CHAPTER 12

# ENT Commands

**Note** The terms "Unidirectional Path Switched Ring" and "UPSR" may appear in Cisco literature. These terms do not refer to using Cisco ONS 15xxx products in a unidirectional path switched ring configuration. Rather, these terms, as well as "Path Protected Mesh Network" and "PPMN," refer generally to Cisco's path protection feature, which may be used in any topological network configuration. Cisco does not recommend using its path protection feature in any particular topological network configuration.

This chapter provides enter (ENT) commands for the Cisco ONS 15454, ONS 15327, ONS 15310-CL, ONS 15310-MA, and ONS 15600.

## 12.1 ENT-<MOD1PAYLOAD>

(Cisco ONS 15454, ONS 15310-CL, ONS 15310-MA, ONS 15600) The Enter 10GFC, 10GIGE, 1GFC, 1GFICON, 2GFC, 2GFICON, D1VIDEO, DV6000, EC1, ESCON, ETRCLO, GIGE, HDTV, ISC1, OC12, OC192, OC3, OC48, or T3 (ENT-<MOD1PAYLOAD> command creates a specified port.

**Usage Guidelines**

- When 1GFICON and 2GFICON payloads are provisioned, distance extension=B2B is the default and only valid setting. Setting distance extension (using the ED-nGFICON command) to any other setting will be denied with the error message "Provisioning Rules Failed."
- Support is limited to ports with pluggable port modules (PPMs).
- See Table 27-1 on page 27-1 for supported modifiers by platform.

**Category** Ports

**Security** Provisioning

**Input Format** ENT-<MOD1PAYLOAD>:[<TID>]:<AID>:<CTAG>[::::];

**Input Example** ENT-GIGE:TID:FAC-5-1:1;

| Input Parameters | | |
|---|---|---|
| | <AID> | Access identifier from the "25.15 FACILITY" section on page 25-33. |

# 12.2 ENT-<MOD_RING>

(Cisco ONS 15454, ONS 15327, ONS 15600) The Enter Bidirectional Line Switched Ring (ENT-<MOD_RING>) command creates either a two-fiber or four-fiber BLSR.

**Note** The ONS 15327 and ONS 15600 do not support four-fiber bidirectional line switched rings (BLSRs).

## Usage Guidelines

The command parameters that are used vary depending on whether a two-fiber or four-fiber BLSR is being created.

Here is an example of a command to create a four-fiber BLSR:

ENT-BLSR:TID:BLSR-N02ABC:CTAG:::RINGID=N02ABC,NODEID=3,MODE=4F,RVRTV=Y, RVTM=5.0,SRVRTV=Y,SRVTM=5.0,EASTWORK=FAC-5-1,WESTWORK=FAC-6-1, EASTPROT=FAC-12-1,WESTPROT=FAC-13-1;

Here is an example of a command to create a two-fiber BLSR:

ENT-BLSR:TID:BLSR-N04EFG:CTAG:::RINGID=N04EFG,NODEID=6,MODE=2F,RVRTV=Y, RVTM=5.0,EASTWORK=FAC-5-1,WESTWORK=FAC-6-1;

The following actions will produce error messages:

- If RINGID is different from the string presented in the AID format, an IIAC (RingId Does Not Match With AID) error message is returned.
- Sending this command to create a BLSR with an out-of-range node ID or ring ID will return an IIAC (Invalid NodeId) or (Invalid RingId) error message.
- Sending this command to create a four-fiber BLSR on OC12 cards, or a two-fiber BLSR on OC3 cards will return an IIAC (Input, Invalid Work/Prot Port) error message.
- Sending this command to create a BLSR on a network element (NE) that already has five BLSRs will return a SRQN (BLSR Creation Failed) error message because one NE is only allowed to have up to five BLSRs in this release.
- Sending this command to create a BLSR on a port with 1+1 protection will return a SRQN (BLSR Creation Failed) error message.
- If the system fails on getting IOR, an SROF (Get IOR Failed) error message is returned.
- If the AID is invalid, an IIAC (Invalid AID) error message is returned.
- If any facility requested in this command is in use, a SPLD (Facility is Busy) error message is returned.
- The SRQN (BLSR Creation Failed) error message is returned for an invalid creation query.
- Sending this command to provision the mode with an invalid BLSR mode will return an IIDT (Invalid BLSR Mode) error message.
- Sending this command to modify SRVRTV or SRVTM on the two-fiber BLSR will return an IDNV (Invalid Data for 2F-BLSR) error message.

- Sending this command to provision the node ID with invalid data will return an IIAC (Invalid NodeId) error message.
- Sending this command to provision the ring ID with invalid data will return an IIAC (Invalid RingId) error message.
- Sending this command with an invalid working AID will return an IIDT (Invalid BLSR Working Facility) error message.
- Sending this command with an invalid protection AID will return an IIDT (Invalid BLSR Protect Facility) error message.
- Changing the BLSR node ID with a duplicated ID will return a SROF (Cannot Set NodeId) error message.

**Note** <RINGID> defaults to the string of the AID format of BLSR-string.

**Note** Both <EASTPROT> and <WESTPROT> are optional, but required for 4-fiber BLSR creation.

**Note** The ALL AID is invalid for this command.

**Category** BLSR

**Security** Provisioning

**Input Format**

ENT-<MOD_RING>:[<TID>]:<AID>:<CTAG>:::[RINGID=<RINGID>],NODEID=<NODEID>, MODE=<MODE>,[RVRTV=<RVRTV>],[RVTM=<RVTM>],[SRVRTV=<SRVRTV>], [SRVTM=<SRVTM>],EASTWORK=<EASTWORK>,WESTWORK=<WESTWORK>, [EASTPROT=<EASTPROT>],[WESTPROT=<WESTPROT>];

**Input Example**

ENT-BLSR:PETALUMA:BLSR-2:123:::RINGID=2,NODEID=1,MODE=4F,RVRTV=Y,RVTM=5.0, SRVRTV=Y,SRVTM=5.0,EASTWORK=FAC-5-1,WESTWORK=FAC-6-1,EASTPROT=FAC-12-1, WESTPROT=FAC-13-1;

**Input Parameters**

| | |
|---|---|
| <AID> | Access identifier from the "25.3 AidUnionId1" section on page 25-16. Identifies the BLSR of the NE. ALL or BLSR-ALL AIDs are not allowed for editing BLSR. This command only supports a single BLSR AID. |
| <RINGID> | The BLSR ID of the NE up to six characters. Valid characters are A-Z and 0-9. RINGID is a string. |
| <NODEID> | The BLSR node ID of the NE. NODEID ranges from 0 to 31. NODEID is an integer. |

| | |
|---|---|
| <MODE> | Mode with which the command is to be implemented. Identifies the BLSR mode. The parameter type is BLSR_MODE (BLSR mode). |
| • 2F | Two-fiber BLSR |
| • 4F | Four-fiber BLSR |
| <RVRTV> | Revertive mode. The value Y indicates that the protection switching system reverts service to the original line after restoration. The value N indicates that the protection switching system does not revert service to the original line after restoration. RVRTV is applicable only for 1+1 protection switching. Null defaults to N. The parameter type is ON_OFF (disable or enable an attribute). |
| • N | Disable an attribute. |
| • Y | Enable an attribute. |
| <RVTM> | Revertive time. Defaults to 5.0. The parameter type is REVERTIVE_TIME (revertive time). |
| • 0.5 to 12.0 | Revertive time is 0.5 to 12.0 minutes. |
| <SRVRTV> | The span revertive mode for four-fiber BLSR only. Defaults to Y. The parameter type is ON_OFF (disable or enable an attribute) |
| • N | Disable an attribute. |
| • Y | Enable an attribute. |
| <SRVTM> | The span revertive time for four-fiber BLSR only. Defaults to 5.0. The parameter type is REVERTIVE_TIME (revertive time). |
| • 0.5 to 12.0 | Revertive time is 0.5 to 12.0 minutes. |
| <EASTWORK> | East working facility. AID from the "25.15 FACILITY" section on page 25-33. |
| <WESTWORK> | West working facility. AID from the "25.15 FACILITY" section on page 25-33. |
| <EASTPROT> | East protect facility. AID from the "25.15 FACILITY" section on page 25-33. |
| <WESTPROT> | West protect facility. AID from the "25.15 FACILITY" section on page 25-33. |

# 12.3 ENT-BULKROLL-<OCN_TYPE>

(Cisco ONS 15454, ONS 15327, ONS 15310-CL, ONS 15310-MA, ONS 15600) The Enter Bulk Roll for OC12, OC192, OC3, or OC48 (ENT-BULKROLL-<OCN_TYPE>) command enters information about rolling traffic from one end point to another without interrupting service. This command can be used for line level rolling and bulk rolling and cannot be used for single path level rolling.

**Usage Guidelines** None

**Category** Bridge and Roll

**Security**

Provisioning

**Input Format**

ENT-BULKROLL-<MOD_PATH>:[<TID>]:<FROM>:<CTAG>:::RTOSTART=<RTOSTART>,[RFROMSTART=<RFROMSTART>],[RFROMEND=<RFROMEND>],[RMODE=<RMODE>],[CMDMDE=<CMDMDE>];

**Input Example**

ENT-BULKROLL-OC48:CISCO:FAC-5-1:123:::RTOSTART=STS-6-1-1,RFROMSTART=STS-5-1-1,RFROMEND=STS-5-1-4,RMODE=AUTO,CMDMDE=FRCD;

**Input Parameters**

| | |
|---|---|
| <FROM> | One of the endpoints. Access identifier from the "25.15 FACILITY" section on page 25-33 for line level rolling and bulk rolling. |
| <RTOSTART> | The starting time slot in the destination roll port. Access identifier from the "25.15 FACILITY" section on page 25-33 (synchronous transport signal [STS] or Virtual Tributary [VT]).<br>**Note** For bulk rolling only. |
| <RFROMSTART> | The starting time slot in the source roll port. Access identifier from the "25.15 FACILITY" section on page 25-33 (STS or VT). Defaults to STS-<FROMSLOT>-<FROMPORT>-1, where <FROMSLOT> and <FROMPORT> are the slot and port of the <FROM> AID.<br>**Note** For bulk rolling only. |
| <RFROMEND> | The ending time slot in the source roll port. Access identifier from the "25.15 FACILITY" section on page 25-33 (STS and VT). Defaults to STS-<FROMSLOT>-<FROMPORT>-N, where <FROMSLOT> and <FROMPORT> are the slot and port of the <FROM> AID and N is the value of OCn (for example, with OC48, n=48).<br>**Note** For bulk rolling only. |
| <RMODE> | Indicates the mode of the rolling operation. The parameter type is RMODE (roll mode). |
| • AUTO | Automatic. When a valid signal is available, the roll under AUTO mode will automatically delete the previous end-point. |
| • MAN | Manual. Enter the corresponding delete roll/bulkroll command to delete the previous end-point. |

| | |
|---|---|
| <CMDMDE> | Command execution mode. Defaults to NORM. The parameter type is CMDMDE, which forces the system to execute a given command regardless of any standing conditions. Normal mode is the default behavior for all commands but you can specify FRCD to force the system to override a state where the command would normally be denied. |
| • FRCD | Force the system to override a state where the command would normally be denied. |
| • NORM | Execute the command normally. Do not override any conditions that could make the command fail. |

# 12.4 ENT-CRS-<PATH>

(Cisco ONS 15454, ONS 15327, ONS 15310-CL, ONS 15310-MA, ONS 15600) The Enter STS Cross-Connection for STS1, STS12C, STS18C, STS192C, STS24C, STS36C, STS3C, STS48C, STS6C, STS9C, VT1, or VT2 (ENT-CRS-<PATH>) command creates a synchronous transport signal (STS) cross-connection with a cross-connection type (CCT). Refer to the *Cisco ONS SONET TL1 Reference Guide* for specific ring provisioning procedures.

## Usage Guidelines

See Table 27-1 on page 27-1 for supported modifiers by platform.

When a path protection cross-connection is created, the path presented by the first AID is configured to be the preferred path. For example, the AID (F1) of the cross-connection (created by ENT-CRS-STS1::F1&F2,T1:123;) is the preferred path.

