware all
Module            Module Type      Device                Firmware
----------------  ---------------  --------------------
-----------------------------------------
cmm:1/A           CMM              L2-switch             WebStaX (stackable)
3.43C_BTISYSTEMS_R3.6
                                   SHMM                  Shelf Manager Ver.:
3.4.2.10
                                                         Chassis Product ID: BTI
 14 Slot Rev 2.8
                                                         Carrier Product ID:
BTI-CMM Rev 1.5
                                                        a2f-upgrade.dat:    v1.4

                                                        rc.shmm700-hpdl:    v1.4

                                                        shelfman.conf:      v1.9

                                                        inetd.conf:         v1.0

                                                        netconfig:          v1.0

                                                        cooling_7814:        1.3
cmm:1/B           CMM              L2-switch             WebStaX (stackable)
3.43C_BTISYSTEMS_R3.6
                                   SHMM                  Shelf Manager Ver.:
3.4.2.10
                                                         Chassis Product ID: BTI
 14 Slot Rev 2.8
                                                         Carrier Product ID:
BTI-CMM Rev 1.5
                                                        a2f-upgrade.dat:    v1.4

                                                        rc.shmm700-hpdl:    v1.4

                                                        shelfman.conf:      v1.9
```

```
                                                        inetd.conf:         v1.0

                                                        netconfig:          v1.0

                                                        cooling_7814:        1.3
ufm:1/8           UFM              IPMC                  A2F-ATCA F/W| Active:
0.26| Backup: 0.25

ufm:1/12          UFM              IPMC                  A2F-ATCA F/W| Active:
0.0a| Backup: 0.09

Shelf Manager firmware auto-upgrades are DISABLED.

cfp:1/8/2/1       Transceiver      XCVR                  1.7

msa400:1/12/2/1   Transceiver      XCVR                  17.1.56


Module            Port Number      Device                Firmware
----------------  ---------------  --------------------  --------
ufm:1/12          1                Retimer               D015
ufm:1/12          2                Retimer               D015
ufm:1/12          6                Retimer               D015
ufm:1/12          7                Retimer               D015
```


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show system mgmt-interface

Syntax **show system mgmt-interface**

Description This command displays information about the management interfaces (shared IP addresses) for the commissioned CMMs (Chassis Management Module).

Related Documentation

- show system on page 297

Sample Output

```
bti7800# show system mgmt-interface

MgmtAddress: 10.75.0.5/16

Name            IP                  Netmask             MAC Address
Duplex    Speed     State     RX_Packets   TX_Packets   Errors
------------    ---------------     ----------------     ------------------
-------   -------   ------    ----------   -----------  ------
eth0-cmm:1/A    192.168.17.1        255.255.255.0        08:00:27:f7:a0:a3
Full      1000      up        1            65           0
eth1-cmm:1/A    10.75.0.5           255.255.0.0          08:00:27:dc:00:d7
Full      1000      up        269          1581         0
eth0-cmm:1/B    192.168.17.1        255.255.255.0        08:00:27:9e:b1:79
Full      1000      up        1            72           0


Name            Baud rate     Parity         Stop Bits          Flow Control
--------------  ---------     ----------     ----------
------------------------
ttyS0-cmm:1/A   115200        no             1                  no hardware flow
 control
ttyS0-cmm:1/B   115200        no             1                  no hardware flow
 control
```

show system memory

Syntax **show system memory [module** *<module:<chassisID>/<slot>>* **]**

Description This command displays, in megabytes, the amount of free and used memory for active modules.

Related Documentation

- show system on page 297

Sample Output

```
bti7800#  bti7800# show system memory module cmm:1/A

At cmm:1/A
Total           Used            Free            Shared          Buffers
Cached
613MB           565MB           48MB            0MB             15MB
94MB
```

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show system ntpstat

Syntax **show system ntpstat**

Description This command displays information for the configured NTP server.

Options

Parameter	Description	Range
remote	The host name or IP address of the NTP peer	–
refid	As association ID	–
st	NTP stratum level	0 to 15 16 indicates a device is not synchronized.
t	NTP server or client type	u: unicast or manycast client b: broadcast or multicast client 1: local (reference clock) s: symmetric (peer) A: manycast server S: broadcast server M: multicast server
when	The number of seconds, minutes, or hours since the last received packet	–
poll	The poll interval	–
reach	The reach shift register (octal)	–
delay	The roundtrip delay	–
offset	The offset of the server relative to this host	–
jitter	The jitter	–

Related Documentation

- show system on page 297

Sample Output