The following guidelines also apply:

- The default cross-connection type is two-way.
- If a path is already in a connection, it cannot be in another connection even if the other connection is one-way and the new one will be one-way the other direction.
- This command does not support creating multiple STS cross-connections.
- The path protection cross STS connection can be created by using “&” in the AID fields of this command.
  - The following command is used to create a one-way selector or two-way selector and bridge with F1, F2 as from points and T1 as the to point:

    ENT-CRS-{STS_PATH}:[<TID>]:F1&F2,T1:<CTAG>::[<CCT>];
  - The following command is used to create a one-way bridge or two-way selector and bridge with F1 as the from point and T1, T2 as the to points:

    ENT-CRS-{STS_PATH}:[<TID>]:F1,T1&T2:<CTAG>::[<CCT>];
  - The following command is used to create a one-way subtending path protection connection or two-way subtending path protection connection with F1, F2 as the from points and T1, T2 as the to points:

    ENT-CRS-{STS_PATH}:[<TID>]:F1&F2,T1&T2:<CTAG>::[<CCT>];
  - The following command is used to create a two-way selector and bridge with F1,F2 (F1 is the working side, F2 is the protect side) as the from points and S1, S2 (S1 is the working side, S2 is the protect side) as the selector points:

ENT-CRS-{STS_PATH}:[<TID>]:F1&F2,S1&S2:<CTAG>::2WAY;

– The following command is used to create a path protection IDRI cross-connection:

ENT-CRS-{STS_PATH}:[<TID>]:A&B,C&D:<CTAG>::2WAYDC;

where:

A: Path on ring X to which traffic from ring Y is bridged

B: Path on ring X to which traffic from the same ring is bridged

C: Path on ring Y to which traffic from ring X is bridged

D: Path on ring Y to which traffic from the same ring is bridged

A, B, C, and D have a positional meaning. Connection type 2WAYDC is used for path protection IDRI cross-connections.

– The following command is used to create a path protection dual-ring interconnect (DRI) cross-connection:

ENT-CRS-{STS_PATH}:[<TID>]:A&B,C:<CTAG>::2WAYDC;

where:

A: Path on ring X to which traffic from ring Y is bridged

B: Path on ring X to which traffic from the same ring is bridged

C: Traffic to and from ring Y

A, B, C, and D have a positional meaning. Connection type 2WAYDC is used for path protection DRI cross-connections.

- All A&B AIDs in the TL1 cross-connection command are in the format of WorkingAID&ProtectAID.
- To establish a cross-connection on a two-fiber protection path or on a four-fiber protection channel, the protection channel access (PCA) connection type (1WAYPCA or 2WAYPCA) is required.
- If you send a PCA cross-connection type on the non-PCA AIDs, the IIAC error message is returned.
- If you send a non-PCA cross-connection type on the PCA AIDs, the IIAC error message is returned.
- The facility AID is only valid on slots holding a G1K-4 card.
- The virtual facility AID (VFAC) is only valid on slots holding an ML-Series card.
- Both DRITYPE and DRINODE optional fields support the BLSR-DRI feature. DRITYPE is applied only if the CCT is drop-and-continue (1WAYDC or 2WAYDC), and defaults to path protection for the DRI. DRINODE must be specified only if at least one end of the connection is on the BLSR, and defaults to NA.
- The DS3XM-12 card allows portless STS1/VT1.5 cross-connection provisioning on the DS3XM-12 PORTLESS ports (port number > = 12).
- CKTID is a string of ASCII characters. The maximum length of CKTID is 48. If the CKTID is EMPTY or NULL the field will not appear.
- STS18c and STS36c cross-connects are supported only on the FC_MR-4 card and optical cards.
- LO CCAT is not applicable for ML-100T-8 and CE-100T-8 cards.
- LO VCAT is not applicable for the ML-100T-8 card on the ONS 15310-CL.
- STS18C and STS36C cross-connects are not supported in the ONS 15310-MA

**Category** Cross Connections

**Security** Provisioning

**Input Format** ENT-CRS-<PATH>:[<TID>]:<SRC>,<DST>:<CTAG>::[<CCT>]:[DRITYPE=<DRITYPE>],[DRINODE=<DRINODE>],[CKTID=<CKTID>],[CMDMDE=<CMDMDE>]:[<PST>[,<SST>]];

**Input Example** ENT-CRS-STS3C:BODEGA:STS-5-1-1&STS-6-1-1,STS-12-1-1&STS-13-1-1:116::1WAYDC:DRITYPE=BLSR,DRINODE=PRI,CKTID=CKTID,CMDMDE=FRCD:IS,AINS;

**Input Parameters**

| | |
|---|---|
| <SRC> | Source access identifier from the "25.1 ALL" section on page 25-1. Listable. |
| <DST> | Destination AID from the "25.1 ALL" section on page 25-1. |
| <CCT> | Type of connection. Used for specifying one or two-way connections. Default is 2-way. The parameter type is CCT, which is the type of cross-connect to be created. |
| • 1WAY | A unidirectional connection from a source tributary to a destination tributary. |
| • 1WAYDC | Path protection multicast drop with (1-way) continue. |
| • 1WAYEN | Path protection multicast end node (1-way continue). |
| • 1WAYMON | A bidirectional connection between the two tributaries.<br>**Note** 1WAYMON is not supported with TL1. However, it is still supported from CTC. Using CTC, you can create 1WAYMON cross-connects that can be retrieved through TL1. |
| • 1WAYPCA | A unidirectional connection from a source tributary to a destination tributary on the protection path/fiber. |
| • 2WAY | A bidirectional connection between the two tributaries. |
| • 2WAYDC | A bidirectional drop and continue connection applicable only to path protection traditional and integrated dual ring interconnects. |
| • 2WAYPCA | A bidirectional connection between the two tributaries on the extra protection path/fiber. |
| • DIAG | Diagnostics cross-connect. Supports BERT (BLSR PCA diagnostics cross-connect). |
| <DRITYPE> | DRI connection type. Applied only if the CCT is a drop-and-continue connection type (1WAYDC or 2WAYDC). Defaults to path protection. The parameter type is DRITYPE (DRI type). |
| • BLSR | BLSR DRI type |
| • UPSR | Path protection DRI type |
| • UPSR-BLSR | Path protection-BLSR type |

| | |
|---|---|
| <DRINODE> | Dual ring interconnect node. The parameter type is DRINODE (DRI node). |
| • INT | Intermediate DRI node. |
| • NA | The node is not a DRI node. |
| • PRI | Primary DRI node. |
| • SEC | Secondary DRI node. |
| <CKTID> | Cross-connect ID. Defaults to blank or none. CKTID is a string. |
| <CMDMDE> | Command mode. The parameter type is CMDMDE, which forces the system to execute a given command regardless of any standing conditions. Normal mode is the default behavior for all commands but you can specify FRCD to force the system to override a state where the command would normally be denied. |
| • FRCD | Force the system to override a state where the command would normally be denied. |
| • NORM | Execute the command normally. Do not override any conditions that could make the command fail. |
| <PST> | Primary state. Defaults to IS. The parameter type is PST, which indicates the current overall service condition of an entity. |
| • IS | In service |
| • OOS | Out of service |
| <SST> | Secondary state. Defaults to AINS. The parameter type is SST, which provides additional information pertaining to PST and PSTQ. |
| • AINS | Automatic in-service |
| • DSBLD | Disabled |
| • LPBK | Loopback |
| • MEA | Mismatch of equipment and attributes |
| • MT | Maintenance mode |
| • OOG | Out of group |
| • SWDL | Software downloading |
| • UAS | Unassigned |
| • UEQ | Unequipped |

# 12.5 ENT-EQPT

(Cisco ONS 15454, ONS 15327, ONS 15310-CL, ONS 15310-MA, ONS 15600) The Enter Equipment (ENT-EQPT) command enters the card type and attributes for a given equipment slot in the network element (NE). It also automatically enters all facilities supported by the card, assigning default values to all facility and path attributes.

The ENT-EQPT command is also used to pre-provision an NE configured in multi-shelf mode.

**Usage Guidelines**

The command supports optional parameters: RVTM (revertive time), RVRTV (revertive behavior), PROTID (unique protection ID), and PRTYPE (protection type) for configuring the card in an equipment protection group. PRTYPE can be 1:1 or 1:N. These parameters can only be entered for a working AID. The protect card must already be provisioned before creating the protection group.

1:1 protection involves the odd slot protecting the even slot. The work-protect pair is as follows (2-1, 4-3, 6-5, 16-17, 14-15, 12-13). DS1, DS3, DS3XM, DS3N, DS3E, EC1 and other electrical cards support 1:1 protection. The value of PROTID is the protecting slot and is of the form “Slot-x”. This command creates a 1:1 protection group. If the command has the optional parameters for creating a protection group and the protection group cannot be created due to an error condition, provisioning of the equipment fails.

The PROTID slot must be provisioned first.

To create 1:1 with the ENT-EQPT command, the working card should not be provisioned first, so the AID type field should be presented in ENT-EQPT for the AID on this <AID>.

The following is an example for a 1:1 protection group:

ENT-EQPT:[<TID>]:SLOT-1:<CTAG>::DS1;

ENT-EQPT:[<TID>]:SLOT-2:<CTAG>::DS1:PROTID=SLOT-1,PRTYPE=1-1,RVTM=5.0, RVRTV=Y;

1:N protection is always revertive. For 1:N protection, the protect slot can only be Slot 3 or Slot 15. For a protect card in Slot 3, the working cards can be in any of the slots on Bank A. Slot 15 is for protection in Bank B. A DSXN (DS1N or DS3N) card must be provisioned in the protect slot. A 1:1 protection cannot be upgraded to 1:N protection. This command creates a 1:N protection group or adds a new card to an existing 1:N protection group. Multiple working AIDs can be entered in a protection group.

The following is an example of provisioning a 1:N protection group with the ENT-EQPT command:

ENT-EQPT:[<TID>]:SLOT-3:<CTAG>::DS1N;

ENT-EQPT:[<TID>]:SLOT-2&SLOT-1:<CTAG>::DS1:PROTID=SLOT-3,PRTYPE=1-N;

The following is an example of provisioning a 1:N protection group with the ED-EQPT command:

ENT-EQPT:[<TID>]:SLOT-1&SLOT-2:<CTAG>::DS1;

ENT-EQPT:[<TID>]:SLOT-3:<CTAG>::DS1N;

ED-EQPT:[<TID>]:SLOT-2&SLOT-1:<CTAG>:::PROTID=SLOT-1,PRTYPE=1-N;

If the provisioning fails for some AIDs, PRTL responses will be provided indicating failed AIDs. If the provisioning fails for all the AIDs, a DENY response will be provided. For both CMPLD and PRTL responses on creating protection group query, the protection group has been created for the successful AID(s) query.

The following is an example for 1:N protection. The RVRTV parameter is not valid for 1:N protection.

ENT-EQPT:[<TID]>:SLOT-2:<CTAG>:::PROTID=SLOT-3,PRTYPE=1-N,RVTM=5.0;

Both ENT-EQPT and ED-EQPT commands can provision all working AIDs (1-5) together for 1:N by using listed AIDs.

The ENT-EQPT command provisions a new card and adds it to the protection group. The ED-EQPT command adds the already provisioned cards to the protection group.

The protect AID should already be provisioned for either command because protection group parameters are not supported for the protect AID.

The ENT-EQPT command provisions an equipment successfully on an empty slot if the equipment type is compatible with the slot number. This command can have the optional parameters in the “f” block to provision a card as a working card. It has the effect of adding the protection behavior at the time of provisioning itself. For the protection provisioning to succeed, the protect card should have already been provisioned. Trying to execute ENT-EQPT to provision a protection group on an already provisioned card will result in an error.

The following is an example of provisioning a 1:1 protection group:

| | | |
|---|---|---|
| **Step 1** | ENT-EQPT::SLOT-1:12::DS3; | Provisions the protect card. |
| **Step 2** | ENT-EQPT::SLOT-2:12::DS3:PROTID=SLOT-1, RVRTV=Y,RVTM=8.0; | Provisions a card and adds it to the protection group. |

The following is an example of provisioning a 1:N protection group:

| | | |
|---|---|---|
| **Step 1** | ENT-EQPT::SLOT-3:12::DS3N; | Provisions the protect card. |
| **Step 2** | ENT-EQPT::SLOT-1:12::DS3:PROTID=SLOT-3, RVTM=7.5,PRTYPE=1-N; | Provisions a card and adds it to protection group. |

**Note**

- If you send this command to provision a DS3NE card on Slot 1, 2, 4, 5, 6, 12, 13, 14,1 6, or 17, the DS3E card type is presented.
- If you send this command to provision a DS3N card on Slot 1, 2, 4, 5, 6, 12, 13, 14,1 6, or 17, the DS3 card type is presented.
- If you send this command to provision a DS1N card on Slot 1, 2, 4, 5, 6, 12, 13, 14,1 6, or 17, the DS1 card type is presented.
- For the MRC-12 card, there are hardware limitations for which Small Form-Factor Pluggable (SFP) ports can be used.
- The OC192-XFP card must be installed in Slots 5 and 6 or 12 and 13 and requires an XC10G or XC-VXC-10G cross-connect card.

Error conditions for creating 1:1 or 1:N protection groups are:

- AID sent to a non-working slot; the working cards must be in even slots for 1:1 protection, and in the same bank and not in Slot 3 or Slot 15 for 1:N protection.
- An invalid AID was chosen for protection slot.
- The working AID is already in a protection group.
- The AID is a protect AID.
- The protect card has a circuit.
- The equipment type does not match the allowed AID.
- The slot is already provisioned.
- The protect slot is not provisioned.
- Multiple working AIDs were sent for 1:1 protection.
- The CARDMODE provisioning is allowed on the DS3XM-12 and ML-Series cards. Provisioning for the DS3XM-12 is based on the cross-connect type and DS3XM-12 location. The following error conditions apply:
  - The DS3XM-12 card in the lower speed input/output (I/O) slot with the XCVT/XC10G card only allows the DS3XM-12-STS12 CARDMODE. Other cases allow the CARDMODE to be DS3XM-12-STS48.
  - The NE defaults to the highest available backplane rate/mode for the DS3XM-12 card if you do not specify the CARDMODE in the ENT-EQPT command.
  - The ML100T-8 card will be provisioned to default type MAPPER mode.
- The 1:N (1 <= N <= 7) protection group is allowed on the DS3XM-12 card in an ONS 15454 across two sides (A and B). All the cards in the 1:N protection group must be on the same backplane rate (or CARDMODE). The following error conditions apply:
  - For 1:N protection, the protect card must be allocated on either Slot 3 or Slot 15. For 1:1 protection, the protect card must be allocated on the odd slots.
  - The working DS3XM-12 cards on the opposite side of the shelf from the protection card (either Slot 3 or Slot 15) in a 1:N group can only have portless connections. The other working cards of the 1:N group on the same side of the shelf as the protection card do not have this limitation.

For example, suppose that there is a DS3XM-12 card 1:N group on Slot 2, Slot 3, Slot 4, Slot 12, and Slot 16, where Slot 3 is the protect card. Slot 2, Slot 4, Slot 12, and Slot 16 are the working cards in the 1:N (1:5) protection group. According to the above limitation rule, the Slot 12 and Slot 16 cards have to have the portless provisioning only, while the Slot 2 and Slot 4 cards can be either portless or ported provisioning.

- If the command mode (CMDMDE) is set to forced (FRCD) during the creation of a 1:1 or 1:N protection group, all cards must be physically plugged in and in the In Service (IS) state. If the cards are not physically plugged in, the command is denied with an appropriate error message. When the command mode is set to normal (NORM) (which is the default), the cards do not have to be physically plugged in and in the IS state.
- RETIME provisioning is allowed only on the DS1/E1-56 card (ONS 15454).
- For the Cisco ONS 15310-MA, only 1:1 Protection groups are supported. The protection group is automatically created when both the working and protect cards are provisioned, therefore protection groups cannot be created using the ENT-EQPT or ED-EQPT commands on the Cisco ONS 15310-MA. A protection group can be deleted by deleting the protect card (DLT-EQPT). Trying to delete the working card will result in the Equipment In Use (SPLD) error.

**Category**

Equipment

**Security**

Provisioning

**Input Format**

ENT-EQPT:[<TID>]:<AID>:<CTAG>::[<EQPTTYPE>]:[PROTID=<PROTID>],
[PRTYPE=<PRTYPE>],[RVRTV=<RVRTV>],[RVTM=<RVTM>],
[CARDMODE=<CARDMODE>],[PEERID=<PEERID>],[REGENNAME=<REGENNAME>],
[CMDMDE=<CMDMDE>],[TRANSMODE=<TRANSMODE>],[RETIME=<RETIME>],
[SHELFROLE=<SHELFROLE>][:];

**Input Example**

ENT-EQPT:PETALUMA:SLOT-12:118::DS3XM-12:PROTID=SLOT-13,PRTYPE=1-1,RVRTV=Y,
RVTM=8.5,CARDMODE=DS3XM12-STS12,PEERID=SLOT-3,REGENNAME="REGEN GROUP",
CMDMDE=FRCD,TRANSMODE=FRCD,RETIME=Y,SHELFROLE=NC;

ENT-EQPT:PETALULMA:SHELF-1:116::SHELF:SHELFROLE=SC;

**Input Parameters**

| | |
|---|---|
| <AID> | Access identifier from the "25.14 EQPT" section on page 25-31. |
| <EQPTTYPE> | The type of facility, link, or other addressable entity targeted by the message. The parameter type is EQUIPMENT_TYPE (equipment type). |
| • 10DME-C | 10DME-C card |
| • 10DME-L | 10DME-L card |
| • 32DMX | (ONS 15454) 32 channel demultiplexer |
| • 32DMX-L | (ONS 15454) 32 channel demultiplexer unit for L-band |

| | |
|---|---|
| • 32DMX-O | (ONS 15454) 32 channel unidirectional optical demultiplexer |
| • 32MUX-O | (ONS 15454) 32 channel unidirectional optical multiplexer |
| • 32WSS | (ONS 15454) 32 channel optical wavelength selective switch |
| • 32WSS-L | (ONS 15454) 32 channel wavelength switch selector unit for L-band |
| • 4MD-xx.x | (ONS 15454) Optical multiplexer/demultiplexer with 4 channels |
| • AD-1B-xx.x | (ONS 15454) Optical add/drop multiplexed (OADM) 1 band filter |
| • AD-1C-xx.x | (ONS 15454) Optical add/drop multiplexed (OADM) 1 channel filter |
| • AD-2C-xx.x | (ONS 15454) Optical add/drop multiplexed (OADM) 2 channel filter |
| • AD-4B-xx.x | (ONS 15454) Optical add/drop multiplexed (OADM) 4 band filter |
| • AD-4C-xx.x | (ONS 15454) Optical add/drop multiplexed (OADM) 4 channel filter |
| • AIC-I | (ONS 15454) AIC-I card |
| • ASAP-4 | (ONS 15600) Any service any port carrier card with 4 PIM slots |
| • CE-1000-4 | (ONS 15454) CE-1000-4 card |
| • CE-100T-8 | (ONS 15454, ONS 15310-CL, ONS 15310-MA) Eight port 100T card |
| • CTX2500 | (ONS 15310-MA) CTX2500 card |
| • DS1 | (ONS 15454) DS1 card |
| • DS1-28-DS3-EC1-3 | (ONS 15310-MA) DS1-28/DS3-EC1-3 card |
| • DS1-84-DS3-EC1-3 | (ONS 15310-MA) DS1-84/DS3-3 card |
| • DS1-E1-56 | (ONS 15454) DS1/E1-56 card |
| • DS1N | (ONS 15454) DS1N card |
| • DS3 | (ONS 15454) DS3 card |
| • DS3-EC1-48 | (ONS 15454) DS3/EC1-48 card |
| • DS3IN | (ONS 15454) DS3i-N-12 card |
| • DS3N | (ONS 15454) DS3N card |
| • DS3NE | (ONS 15454) DS3NE card |
| • DS3XM-6 | (ONS 15454) DS3XM-6 card |
| • DS3XM-12 | (ONS 15454) DS3XM-12 card |
| • E1000-2 | (ONS 15454) E1000-2 card |
| • E1000-2-G | (ONS 15454) E1000-2-G card |
| • E100T | (ONS 15454) E100T card |
| • EC1 | (ONS 15454) EC1 card |
| • FC-MR-4 | (ONS 15454) FC_MR-4 card |
| • FILLER-CARD | Blank Filler card |
| • G1000-2 | (ONS 15327) Two port G1000 card |

| | |
|---|---|
| • G1000-4 | (ONS 15454) Four port G1000 card |
| • MIC | (ONS 15327) MIC A card |
| • MIC | (ONS 15327) MIC B card |
| • ML100T-8 | (ONS 15310-CL, ONS 15310-MA) Mapper card |
| • ML1000-2 | (ONS 15454) ML-Series two port gigabit Ethernet card |
| • ML100T-12 | (ONS 15454) ML-Series 12 port FSTE card |
| • ML100X-8 | (ONS 15454) Eight port 100T card with optical interface |
| • MMU | (ONS 15454) Multiring/mesh upgrade unit |
| • MRC-12 | (ONS 15454) 12 port multirate optical card |
| • MS-ISC-100T | (ONS 15454) Multishelf Internal Switch Card |
| • MXP-2.5G-10E | (ONS 15454) 2.5-Gbps-10-Gbps Muxponder-100 GHz-Tunable xx.xx-xx.xx card |
| • MXP-2.5G-10E-L | (ONS 15454) 2.5-Gbps-10-Gbps Muxponder-100 GHz-Tunable xx.xx-xx.xx card for L-band |
| • MXP-2.5G-10E-C | (ONS 15454) 2.5-Gbps-10-Gbps Muxponder-100 GHz-Tunable xx.xx-xx.xx card for C-band |
| • MXP-2.5G-10G | (ONS 15454) 2.5-Gbps-10-Gbps muxponder-100 GHz-tunable xx.xx-xx.xx card |
| • MXP-MR-2.5G | (ONS 15454) 2.5-Gbps multirate muxponder-100 GHz-tunable 15xx.xx-15yy.yy card |
| • MXPP-2.5G-10G | (ONS 15454) 2.5-Gbps-10-Gbps muxponder-protected-100 GHz-tunable xx.xx-xx.xx card |
| • MXPP-MR-2.5G | (ONS 15454) 2.5-Gbps multirate muxponder-protected-100 GHz-tunable 15xx.xx-15yy.yy card |
| • OC3 | (ONS 15454, ONS 15327) OC-3 card |
| • OC3-8 | (ONS 15454) Eight port OC-3 card |
| • OC12 | (ONS 15454, ONS 15327) OC-12 card |
| • OC12-4 | (ONS 15454) Four port OC-12 card |
| • OC48 | (ONS 15454, ONS 15327, ONS 15600) OC-48 card |
| • OC48-16 | (ONS 15454) 16 port OC-48 card |
| • OC192 | (ONS 15454, ONS 15600) OC-192 card |
| • OC192-4 | (ONS 15454) Four port OC-192 card |
| • OC192-XFP | (ONS 15454) One port OC-192 XFP |
| • OPT-AMP-L | (ONS 15454) Optical preamplifier unit for L-Band |
| • OPT-BST | (ONS 15454) Optical booster amplifier |
| • OPT-BST-L | (ONS 15454) Optical booster unit for L-Band |
| • OPT-PRE | (ONS 15454) Optical preamplifier |
| • OSC-CSM | (ONS 15454) Optical service channel (OSC) with combiner/separator Module (SCM) |
| • OSCM | (ONS 15454) Optical service channel module |
| • PIM-1 | (ONS 15600) One port pluggable interface module |
| • PIM-4 | (ONS 15600) Four port pluggable interface module |