```
bti7800# show system ntpstat

      remote          refid  st     t     when   poll    reach    delay    offset
  jitter
==============================================================================

10.1.1.3           .ACTS.   1     u     16     128     377      13.592   69.346
 21.728 2
LOCAL(0)           .LOCL.  14     l     64m     64       0       0.000    0.000
  0.000
```


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show system process

Syntax **show system process [module <*module:chassisID/slot*>]**

Description This command displays the processes running on the system or a particular module.

Related Documentation

- None

Sample Output

The following shows the (partial) output for the CMM.

```
bti7800# show system process module cmm:1/A

PID             %CPU            %MEM            COMMAND
6083            1.4             13.8            scripts/..confd.smp
4724            1.0             1.6             StartNodeMgr
4795            0.9             8.0             ProtocolMgr
3468            0.8             1.2             StartDiscovery
4930            0.8             1.6             EVIPManager
4656            0.7             0.8             VMIBMAgent
4736            0.6             1.7             StartEquipmentMgr
4740            0.6             0.6             FileSysManager
```

show system reload

Syntax **show system reload [status [all]]**

Description This command displays information about the recent software system reload.

Related Documentation

- system reload on page 91

Sample Output

```
bti7800# show system reload status
reload status all "SCM Reload Status : Reload success : Reload success"
```


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show system snmp

Syntax show system snmp

Description This command displays the SNMP trap receiver configuration.

NOTE: This command provides the same output as the show snmp host command.

Related Documentation

- system snmp notify-target on page 231

Sample Output

```
bti7800# show system snmp

Target-Name     IP-Address     Port     TimeOut-Value   Retry-Count     Tag-List

--------------- -------------- -------- --------------- ---------------
-----------------------------------
10.1.1.1 v2     10.1.1.1       162      1500            3               std_v2_trap
 std_trap std_v2_inform
10.1.1.2 v2     10.1.1.2       162      1500            3               std_v2_trap
 std_trap std_v2_inform
172.25.7.219 v2 172.25.7.219   162      1500            3               std_v2_trap
 std_trap std_v2_inform
```

show system upgrade

Syntax show system upgrade

Description This command displays information about the recent system software upgrade.

Related Documentation
- system upgrade on page 95

Sample Output

```
bti7800# show system upgrade

Current Status      : download-inprogress

Module       Download Status       Download Start Time            Notification
Message
--------     -----------------     --------------------------
----------------------
cmm:1/A      download-inprogress   2013-09-12T15:26:01+00:00      Download in
progress

Module       URL Status            URL
--------     --------------
----------------------------------------------------
cmm:1/A      url-set               ftp://<user-defined>:user@<ip
address>/bti7800-sys-1.0.1-2.x86_64.rpm

bti7800# system upgrade commit
bti7800
bti7800# show system upgrade
Current Status      : commit-inprogress

Module       Commit Status         Commit Start Time              Notification
Message
---------    ------------------    --------------------------
---------------------
cmm:1/B      commit-inprogress     2013-09-12T15:34:59+00:00      COMMIT IN
PROGRESS

Module       Download Status       Download Start Time            Notification
Message
--------     -----------------     --------------------------
----------------------
cmm:1/A      download-success      2013-09-12T15:26:01+00:00      Download
successful