| | |
|---|---|
| • PPM-1 | (ONS 15454, ONS 15600, ONS 15310-CL, ONS 15310-MA) Pluggable port module with one SFP port |
| • SHELF | Shelf entity |
| • SSXC | (ONS 15600) Cross-connect card |
| • TCC | (ONS 15454) TCC card |
| • TXP-MR-10E | (ONS 15454) 10-Gbps multirate transponder-100-GHz-tunable xx.xx-xx.xx card |
| • TXP-MR-10E-C | (ONS 15454) 10-Gbps multirate transponder-100-GHz-tunable xx.xx-xx.xx card for C-band |
| • TXP-MR-10E-L | (ONS 15454) 10-Gbps multirate transponder-100-GHz-tunable xx.xx-xx.xx card for L-band |
| • TXP-MR-10G | (ONS 15454) 10-Gbps multirate transponder-100-GHz-tunable xx.xx-xx.xx card |
| • TXP-MR-2.5G | (ONS 15454) 2.5-Gbps multirate transponder-100-GHz-tunable xx.xx-xx.xx card |
| • TXPP-MR-2.5G | (ONS 15454) 2.5-Gbps multirate transponder-protected-100-GHz-tunable xx.xx-xx.xx card |
| • UNKNOWN | Unknown equipment type |
| • UNPROVISIONED | Unprovisioned type |
| • XC10G | (ONS 15454) XC10G card |
| • XCVT | (ONS 15454) XCVT card |
| • XC-VXC-10G | (ONS 15454) XC-VXC-10G card |
| • XTC | (ONS 15327) XTC card |
| <PROTID> | Protecting card slot identifier of the protection group from the "25.22 PRSLOT" section on page 25-40.<br>**Note** Not applicable to TXP_MR_10G and MXP_2.5G_10G cards. |
| <PRTYPE> | Protection group type.<br>**Note** Not applicable to TXP_MR_10G and MXP_2.5G_10G cards<br>The parameter type is PROTECTION_GROUP (protection group type). |
| • 1-1 | 1 for 1 protection |
| • 1-N | 1 for N protection |

| | |
|---|---|
| <RVRTV> | Revertive mode. The value Y indicates that the protection switching system reverts service to the original line after restoration. The value N indicates that the protection switching system does not revert service to the original line after restoration. RVRTV is applicable only for 1+1 protection switching. Null defaults to N.<br>**Note** Not applicable to TXP_MR_10G and MXP_2.5G_10G cards<br>The parameter type is ON_OFF (disable or enable an attribute). |
| • N | Disable an attribute. |
| • Y | Enable an attribute. |
| <RVTM> | Revertive time. The parameter type is REVERTIVE_TIME (revertive time). |
| • 0.5 to 12.0 | Revertive time is 0.5 to 12.0 minutes. |
| <CARDMODE> | Card mode.<br>**Note** The card will reboot after the mode changes, so the mode change request will not go through unless all the ports on the card are in OOS mode.<br>TL1 will not set a default CARD_MODE value at the management interface level if no PWL value is given. The parameter type is CARDMODE (card mode). Card mode is applicable to cards that have multiple capabilities, for example, the ML-Series card can operate in two distinct modes: Linear Mapper Mode and L2/L3 Mode. |
| • AMPL-BST | The optical amplifier is working as an optical booster |
| • AMPL-PRE | The optical amplifier is working as an optical pre-amplifier |
| • DS3XM12-STS12 | The DS3XM-12 card in the STS12 backplane rate mode |
| • DS3XM12-STS48 | The DS3XM-12 card in the STS48 backplane rate mode |
| • DWDM-LINE | Line terminating mode |
| • DWDM-SEC | Section terminating mode |
| • DWDM-TRANS-AIS | Transparent mode AIS |
| • DWDM-TRANS-SQUELCH | Transparent mode SQUELCH |
| • FCMR-DISTEXTN | FC_MR-4 card with distance extension support |
| • FCMR-LINERATE | FC_MR-4 card without distance extension support |
| • ML-GFP | ML-Series card in DOS field-programmable gate array (FPGA) using generic framing procedure (GFP) framing type |
| • ML-HDLC | ML-Series card in DOS FPGA using high-level data link control (HDLC) framing type |
| • MXPMR10DME-4GFC | 4 Gbps Fibre Channel/FICON mode for the Cisco ONS 15454 10DME-C/10DME-L card supported on ports one and five |

| | |
|---|---|
| • MXPMR10DME-4GFC-FCGEISC | 4 Gbps Fibre Channel/FICON supported on port one and Fibre Channel, GIGE and ISC modes for the Cisco ONS 15454 10DME-C/10DME-L card supported on ports five to eight |
| • MXPMR10DME-FCGEISC | Fibre Channel, GIGE and ISC modes for the Cisco ONS 15454 10DME-C/10DME-L card supported on all eight ports |
| • MXPMR10DME-FCGEISC-4GFC | Fibre Channel, GIGE and ISC modes for the Cisco ONS 15454 10DME-C/10DME-L card supported on ports one to four and 4 Gbps Fibre Channel/FICON supported on port five |
| • MXPMR10G-FCGEISC | Fibre Channel, GIGE and ISC modes for the Cisco ONS 15454 10DME-C10DME-L card supported on all 8 ports (MXP-MR-10DME) |
| • MXPMR10G-4GFC | 4 Gbps Fibre Channel/FICON mode for the Cisco ONS 15454 10DME-C10DME-L card supported on ports 1 and 5 (MXP-MR-10DME) |
| • MXPMR10G-FCGEISC-4GFC | Fibre Channel, GIGE and ISC modes for the Cisco ONS 15454 10DME-C10DME-L card supported on ports 1 to 4 and 4 Gbps Fibre Channel/FICON supported on port 5 (MXP-MR-10DME) |
| • MXPMR10G-4GFC-FCGEISC | 4 Gbps Fibre Channel/FICON supported on port 1 and Fibre Channel, GIGE and ISC Modes for the Cisco ONS 15454 10DME-C10DME-L card supported on ports 5 to 8 (MXP-MR-10DME) |
| • MXPMR25G-ESCON | ESCON mode for the Cisco ONS 15454 MXP_2.5G_10G card |
| • MXPMR25G-FCGE | Fibre channel or GIGE mode for the MXP_2.5G_10G card |
| • MXPMR25G-MIXED | Mixed Fibre Channel, GIGE and ESCON modes for the Cisco ONS 15454 MXP_2.5G_10G card |
| <PEERID> | The regeneration peer slot from the "25.14 EQPT" section on page 25-31. |
| <REGENNAME> | Name of a regeneration group. REGENNAME is a string. |
| <CMDMDE> | Command Mode. Applicable only when creating 1:1 or 1:N protection groups and/or adding cards to an existing protection group (1:N). If creating or adding cards to a protection group, specifying FRCD requires the card to be physically plugged in and in a ready state (IS). Default is NORM.<br><br>The parameter type is CMDMDE, which forces the system to execute a given command regardless of any standing conditions. Normal mode is the default behavior for all commands but you can specify FRCD to force the system to override a state where the command would normally be denied. |
| • FRCD | Force the system to override a state where the command would normally be denied. |

| | |
|---|---|
| • NORM | Execute the command normally. Do not override any conditions that could make the command fail. |
| <TRANSMODE> | The parameter type is CMDMDE, which forces the system to execute a given command regardless of any standing conditions. Normal mode is the default behavior for all commands but you can specify FRCD to force the system to override a state where the command would normally be denied. |
| • FRCD | Force the system to override a state where the command would normally be denied. |
| • NORM | Execute the command normally. Do not override any conditions that could make the command fail. |
| <RETIME> | Indicates if retiming is needed. Applicable only to the DS1/E1-56 card (ONS 15454). The parameter type is YES_NO, which indicates whether the user's password is about to expire, the user is logged into the NE, or the user is locked out of the NE. |
| • NO | No |
| • YES | Yes |
| <SHELFROLE> | The role of the shelf in the context of the node. When it is omitted it defaults to SC. The parameter is SHELF_ROLE. |
| • NC | The shelf behaves as a node controller. |
| • SC | The shelf behaves as a shelf controller. |

# 12.6 ENT-FFP-<MOD2DWDMPAYLOAD>

(Cisco ONS 15454) The Enter Facility Protection Group for 10GFC, 10GIGE, 1GFC, 1GFICON, 2GFC, 2GFICON, D1VIDEO, DV6000, ETRCLO, GIGE, HDTV, ISC1, ISC3, or PASSTHRU (ENT-FFP-<MOD2DWDMPAYLOAD>) command creates Y-cable protection on client facilities. Refer to the *Cisco ONS SONET TL1 Reference Guide* for specific card provisioning rules

**Usage Guidelines**

None

**Category**

DWDM

**Security**

Provisioning

**Input Format**

ENT-FFP-<MOD2DWDMPAYLOAD>:[<TID>]:<SRC>,
<DST>:<CTAG>:::[PROTTYPE=<PROTTYPE>],[PROTID=<PROTID>],[RVRTV=<RVRTV>],
[RVTM=<RVTM>],[PSDIRN=<PSDIRN>][:];

**Input Example**

ENT-FFP-HDTV:CISCO:FAC-1-1-1,FAC-2-1-1:100:::PROTTYPE=Y-CABLE,
PROTID=DC-METRO-1,RVRTV=Y,RVTM=1.0,PSDIRN=BI;

**Input Parameters**

| | |
|---|---|
| <SRC> | Source access identifier from the "25.15 FACILITY" section on page 25-33. |
| <DST> | Destination access identifier from the "25.15 FACILITY" section on page 25-33. |
| <PROTTYPE> | The type of facility protection. The parameter type is PROTTYPE (protection type for dense wavelength division multiplexing [DWDM] client facilities). |
| • Y-CABLE | Y-cable protection for the client ports on TXP_MR_10G, MXP_2.5G_10G, and TXP_MR_2.5G/TXPP_MR_2.5G cards. |
| <PROTID> | Protection group identifier. Defaults to the protect port AID of the protection group. String that can have a maximum length of 32 characters. |

| | |
|---|---|
| <RVRTV> | Revertive mode. The value Y indicates that the protection switching system reverts service to the original line after restoration. The value N indicates that the protection switching system does not revert service to the original line after restoration. RVRTV is applicable only for 1+1 protection switching. Null defaults to N. The parameter type is ON_OFF (disable or enable an attribute). |
| • N | Disable an attribute. |
| • Y | Enable an attribute. |
| <RVTM> | Revertive time. Defaults to 5.0 minutes. The parameter type is REVERTIVE_TIME (revertive time). |
| • 0.5 to 12.0 | Revertive time is 0.5 to 12.0 minutes. |
| <PSDIRN> | Protection switch operation. Identifies the switching mode. Defaults to UNI.<br>**Note** TXP_MR_10G and MXP_2.5G_10G cards do not support bidirectional switching.<br>Parameter type is UNI_BI (unidirectional and bidirectional switch operations). |
| • BI | Bidirectional protection switching |
| • UNI | Unidirectional protection switching |

# 12.7 ENT-FFP-<OCN_TYPE>

(Cisco ONS 15454, ONS 15327, ONS 15310-CL, ONS 15310-MA, ONS 15600) The Enter Facility Protection Group for OC3, OC12, OC48, or OC192 (ENT-FFP-<OCN_TYPE>) command creates an optical 1+1 protection.

## Usage Guidelines

See Table 27-1 on page 27-1 for supported modifiers by platform.

**Note**

- The protect AID must not be provisioned with traffic.
- The working AID can be provisioned with traffic.
- PROTID is a string and can have a maximum length of 32 characters.
- Optimized 1+1 protection and related attributes are only applicable to the ONS 15454.
- The following parameters are supported in Software Release 6.0 and later: OPOTYPE, VRGRDTM, DTGRDTM, and RCGRDTM.
- The following 1+1 protection group rules apply to the MRC-12 card:
  - A 1+1 protection group can only be created between MRC-12 cards. You cannot create a 1+1 protection group between an MRC-12 card and an OC-48 card, for example.
  - A 1+1 protection group can be created only using the same port number. For example, a protection group cannot be created between Port 1 of Slot 5 and Port 4 of Slot 12 (assuming that Slot 5 and Slot 12 both contain MRC-12 cards).

  - A 1+1 protection group cannot be created between ports on the same card. Protection groups cannot be created between Port 1 of Slot 5 and Port 4 of Slot 5 (assuming that Slot 5 contains a MRC-12 card).
  - Both the cards in the protection group must be placed in the same type of slot. Both MRC-12 cards must be in drop slots (Slots 1 to 4, 14 to 17) or both in trunk slots (Slots 5 to 6, 12 to 13). You cannot create a protection group between an MRC-12 card in a drop slot and another MRC-12 card in a trunk slot.
- The following 1+1 protection group rules apply to the OC192-XFP cards:
  - A 1+1 protection group can be created between two OC192-XFP cards in trunk slots (Slots 5 to 6, 12 to 13).
  - A 1+1 protection group can be created between a OC192-XFP card and an OC192LR/STM64LH card in trunk slots (Slots 5 to 6, 12 to 13).
- The PROTTYPE parameter is only applicable to optical DWDM cards.

**Category**

Protection

**Security**

Provisioning

**Input Format**

ENT-FFP-<OCN_TYPE>:[<TID>]:<WORK>,
<PROTECT>:<CTAG>:::[PROTTYPE=<PROTTYPE>],[PROTID=<PROTID>],
[RVRTV=<RVRTV>],[RVTM=<RVTM>],[PSDIRN=<PSDIRN>],[OPOTYPE=<OPOTYPE>],
[VRGRDTM=<VRGRDTM>],[DTGRDTM=<DTGRDTM>],[RCGRDTM=<RCGRDTM>][:];

**Input Example**

For ONS 15310-MA:

ENT-FFP-OC3:PETALUMA:OC3-3-1-1,OC3-3-2-1:1:::PROTTYPE=Y-CABLE,
PROTID=PROT_NAME,RVRTV=Y,RVTM=1.0,PSDIRN=BI,OPOTYPE=STANDARD,
VRGRDTM=0.5,DTGRDTM=1.0,RCGRDTM=1.0;

For ONS 15310-CL

ENT-FFP-OC3:PETALUMA:OC3-2-1-1,OC3-2-2-1:1:::PROTTYPE=Y-CABLE,
PROTID=PROT_NAME,RVRTV=Y,RVTM=1.0,PSDIRN=BI,OPOTYPE=STANDARD,
VRGRDTM=0.5,DTGRDTM=1.0,RCGRDTM=1.0;

**Input Parameters**

| | |
|---|---|
| <WORK> | Working port from the "25.15 FACILITY" section on page 25-33. |
| <PROTECT> | Protection port from the "25.15 FACILITY" section on page 25-33. |
| <PROTTYPE> | Protection group type. Y-CABLE is the only applicable value (for optical DWDM cards only). |

| | |
|---|---|
| <PROTID> | Protection group identifier. Defaults to the protect port AID of the protection group. If the name has an embedded double quote character, that double quote character has to be escaped with a backslash \". The double quotes are special characters that delimit the protection group name and they must be balanced (paired). PROTID is a string that has a maximum length of 32 characters. |
| <RVRTV> | Revertive mode. The value Y indicates that the protection switching system reverts service to the original line after restoration. The value N indicates that the protection switching system does not revert service to the original line after restoration. RVRTV is applicable only for 1+1 protection switching. Null defaults to N. The parameter type is ON_OFF (disable or enable an attribute). |
| • N | Disable an attribute. |
| • Y | Enable an attribute. |
| <RVTM> | Revertive time. Defaults to 5.0 minutes. The parameter type is REVERTIVE_TIME (revertive time). |
| • 0.5 to 12.0 | Revertive time is 0.5 to 12.0 minutes. |
| <PSDIRN> | Protection switch operation. Identifies the switch mode. The parameter type is UNI_BI (unidirectional and bidirectional switch operations) |
| • BI | Bidirectional protection switching |
| • UNI | Unidirectional protection switching |
| <OPOTYPE> | One plus one protection type. Can be either standard or optimized 1+1 protection. The parameter type is ONE_PLUS_ONE (1+1 protection type). |
| • Optimized | Optimized 1+1.<br>**Note** Only applicable to the ONS 15454. The port must be in SDH mode. |
| • Standard | Standard 1+1 |
| <VRGRDTM> | Verification guard timer. Only applicable to optimized 1+1. The parameter type is VERIFICATION_GUARD_TIMER (optimized 1+1 verification guard timer). |
| • 0.5 | 500 ms |
| • 1.0 | 1 second |
| <DTGRDTM> | Detection guard timer. Only applicable to optimized 1+1. The parameter type is DETECTION_GUARD_TIMER (optimized 1+1 detection guard timer). |
| • 0.0 | 0 seconds |
| • 0.05 | 50 ms |
| • 0.1 | 100 ms |
| • 0.5 | 500 ms |
| • 1.0 | 1 second |
| • 2.0 | 2 second |
| • 3.0 | 3 seconds |
| • 4.0 | 4 seconds |
| • 5.0 | 5 seconds |

| | |
|---|---|
| <RCGRDTM> | Recovery guard timer. Only applicable to optimized 1+1. The parameter type is RECOVERY_GUARD_TIMER (optimized 1+1 detection guard timer). |
| • 0.0 | 0 seconds |
| • 0.05 | 50 ms |
| • 0.1 | 100 ms |
| • 0.5 | 500 ms |
| • 1.0 | 1 second |
| • 2.0 | 2 second |
| • 3.0 | 3 seconds |
| • 4.0 | 4 seconds |
| • 5.0 | 5 seconds |
| • 6.0 | 6 seconds |
| • 7.0 | 7 seconds |
| • 8.0 | 8 seconds |
| • 9.0 | 9 seconds |
| • 10.0 | 10 seconds |

# 12.8 ENT-LNK

(ONS 15454) The Enter Optical Link (ENT-LNK) command creates an optical link between two optical connection points. The optical links can be established between two OTS or two OMS of the same band, and two optical channels (OCH) of the same wavelength. The created optical link must be between points belonging to the same ring directionality. An optical link between two OMS or two OCH can be hitless if the connection is between two points from one drop to a consecutive add in the logical link.

**Usage Guidelines** None

**Category** DWDM

**Security** Provisioning

**Input Format** ENT-LNK:[<TID>]:<FROM>,<TO>:<CTAG>::::[<PST>[,<SST>]];

**Input Example** ENT-LNK:PENNGROVE:BAND-6-1-TX,BAND-13-1-RX:114::::OOS,AINS;

**Input Parameters**

| | |
|---|---|
| <FROM> | Identifier at one end of the optical link from the "25.4 BAND" section on page 25-16. |
| <TO> | Identifier at the other end of the optical link from the "25.4 BAND" section on page 25-16. |
| <PST> | Primary state of the entity. The parameter type is PST (primary state). Indicates the current overall service condition of an entity. |
| • IS | In Service |
| • OOS | Out of Service |
| <SST> | Secondary state of the entity. The parameter type is SST (secondary state). Provides additional information pertaining to PST and PSTQ. |
| • AINS | Automatic in-service |
| • DSBLD | Disabled |
| • LPBK | Loopback |
| • MEA | Mismatch of equipment and attributes |
| • MT | Maintenance mode |
| • OOG | Out of group |
| • SWDL | Software downloading |
| • UAS | Unassigned |
| • UEQ | Unequipped |

# 12.9 ENT-LNKTERM

(Cisco ONS 15454, ONS 15327, ONS 15310-CL) The ENT-LNKTERM command creates a provisionable patchcord (PP) termination (virtual link) on a physical interface. A user-provisioned link is needed when the data communications channel/generic communications channel (DCC/GCC) is transparently carried over several physical links, and the physical link cannot be automatically discovered by Open Shortest Path First (OSPF) due to lack of control channel termination or when the link does not support SONET/SDH.

**Usage Guidelines**

The error message "Provisioning Rules Failed" is returned if the provisioning rules are not satisfied. The following rules must be satisfied while creating a provisionable patchcord termination on a physical interface:

- For a SONET port:
  - A Section DCC (SDCC) termination must be provisioned. If it is the protect facility in a 1+1 protection group, the corresponding working facility must have an SDCC termination provisioned.
  - If it is part of a BLSR, the SDCC must be provisioned on all of the working ports of the BLSR.
- For a TXP/MXP trunk port, either ITU-T G.709 must be enabled or the payload type must be non-SONET/SDH.
- For a TXP/MXP client port, a card must be operating in the transparent termination mode.
- Multi-Service Transport Platform (MSTP) OCH port
- The number of PP terminations is limited to 146.

**Note**

- If the OC-N interface is a part of a 1+1 protection group, a separate PP termination can be provisioned on the other (working/protect) interface also.
- If the client interface is a part of a Y-cable protection group, a separate PP termination can be provisioned on the other (working/protect) interface also.
- If the MXP/TXP trunk interface is a part of a splitter protection group, a separate PP termination can be provisioned on the other (working/protect) interface also.
- If REMOTENODE is specified as an IP address (or a node name that can be resolved by the gateway network element [GNE]) that is different from the local node's IP address/name, this termination is intended to be a part of an internode provisionable patchcord.
- All endpoints of the provisionable patchcord need to be provisioned correctly (on the local and/or remote node) for it to show as UP in OSPF.
- Misconfigured or partially configured provisionable patchcords will not cause alarms or events to be generated at either end of the link.
- No two provisionable patchcord terminations on a node can be configured to have the same remote node PP termination information (for example, the combination of values for REMOTENODE and REMOTELNKTERMAID attributes for a PP termination must be unique on a single node).
- All provisionable patchcord terminations on one physical interface must have their remote terminations on a single remote node.
- The command does not accept multiple and ALL style AIDs.

**Category**

Provisionable Patchcords

**Security**

Provisioning

**Input Format**

ENT-LNKTERM:[<TID>]:<AID>:<CTAG>:::PORT=<PORT>,
[REMOTENODE=<REMOTENODE>],REMOTELNKTERMID=<REMOTELNKTERMID>;

**Input Example**

ENT-LNKTERM::LNKTERM-1:CTAG:::PORT=FAC-5-1,REMOTENODE=172.20.208.225,
REMOTELNKTERMID=20;

**Input Parameters**

| | |
|---|---|
| <AID> | Access identifier from the "25.19 LNKTERM" section on page 25-39. Indicates a link (provisionable patchcord) termination on the local node. |
| <PORT> | The local port corresponding to this provisionable patchcord termination from the "25.8 CHANNEL" section on page 25-19. |

| | |
|---|---|
| <REMOTENODE> | The node where the other end of the provisionable patchcord resides. This can be an IP address or a valid TID. Defaults to the IP address of the local node/existing value. REMOTENODE is a string. |
| <REMOTELNKTERMID> | The corresponding provisionable patchcord termination on the remote node (as specified by the REMOTENODE parameter). Integer value within the range of 1 to 65535. Defaults to existing value. |

# 12.10 ENT-OCHCC

(Cisco ONS 15454) The Enter Optical Channel Client Connection (ENT-OCHCC) command allocates an OCH client connection. This is the portion of the circuit that connects the end client ports using trail ports to an OCH network connection circuit. This allocates the portion of circuit between the OCH filter port to the TXP/MXP or ITU-T client port.

**Usage Guidelines**

- The client port FAC AID must be specified in order to allocate a client channel inside the node.
- The default values for all optional parameters are NE default values. These values might not be the current value for a parameter. In order to obtain the current value, issue the RTRV-XX command.

**Category**

DWDM

**Security**

Provisioning

**Input Format**

ENT-OCHCC:[<TID>]:<AID>:<CTAG>[:::CKTID=<CKTID>],
[CMDMDE=<CMDMDE>]:[<PST>][,<SST>];

**Input Example**

ENT-OCHCC:VA454-22:FAC-2-1-1:116:::CKTID=\"OCHCC-1\",CMDMDE=FRCD:OOS,DSBLD;

**Input Parameters**

| | |
|---|---|
| <AID> | Access identifier from the "25.15 FACILITY" section on page 25-33. |
| <CKTID> | Cross-connect ID. The default is Blank or None. String of ASCII characters. Maximum length is 48. If CKTID is empty or null the CKTID field will not be displayed. |
| <CMDMDE> | The parameter type is command mode, which forces the system to execute a given command regardless of any standing conditions. NORM mode is the default behavior for all commands but you can specify FRCD to force the system to override a state in which the command would normally be denied. |

| | |
|---|---|
| • FRCD | Force the system to override a state in which the command would normally be denied. |
| • NORM | Execute the command normally. Do not override any conditions that may make the command fail. |
| <PST> | Primary state. The parameter type is PST, which indicates the current overall service condition of an entity. The default is IS. |
| • IS | In service |
| • OOS | Out of service |
| <SST> | Secondary state. The parameter type is SST, which provides additional information pertaining to PST and PSTQ. The default is AINS. |
| • AINS | Automatic in-service |
| • DSBLD | Disabled |
| • LPBK | Loopback |
| • MEA | Mismatch of equipment and attributes |
| • MT | Maintenance mode |
| • OOG | Out of group |
| • SWDL | Software downloading |
| • UAS | Unassigned |
| • UEQ | Unequipped |

# 12.11 ENT-OCHNC

(Cisco ONS 15454) The Enter Optical Channel Network Connection (ENT-OCHNC) command allocates an OCH network connection.