Module       URL Status            URL
--------     --------------
----------------------------------------------------
cmm:1/A      url-set               ftp://<user-defined>:user@<ip
address>/bti7800-sys-1.0.1-2.x86_64.rpm

bti7800# show system upgrade
Current Status      : commit-success
```


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```
Module       Commit Status         Commit Start Time             Notification
Message
---------    ------------------    --------------------------
---------------------
cmm:1/A      commit-success        2013-09-12T15:48:13+00:00      COMMIT SUCCESS

cmm:1/B      commit-success        2013-09-12T15:48:13+00:00      COMMIT SUCCESS

ufm:1/1      commit-success        2013-09-12T15:49:01+00:00      COMMIT SUCCESS

ufm:1/10     commit-success        2013-09-12T15:49:02+00:00      COMMIT SUCCESS

ufm:1/11     commit-success        2013-09-12T15:49:02+00:00      COMMIT SUCCESS

ufm:1/12     commit-success        2013-09-12T15:49:02+00:00      COMMIT SUCCESS

ufm:1/13     commit-success        2013-09-12T15:49:02+00:00      COMMIT SUCCESS

ufm:1/14     commit-success        2013-09-12T15:49:02+00:00      COMMIT SUCCESS

ufm:1/2      commit-success        2013-09-12T15:49:01+00:00      COMMIT SUCCESS

ufm:1/3      commit-success        2013-09-12T15:49:02+00:00      COMMIT SUCCESS

ufm:1/4      commit-success        2013-09-12T15:49:02+00:00      COMMIT SUCCESS

ufm:1/5      commit-success        2013-09-12T15:49:02+00:00      COMMIT SUCCESS

ufm:1/6      commit-success        2013-09-12T15:49:02+00:00      COMMIT SUCCESS

ufm:1/7      commit-success        2013-09-12T15:49:02+00:00      COMMIT SUCCESS

ufm:1/8      commit-success        2013-09-12T15:49:02+00:00      COMMIT SUCCESS

ufm:1/9      commit-success        2013-09-12T15:49:02+00:00      COMMIT SUCCESS


Module       Download Status       Download Start Time            Notification
Message
--------     -----------------     --------------------------
----------------------
cmm:1/A      download-success      2013-09-12T15:45:56+00:00      Download
successful

Module       URL Status            URL
--------     --------------
-------------------------------------------------------
cmm:1/A      url-set               ftp://<user-defined>:user@<ip
address>/bti7800-sys-1.0.1-2.x86_64.rpm
```

show system version

Syntax **show system version [all |** *<module type:<chassis> <slot>* **]**

Description This command displays the system software version for the all equipment or a particular component.

Related Documentation

- show system on page 297

Sample Output

The following example shows the software version for all installed modules:

```
bti7800# show system version

Module   Module Type Software Version    OS Version
-------- ----------- ------------------- ----------
cmm:1/A  CMM         1.3.0-8541.x86_64   1.0.0-8154
amp:1/6  AMP         1.3.0-8541.x86_64   1.0.0-8154
ufm:1/14 UFM         1.3.0-8541.x86_64   1.0.0-8154
ufm:1/4  UFM         1.3.0-8541.x86_64   1.0.0-8154
```

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show tech-support

Syntax **show tech-support [datapath module** *module_id* **] remote-url** *protocol:url* **[password** *password* **]**

Description Use this command to collect system data for Juniper Networks Support.

Options

Parameter	Description	Range	Default Value
datapath module *module_id*	Collects information for the datapath associated with the specified module or chassis. This information is useful in debugging current datapath (for example, cross-connect) issues.	A valid module or chassis identifier (for example, **ufm:1/3**)	None
remote-url *protocol:url*	The destination to send the collected information for analysis	`sftp|ftp://[username@]host[:port]/[filepath]` *username* is the username to use on the remote server. *host* is the host name or IP address of the remote server. *port* is the protocol port number to use. *filepath* is the filepath on the remote server.	If *username* is not specified, the current CLI session's login name is used. If *port* is not specified, the standard default FTP or SFTP port is used. If *filepath* is not specified, the file is copied to the FTP/SFTP user's home directory.
password	The password associated with the specified username If a password is not specified, the system prompts you for a password. NOTE: The password must contain alphanumeric characters only.	A character string	None

Sample Output

```
bti7800# show tech-support remote-url sftp://user@10.1.1.1

testing remote URL...Value for 'password' (<string>):
OK
 100% collecting module interface data...
 100% collecting shell data...  100% collecting CLI data...
 100% collecting card files:
      creating archive...
      uploaded archive
```


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```
tech_support_sys_unknown_ip_10.1.220.104_2016-02-25_17-10-45.tgz
tech-support complete. elapsed time: 00:02:01.97
```

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