**Usage Guidelines**

- Two CHANWL end points must be specified in order to allocate a wavelength channel inside the node. According to the CHANWL specified, the channel allocated can be a passthrough
- The default values for all optional parameters are NE default values. These values might not be the current value for a parameter. In order to obtain the current value, issue the RTRV-XX command.

**Category**

DWDM

**Security**

Provisioning

**Input Format**

ENT-OCHNC:[<TID>]:<SRC>,<DST>:<CTAG>::[<WCT>]:[CKTID=<CKTID>], [CMDMDE=<CMDMDE>]:[<PST>[,<SST>]];

**Input Example**

ENT-OCHNC:VA454-22:LINEWL-1-3-TX-1530.33,
CHANWL-4-1-RX-1530.33:116::1WAY:CKTID=CIRCUIT,CMDMDE=FRCD:OOS,DSBLD;

**Input Parameters**

| | |
|---|---|
| <SRC> | Source access identifier from the "25.8 CHANNEL" section on page 25-19. In 2-way wavelength connection sources both directions need to be indicated. |
| <DST> | Destination access identifier from the "25.18 LINEWL" section on page 25-38. In 2-way wavelength connection sources both directions need to be indicated. |
| <WCT> | Wavelength connection type. The parameter type is WCT. The default is 1WAY. |
| • 1WAY | A unidirectional wavelength connection for one specified ring direction. |
| • 2WAY | A bidirectional wavelength connection for both the ring directions. |
| <CKTID> | Cross-connect ID. The default is Blank or None. String of ASCII characters. Maximum length is 48. If CKTID is empty or null the CKTID field will not be displayed. |
| <CMDMDE> | The parameter type is command mode, which forces the system to execute a given command regardless of any standing conditions. NORM mode is the default behavior for all commands but you can specify FRCD to force the system to override a state in which the command would normally be denied. |
| • FRCD | Force the system to override a state in which the command would normally be denied. |
| • NORM | Execute the command normally. Do not override any conditions that may make the command fail. |
| <PST> | Primary state. The parameter type is PST, which indicates the current overall service condition of an entity. The default is IS. |
| • IS | In service |
| • OOS | Out of service |
| <SST> | Secondary state. The parameter type is SST, which provides additional information pertaining to PST and PSTQ. The default is AINS. |
| • AINS | Automatic in-service |
| • DSBLD | Disabled |
| • LPBK | Loopback |
| • MEA | Mismatch of equipment and attributes |
| • MT | Maintenance mode |
| • OOG | Out of group |
| • SWDL | Software downloading |
| • UAS | Unassigned |
| • UEQ | Unequipped |

# 12.12 ENT-OSC

(ONS 15454) The Enter Optical Service Channel (ENT-OSC) command creates the optical service channel (OSC) group of the NE.

**Note** RINGID defaults to the AID number.

**Usage Guidelines** None

**Category** DWDM

**Security** Provisioning

**Input Format** ENT-OSC:[<TID>]:<AID>:<CTAG>:::[RINGID=<RINGID>],[NODEID=<NODEID>],[EAST=<EAST>],[WEST=<WEST>];

**Input Example** ENT-OSC:PENNGROVE:OSC-1:114:::RINGID=10,NODEID=1,EAST=FAC-8-1,WEST=FAC-10-1;

**Input Parameters**

| | |
|---|---|
| <AID> | Access identifier from the "25.21 OSC" section on page 25-40. Identifies the OSC group of the NE. |
| <RINGID> | OSC ring ID of the NE. It ranges from 1 to 9999. Default value is "# of AID OSC-#". RINGID is an integer. |
| <NODEID> | OSC node ID of the NE. It ranges from 0 to 31. NODEID is an integer. |
| <EAST> | The east OC3 facility from the "25.15 FACILITY" section on page 25-33. EAST_OC3 is the AID facility. Only one OC3 for the east direction is supported in this release. This parameter can be omitted. |
| <WEST> | The west OC3 facility from the "25.15 FACILITY" section on page 25-33. EAST_OC3 is the AID facility. Only one OC3 for the west direction is supported in this release. This parameter can be omitted. |

# 12.13 ENT-RMONTH-<MOD2_RMON>

(Cisco ONS 15454, ONS 15327, ONS 15310-CL, ONS 15310-MA) The Enter Remote Monitoring Threshold for 10GFC, 10GIGE, 1GFC, 1GFICON, 2GFC, 2GFICON, FSTE, G1000, GFPOS, GIGE, OCH, or POS (ENT-RMONTH-<MOD2_RMON>) command creates an entry in the remote monitoring (RMON) alarm table for the threshold of data statistics (for example, GIGE or FC) managed by the

RMON engine. After creating the RMON threshold (RMONTH) a threshold crossing alert (TCA) event will be generated and reported to the TL1 session when the threshold is crossed. More than one threshold can be created with different parameters for each data statistic type.

**Usage Guidelines**

See Table 27-1 on page 27-1 for supported modifiers by platform.

**Category**

Performance

**Security**

Provisioning

**Input Format**

ENT-RMONTH-<MOD2_RMON>:[<TID>]:<SRC>:<CTAG>::<MONTYPE>,,,,<INTVL>:RISE=<RISE>,FALL=<FALL>,[SAMPLE=<SAMPLE>],[STARTUP=<STARTUP>][:];

**Input Example**

ENT-RMONTH-GIGE:CISCO:FAC-2-1:1234::ETHERSTATSOCTETS,,,,100:RISE=1000,FALL=100,SAMPLE=DELTA,STARTUP=RISING;

**Input Parameters**

| | |
|---|---|
| <SRC> | Source access identifier from the "25.15 FACILITY" section on page 25-33. AID for the facility that manages the data statistics. |
| <MONTYPE> | Monitored type. Type of RMON monitored data statistics. The parameter type is ALL_MONTYPE (monitoring type list). |
| • AISSP | Alarm Indication Signal Seconds—Path |
| • BBE-PM | OTN—Background Block Errors—Path Monitor Point |
| • BBE-SM | OTN—Background Block Errors—Section Monitor Point |
| • BBER-PM | OTN—Background Block Error Ratio—Path Monitor Point expressed as one tenth of a percentage |
| • BBER-SM | OTN—Background Block Error Ratio—Section Monitor Point expressed as one tenth of a percentage |
| • BIEC | FEC—Bit Errors Corrected |
| • CGV | 8B10B—Code Group Violations |
| • CSSP | Controlled Slip Seconds—Path (DSXM-12 FDL/T1.403 PM count) |
| • CVCPP | Coding Violations—CP-Bit Path |
| • CVL | Coding Violations—Line |
| • CVP | Coding Violations—Path |
| • CVS | Coding Violations—Section |
| • CVV | Coding Violations—Section |
| • DCG | 8B10B—Data Code Groups |
| • ESAP | Errored Second Type A-Path (DS3XM-12 DS1 PM count) |
| • ESBP | Errored Second Type B-Path (DS3XM-12 DS1 PM count) |
| • ESCPP | Errored Seconds—CP—Bit Path |

| | |
|---|---|
| • ESL | Errored Seconds—Line |
| • ESNPFE | Errored Second—Network Path (DS3XM-12 DS1 PM count) |
| • ESP | Errored Seconds—Path |
| • ES-PM | OTN—Errored Seconds—Path Monitor Point |
| • ES-SM | OTN—Errored Seconds—Section Monitor Point |
| • ESR | Errored Second—Ratio |
| • ESR-PM | Errored Seconds Ratio—Path monitor Point expressed as one tenth of a percentage |
| • ESR-SM | Errored Seconds Ratio—Section monitor Point expressed as one tenth of a percentage |
| • ESS | Errored Seconds—Section |
| • ESV | Errored Seconds—VT Path |
| • etherStatsBroadcastPkts | The total number of good packets received that were directed to a multicast address |
| • etherStatsCollisions | Number of transmit packets that are collisions |
| • etherStatsCRCAlignErrors | The total number of packets received that have a length (excluding framing bits, but including frame check sequence [FCS] octets) of between 64 and 1518 octets |
| • etherStatsDropEvents | Number of received frames dropped at the port level |
| • etherStatsFragments | The total number of packets received that were less than 64 octets |
| • etherStatsJabbers | The total number of packets received that are longer than 1518 octets |
| • etherStatsOctets | The total number of octets of data |
| • etherStatsOversizePkts | The total number of packets received that are longer than 1518 octets |
| • etherStatsPkts | The total number of packets (including bad packets, broadcast packets, and multicast packets) received |
| • etherStatsUndersizePkts | The total number of packets received that are less than 64 octets |
| • FCP | Failure Count—Line |
| • FC-PM | OTN—Failure Count—Path Monitor Point |
| • FC-SM | OTN—Failure Count—Section Monitor Point |
| • HP-AR | Availability Ratio |
| • HP-BBE | High-Order Path Background Block Error |
| • HP-BBER | High-Order Path Background Block Error Ratio |
| • HP-EB | High-Order Path Errored Block |
| • HP-ES | High-Order Path Errored Second |
| • HP-ESA | High-Order Path Errored Seconds - A |
| • HP-ESB | High-Order Path Errored Seconds - B |
| • HP-ESR | High-Order Path Errored Second Ratio |
| • HP-FC | High-Order Path Failure Count |
| • HP-NPJC-PDET | High Order Path Negative Pointer Justification Count |
| • HP-NPJC-PGEN | High Order Path, Negative Pointer Justification Count |
| • HP-OI | Outage Intensity |

| | |
|---|---|
| • HP-PJCDIFF | High Order Path Pointer Justification Count Difference |
| • HP-PJCS-PDET | High Order Path Pointer Justification Count |
| • HP-PJCS-PGEN | High Order Path Pointer Justification Count Seconds |
| • HP-PPJC-PDET | High Order Path Positive Pointer Justification Count |
| • HP-PPJC-PGEN | High Order Path, Positive Pointer Justification Count |
| • HP-SEPI | The number of SEP events in available time |
| • HP-SES | High-Order Path Severely Errored Seconds |
| • HP-SESR | High-Order Path Severely Errored Second Ratio |
| • HP-UAS | High-Order Path Unavailable Seconds |
| • ifInBroadcastPkts | Number of broadcast packets received since the last counter reset |
| • ifInDiscards | The number of inbound packets |
| • ifInErrorBytePktss | Receive Error Byte |
| • ifInErrors | The number of inbound packets (or transmission units) that contained errors |
| • ifInFramingErrorPkts | Receive Framing Error |
| • ifInJunkInterPkts | Receive Interpacket Junk |
| • ifInMulticastPkts | Number of multicast packets received since the last counter reset |
| • ifInOctets | Number of bytes transmitted since the last counter reset |
| • ifInUcastPkts | Number of unicast packets received since the last counter reset |
| • ifOutBroadcastPkts | Number of broadcast packets transmitted |
| • ifOutDiscards | The number of outbound packets |
| • ifOutErrors | The number of outbound packets (or transmission units) that could not be transmitted because of errors |
| • ifOutMulticastPkts | Number of multicast packets transmitted |
| • ifOutPayloadCrcErrors | Received payload cyclic redundancy check (CRC) errors |
| • ifOutUcastPkts | Number of unicast packets transmitted |
| • IOS | 8B10B- Idle Ordered Sets |
| • IPC | Invalid Packet Count |
| • LBCL-AVG | Average Laser Bias current in microA |
| • LBCL-MAX | Maximum Laser Bias current in microA |
| • LBCL-MIN | Minimum Laser Bias current in microA |
| • LBCN | Normalized Laser Bias Current for OC3-8 |
| • LBCN-HWT | Laser Bias Current |
| • LBCN-LWT | Laser Bias Current |
| • LOSSL | Loss of Signal Seconds—Line |
| • LP-BBE | Low-Order Path Background Block Error |
| • LP-BBER | Low-Order Path Background Block Error Ratio |
| • LP-EB | Low-Order Path Errored Block |
| • LP-ES | Low-Order Path Errored Second |
| • LP-ESA | Low-Order Path Errored Seconds-A |
| • LP-ESB | Low-Order Path Errored Seconds-B |
| • LP-ESR | Low-Order Path Errored Second Ratio |

| | |
|---|---|
| • LP-FC | Low-Order Path Failure Count |
| • LP-NPJC-DET | Low-Order Negative Pointer Justification Count, Detected |
| • LP-NPJC-GEN | Low Order Negative Pointer Justification Count, Generated |
| • LP-PPJC-DET | Low-Order Positive Pointer Justification Count, Detected |
| • LP-PPJC-GEN | Low-Order Positive Pointer Justification Count, Generated |
| • LP-SEP | Low-Order Path Severely Errored Period |
| • LP-SEPI | Low-Order Path Severely Errored Period Intensity |
| • LP-SES | Low-Order Path Severely Errored |
| • LP-UAS | Low-Order Path Unavailable Seconds |
| • mediaIndStatsRxFramesBadCrc | rx frames with bad crc |
| • mediaIndStatsRxLcvErrors | L1 line code violations for lower rate FC. This equates to invalid 8b10b ordered sets. |
| • mediaIndStatsTxFramesBadCrc | tx frames with bad crc |
| • mediaIndStatsTxLcvErrors | L1 line code violations for lower rate FC. This equates to invalid 8b10b ordered sets. |
| • MS-PSC | Protection switch count |
| • MS-PSD | Protection switch duration |
| • NIOS | 8B10B—Non Idle Ordered Sets |
| • NPJC-PDET | PPJC-PDET:Negative Pointer Justification |
| • NPJC-PGEN | PPJC-PGEN:Negative Pointer Justification |
| • OPR-AVG | Average Receive Power in tenths of a microW |
| • OPR-MAX | Maximum Receive Power in tenths of a microW |
| • OPR-MIN | Minimum Receive Power in tenths of a microW |
| • OPRN | Normalized Optical Receive Power for OC3-8 |
| • OPRN-MAX | Maximum value for OPRN |
| • OPRN-MIN | Minimum value for OPRN |
| • OPT-AVG | Average Transmit Power in tenths of a microW |
| • OPT-MAX | Maximum Transmit Power in tenths of a microW |
| • OPT-MIN | Minimum Transmit Power in tenths of a microW |
| • OPTN | Normalized value for Optical Power Transmitted for the OC3-8 card |
| • OPTN-MAX | Maximum value for OPTN |
| • OPTN-MIN | Minimum value for OPTN |
| • OPWR-AVG | Optical Power—Average Interval Value in tenths of a dBm |
| • OPWR-MAX | Optical Power—Maximum Interval Value in tenths of a dBm |
| • OPWR-MIN | Optical Power—Minimum Interval Value in tenths of a dBm |
| • PPJC-PDET | PPJC-PDET:Positive Pointer Justification |
| • PPJC-PGEN | PPJC-PGEN:Positive Pointer Justification |
| • PSC | Protection Switching Count |
| • PSC-R | Protection Switching Count—Ring |
| • PSC-S | Protection Switching Count—Span |

| | |
|---|---|
| • PSC-W | Protection Switching Count—Working |
| • PSD | Protection Switching Duration |
| • PSD-R | Protection Switching Duration—Ring |
| • PSD-S | Protection Switching Duration—Span |
| • PSD-W | Protection Switching Duration—Working |
| • SASCPP | Severely Errored Framing/AIS Second—CP-Bit Path |
| • SASP | Severely Errored Framing/AIS Seconds Path |
| • SEFS | Severely Errored Framing Seconds |
| • SEFSP | Severely Errored Framing Seconds—Path (DS3XM-12 DS1 PM count) |
| • SESCPP | Severely Errored Second—CP-Bit Path |
| • SESL | Severely Errored Second—Line |
| • SESNPFE | Severely Errored Second—Network Path (DS3XM-12 DS1 PM count) |
| • SESP | Severely Errored Second—Path |
| • SES-PM | OTN—Severely Errored Second—Path |
| • SESR-PM | OTN—Severely Errored Second Ratio—Path Monitor Point expressed as one tenth of a percentage |
| • SESR-SM | OTN—Severely Errored Second Ratio—Section Monitor Point expressed as one tenth of a percentage |
| • SESS | Severely Errored Second—Section |
| • SES-SM | OTN—Severely Errored Second—Section Monitor Point |
| • SESV | Severely Errored Second—VT Path |
| • UASCPP | Unavailable Second—CP-Bit Path |
| • UASL | Unavailable Second—Line |
| • UASNPFE | Unavailable Second—Network Path (DS3XM-12 DS1 PM count) |
| • UASP | Unavailable Second—Path |
| • UAS-PM | OTN—Unavailable Second—Path Monitor Point |
| • UAS-SM | OTN—Unavailable Second—Section Monitor Point |
| • UASV | Unavailable Second—VT Path |
| • UNC-WORDS | FEC—Uncorrectable Words |
| • VPC | Valid Packet Count |
| <INTVL> | The interval in seconds over which the data is sampled and compared with the rising and falling threshold. A valid value is any integer larger than or equal to 10 (seconds). |
| <RISE> | The rising threshold for the sampled statistic. A valid value is any integer. |
| <FALL> | The falling threshold. A valid value is any integer smaller than the rising threshold. |
| <SAMPLE> | The method of calculating the value to be compared to the thresholds. The parameter type is SAMPLE_TYPE, which describes how the data will be calculated during the sampling period. |
| • ABSOLUTE | Comparing directly |

| | |
|---|---|
| • DELTA | Comparing with the current value of the selected variable subtracted by the last sample |
| <STARTUP> | Dictates whether an event will generate if the first valid sample is greater than or equal to the rising threshold, less than or equal to the falling threshold, or both. The parameter type is STARTUP_TYPE, which indicates whether an event will be generated when the first valid sample is crossing the rising or falling threshold. |
| • FALLING | Generates the event when the sample is smaller than or equal to the falling threshold. |
| • RISING | Generates the event when the sample is greater than or equal to the rising threshold. |
| • RISING-OR-FALLING | Generates the event when the sample is crossing the rising threshold or the falling threshold. |

# 12.14 ENT-ROLL-<MOD_PATH>

(Cisco ONS 15454, ONS 15327, ONS 15310-CL, ONS 15310-MA, ONS 15600) The Enter Roll for STS1, STS12C, STS192C, STS24C, STS3C, STS48C, STS6C, STS9C, VC12, VC3, VT1, or VT2 (ENT-ROLL-<MOD_PATH>) command enters information about rolling of traffic from one end point to another without interrupting service. This command can be used to roll single paths (STS or VT).

**Note** STS18C and STS36C are not supported in this release.

**Usage Guidelines** None

**Category** Bridge and Roll

**Security** Provisioning

**Input Format** ENT-ROLL-<MOD_PATH>:[<TID>]:<FROM>,<TO>:<CTAG>:::RFROM=<RFROM>, RTO=<RTO>,RMODE=<RMODE>,[CMDMDE=<CMDMDE>];

**Input Example** ENT-ROLL-STS1:CISCO:STS-1-1-1,STS-2-1-1:1:::RFROM=STS-2-1-1,RTO=STS-3-1-1, RMODE=MAN,FORCE=Y;

**Input Parameters**

| | |
|---|---|
| <FROM> | Source access identifier from the "25.25 STS" section on page 25-41. It is one of the termination points (legs) of the existing cross-connection. If the existing cross-connection is one-way, then this termination point (leg) should be the FROM-AID termination point. Otherwise, FROM is not significant. FROM and TO should be entered as they are entered in the ENT-CRS command. You can issue the RTRV-CRS command, and use the response for FROM and TO parameters. |
| <TO> | Destination AID from the "25.25 STS" section on page 25-41. It is one of the termination points (legs) of the existing cross-connection. If the existing cross-connection is one-way, then this termination point (leg) should be the TO-AID termination point. Otherwise, the TO is not significant. FROM and TO should be entered as they are entered in the ENT-CRS command. You can issue the RTRV-CRS command, and use the response for FROM and TO parameters. |
| <RFROM> | The termination point of the existing cross-connect that is to be rolled. AID from the "25.25 STS" section on page 25-41. |
| <RTO> | The termination point that will become a leg of the new cross-connection. AID from the "25.25 STS" section on page 25-41. |

| | |
|---|---|
| <RMODE> | Indicates the mode of rolling operation. The parameter type is RMODE (roll mode) |
| • AUTO | Automatic. When a valid signal is available, the roll under AUTO mode will automatically delete the previous end-point. |
| • MAN | Manual. Enter the corresponding delete roll/bulkroll command to delete the previous end-point. |
| <FORCE> | Forces a valid signal on the path. FORCE can only go from Y to N. The parameter type is ON_OFF (disable or enable an attribute). |
| • N | Disable an attribute. |
| • Y | Enable an attribute. |

# 12.15 ENT-ROUTE

(Cisco ONS 15454, ONS 15327, ONS 15310-CL, ONS 15310-MA, ONS 15600) The Enter Route (ENT-ROUTE) command creates static routes.

**Usage Guidelines**

There is no Domain Name Server (DNS) service available on the node. Only numeric IP addresses will be accepted.

**Category**

System

**Security**

Provisioning

**Input Format**

ENT-ROUTE:[<TID>]::<CTAG>::<DESTIP>,<IPMASK>,<NXTHOP>,<COST>;

**Input Example**

ENT-ROUTE:CISCO::123::10.64.72.57,255.255.255.0,10.64.10.12,200;

**Input Parameters**

| | |
|---|---|
| <DESTIP> | Destination tip. DESTIP is a string. |
| <IPMASK> | IP mask. IPMASK is a string. |
| <NXTHOP> | Next hop. NXTHOP is a string. |
| <COST> | Unsigned integer. Valid range is from 1 to 32,797. |

# 12.16 ENT-ROUTE-GRE

(Cisco ONS 15454, ONS 15327, ONS 15310-CL, ONS 15310-MA, ONS 15600) The Enter Route Generic Routing Encapsulation (ENT-ROUTE-GRE) command creates a GRE tunnel. This can be used to transport IP over Open Systems Interconnect (OSI) or OSI over IP.

**Usage Guidelines** None

**Category** System

**Security** Provisioning

**Input Format** ENT-ROUTE-GRE:[<TID>]::<CTAG>:::IPADDR=<IPADDR>,IPMASK=<IPMASK>, NSAP=<NSAP>,[COST=<COST>];

**Input Example** ENT-ROUTE-GRE:CISCO::123:::IPADDR=10.64.72.57,IPMASK=255.255.255.0, NSAP=39840F80FFFFFF0000DDDDAA000010CFB4910200,COST=110;

**Input Parameters**

| | |
|---|---|
| <IPADDR> | IP address of the tunnel endpoint. IPADDR is a string. |
| <IPMASK> | Subnet mask for the tunnel endpoint. IPMASK is a string. |
| <NSAP> | Network service access point (NSAP) address for the tunnel endpoint. NSAP is a string. |
| <COST> | Routing cost associated with the tunnel. COST is an integer. |

# 12.17 ENT-TADRMAP

(Cisco ONS 15454, ONS 15327, ONS 15310-CL, ONS 15310-MA, ONS 15600) The Enter Target Identifier Address Mapping (ENT-TADRMAP) command instructs a gateway NE to create an entry in the TADRMAP table which maps the target identifiers (TIDs) of the subtending NEs to their addresses. The operating systems (OSs) will address the subtending NEs using the TID in TL1 messages and a gateway NE will address these NEs by mapping the TID to an IP address or NSAP. The TADRMAP table, which resides in the gateway NE, correlates a TID and an address. The command requires that at least one IPADDR or NSAP be specified. The PORT and ENCODING parameters are only used with IP address mappings.

**Usage Guidelines** None

**Category** System

**Security** Provisioning

**Input Format** ENT-TADRMAP:[<TID>]::<CTAG>:::[TIDNAME=<TIDNAME>],[IPADDR=<IPADDR>], [PORT=<PORT>],[ENCODING=<ENCODING>],[NSAP=<NSAP>];

**Input Example** ENT-TADRMAP:TID::CTAG:::TIDNAME=ENENODENAME,IPADDR=192.168.100.52, PORT=3082,ENCODING=LV,NSAP=39840F80FFFFFF0000DDDDAA01001800;

**Input Parameters**

| | |
|---|---|
| <TIDNAME> | TID of the new TID/address mapping. TIDNAME is a string. |
| <IPADDR> | (Optional) IP address. IPADDR is a string.<br>**Note** If the NSAP parameter is not used, the IPADDR parameter is required. |
| <PORT> | Port for the TID/IP address mapping. Defaults to 3082. PORT is an integer. |
| <ENCODING> | TL1 encoding for the TID/IP address mapping. Defaults to LV. The parameter type is ENCODING (encoding). |
| • LV | Length encoding. |
| • RAW-CISCO | Cannot be specified. Used only for display with backward compatible Optical Networking System (ONS) NEs. |
| • RAW-STD | Noninteractive encoding. |
| <NSAP> | (Optional) NSAP address. NSAP is a string.<br>**Note** If the IPADDR parameter is not used, the NSAP parameter is required. |

# 12.18 ENT-TRAPTABLE

(Cisco ONS 15454, ONS 15327, ONS 15310-CL, ONS 15310-MA, ONS 15600) The Enter Trap Table (ENT-TRAPTABLE) command provisions a Simple Network Management Protocol (SNMP) trap destination and its associated community, User Datagram Protocol (UDP) port, and SNMP version. The maximum number of trap entries allowed is ten.

**Usage Guidelines** None

**Category** System

**Security** Provisioning

**Input Format**

ENT-TRAPTABLE:[<TID>]:<AID>:<CTAG>::COMMUNITY=<COMMUNITY>,[TRAPPORT=<TRAPPORT>],[TRAPVER=<TRAPVER>];

**Input Example**

ENT-TRAPTABLE::1.2.3.4:1::COMMUNITY="PRIVATE",TRAPPORT=162,TRAPVER=SNMPV1;

**Input Parameters**

| | |
|---|---|
| <AID> | IP address identifying the trap destination. Only a numeric IP address is allowed. Access identifier from the "25.16 IPADDR" section on page 25-37. |
| <COMMUNITY> | Community associated with the trap destination. Community name is a string with up to 32 characters. |
| <TRAPPORT> | UDP port number associated with the trap destination. Defaults to 162. TRAPPORT is an integer. |
| <TRAPVER> | SNMP version number. Defaults to SNMPv1. The parameter type is SNMP_VERSION (SNMP Version). |
| • SNMPV1 | (Default) SNMP Version 1 |
| • SNMPV2 | SNMP Version 2 |

# 12.19 ENT-TUNNEL-FIREWALL

(Cisco ONS 15454, ONS 15327, ONS 15310-CL, ONS 15310-MA, ONS 15600) The Enter Tunnel Firewall (ENT-TUNNEL-FIREWALL) command creates a firewall tunnel.

**Usage Guidelines**

None

**Category**

System

**Security**

Provisioning

**Input Format**

ENT-TUNNEL-FIREWALL:[<TID>]::<CTAG>:::[SRCADDR=<SRCADDR>],[SRCMASK=<SRCMASK>],[DESTADDR=<DESTADDR>],[DESTMASK=<DESTMASK>];

**Input Example**

ENT-TUNNEL-FIREWALL:TID::CTAG:::SRCADDR=192.168.100.52,SRCMASK=255.255.255.0,DESTADDR=192.168.101.14,DESTMASK=255.255.255.0;

**Input Parameters**

| | |
|---|---|
| <SRCADDR> | Source IP address. SRCADDR is a string. |
| <SRCMASK> | Source mask. SRCMASK is a string. |

| | |
|---|---|
| <DESTADDR> | Destination IP address. DESTADDR is a string. |
| <DESTMASK> | Destination mask. DESTMASK is a string. |

# 12.20 ENT-TUNNEL-PROXY

(Cisco ONS 15454, ONS 15327, ONS 15310-CL, ONS 15310-MA, ONS 15600) The Enter Tunnel Proxy (ENT-TUNNEL-PROXY) command creates a proxy tunnel.

**Usage Guidelines** None

**Category** System

**Security** Provisioning

**Input Format** ENT-TUNNEL-PROXY:[<TID>]::<CTAG>:::[SRCADDR=<SRCADDR>], [SRCMASK=<SRCMASK>],[DESTADDR=<DESTADDR>],[DESTMASK=<DESTMASK>];

**Input Example** ENT-TUNNEL-PROXY:TID::CTAG:::SRCADDR=192.168.100.52,SRCMASK=255.255.255.0, DESTADDR=192.168.101.14,DESTMASK=255.255.255.0;

**Input Parameters**

| | |
|---|---|
| <SRCADDR> | Source IP address. SRCADDR is a string. |
| <SRCMASK> | Source mask. SRCMASK is a string. |
| <DESTADDR> | Destination IP address. DESTADDR is a string. |
| <DESTMASK> | Destination mask. DESTMASK is a string. |

# 12.21 ENT-USER-SECU

(Cisco ONS 15454, ONS 15327, ONS 15310-CL, ONS 15310-MA, ONS 15600) The Enter User Security (ENT-USER-SECU) command adds a user account. Only a Superuser can do this. Each user is configured as being at one of these four privilege levels:

1. Retrieve [RTRV]: Users with this security level can retrieve information from the node, but cannot modify anything. The default idle time for a Retrieve user is unlimited.
2. Maintenance [MAINT]: Users with this security level can retrieve information from the node and perform limited maintenance operations such as card resets, Manual/Force/Lockout on cross-connects or in protection groups, and BLSR maintenance. The default idle time for a Maintenance user is 60 minutes.

3. Provisioning [PROV]: Users with this security level can perform all maintenance actions, and all provisioning actions except those restricted to Superusers. The default idle time for a Provisioning user is 30 minutes.
4. Superuser [SUPER]: Users with this security level can perform all provisioning user actions, plus creating and deleting user security profiles, setting basic system parameters such as time, date, node name, and IP address, and doing database backup and restoration. The default idle time for a Superuser is 15 minutes.

**Usage Guidelines**

- Passwords are masked for the following security commands: ACT-USER, ED-PID, ENT-USER-SECU, and ED-USER-SECU. Access to a TL1 session by any means will have the password masked. The Cisco Transport Controller (CTC) Request History and Message Log will also show the masked commands. When a password-masked command is reissued by double-clicking the command from CTC Request History, the password will still be masked in the CTC Request History and Message Log. The actual password that was previously issued will be sent to the NE. To use a former command as a template only, single-click the command in CTC Request History. The command will be placed in the Command Request text box, where you can edit the appropriate fields prior to reissuing it.
- The UID can be any combination of up to 10 alphanumeric characters.
- The PID is a string of up to 10 characters where at least 2 characters are nonalphabetic with at least one special character (+, %, or #).
- Although the CTC allows both a UID and a PID of up to 20 characters, the CTC-entered users (UID and PID) might not be valid TL1 users. For example, if you issue an ACT-USER command using a CTC-entered UID that is greater than 10 characters long, TL1 will respond with DENY (Can't Login) error message.
- The TL1 password security is enforced as follows:
  - The password (PID) cannot be the same as or contain the user ID (UID). For example, if the userid is CISCO25 the password cannot be CISCO25#.
  - The PID must have one nonalphabetic and one special (+, %, or #) character.
  - There is no PID toggling; for example, if the current password is CISCO25#, the new password cannot be CISCO25#.

**Category** Security

**Security** Superuser

**Input Format** ENT-USER-SECU:[<TID>]:<UID>:<CTAG>::<PID>,,<UAP>[:];

**Input Example** ENT-USER-SECU:PETALUMA:CISCO15:123::PSWD11#,,MAINT;

**Input Parameters**

| | |
|---|---|
| <UID> | User identifier. The minimum UID size is 6 and the maximum size 10. UID is a string. |
| <PID> | User's password or private identifier. PID is a string. |
| <UAP> | User's access privilege. The parameter type is PRIVILEGE (security level). |
| • MAINT | Maintenance security level |
| • PROV | Provision security level |
| • RTRV | Retrieve security level |
| • SUPER | Superuser security level |

# 12.22 ENT-VCG

(Cisco ONS 15454, ONS 15310-CL, ONS 15310-MA) The Enter Virtual Concatenated Group (ENT-VCG) command creates a VCG object. VCGs on ML-Series cards support two members. Supported subrates are STS1, STS3C, and STS12C. ML-Series VCG also supports SW-LCAS or NONE. VCG on the FC_MR-4 card supports eight members and the supported subrate is limited to STS3C. The FC_MR-4 card VCG has no LCAS support (NONE). VCG on the ML-100T-8 card supports up to three members at a subrate of STS1 and 64 members at a subrate of VT1.

On the ONS 15310-CL and ONS 15310-MA, the CE-100T-8 card supports a maximum of STS6 bandwidth; for example, two VCATs with three STS1 members or six VCATs with one STS1 member.

**Usage Guidelines**

None

**Category**

VCAT

**Security**

Provisioning

**Input Format**

ENT-VCG:[<TID>]:<SRC>:<CTAG>:::TYPE=<TYPE>,TXCOUNT=<TXCOUNT>,[CCT=<CCT>],[LCAS=<LCAS>],[BUFFERS=<BUFFERS>],[NAME=<NAME>];

**Input Example**

ENT-VCG:NODE1:FAC-1-1:1234:::TYPE=STS3C,TXCOUNT=8,CCT=2WAY,LCAS=LCAS,BUFFERS=DEFAULT,NAME="VCG1";

**Input Parameters**

| | |
|---|---|
| <SRC> | Source access identifier from the "25.15 FACILITY" section on page 25-33. ML1000-2 and ML100T-12 cards use the VFAC AID. The FC_MR-4 card uses the FAC AID. |
| <TYPE> | The type of entity or member cross-connect being provisioned. Null indicates not applicable. TYPE can be a Common Language Equipment Identification (CLEI) code or another value. ML1000-2 and ML100T-12 cards support STS1, STS3c, and STS12c. The FC_MR-4 card supports STS3c only. The parameter type is MOD_PATH (STS/VT path modifier). |
| • STS1 | STS1 path |
| • STS12C | STS12C path |
| • STS18C | STS18C path |
| • STS192 | STS192C path |
| • STS24C | STS24C path |
| • STS36C | STS36C path |
| • STS3C | STS3C path |
| • STS48C | STS48C path |
| • STS6C | STS6C path |
| • STS9C | STS9C path |
| • VT1 | VT1 path |
| • VT2 | VT2 path |
| <TXCOUNT> | Number of members in the transmit (Tx) direction. For ML1000-2 and ML100T-12 cards, the only valid value is 2. For the FC_MR-4 card the only valid value is 8. TXCOUNT is an integer. |
| <CCT> | Type of connection; one-way or two-way. Cross-connect type for the VCG member cross-connects. Must be the same for all the member cross-connects of a VCG. The parameter type is CCT, which is the type of cross-connect to be created. |
| • 1WAY | A unidirectional connection from a source tributary to a destination tributary |
| • 1WAYDC | Path protection multicast drop with (1-way) continue |
| • 1WAYEN | Path protection multicast end node (1-way continue) |
| • 1WAYMON | A bidirectional connection between the two tributaries<br>**Note** 1WAYMON is not supported with TL1. However, it is still supported from CTC. Using CTC, you can create 1WAYMON cross-connects that can be retrieved through TL1. |
| • 1WAYPCA | A unidirectional connection from a source tributary to a destination tributary on the protection path/fiber |
| • 2WAY | A bidirectional connection between the two tributaries |
| • 2WAYDC | A bidirectional drop-and-continue connection applicable only to traditional path protection configurations and integrated DRIs |
| • 2WAYPCA | A bidirectional connection between the two tributaries on the extra protection path/fiber |

| | |
|---|---|
| • DIAG | Diagnostics cross-connect. Supports BERT (BLSR PCA diagnostics cross-connect). |
| <LCAS> | Link capacity adjustment scheme.<br>**Note** If SW-LCAS is selected, then the far-end VCG must also be configured as SW-LCAS.<br>The parameter type is LCAS, which is the link capacity adjustment scheme mode for the VCG created. |
| • LCAS | LCAS is enabled. |
| • NONE | No LCAS. |
| • SW-LCAS | Supports the temporary removal of a VCG member during member failure. Only supported by the ML1000-2 and ML100T-12 cards. |
| <BUFFERS> | Buffer type. The default value is DEFAULT. The FC_MR-4 and CE1000 cards support DEFAULT and EXPANDED buffers. Other data cards support DEFAULT buffers only. The parameter type is BUFFER_TYPE, which is the buffer type used in the VCAT circuit. |
| • DEFAULT | Default buffer value |
| • EXPANDED | Expanded buffer value |
| <NAME> | Name of the VCAT group. Defaults to null. Maximum length is 32 characters. NAME is a string. |