

Move the light, not the fiber

CALIENT Optical Circuit Switch (OCS) TL1 Reference Guide



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PREFACE

The *CALIENT OCS TL1 Reference Guide* lists all commands and messages supported by the OCS TL1 agent. This document also provides input formats and output (response) examples for those commands and messages.

AUDIENCE

The *CALIENT OCS TL1 Reference Guide* is written for both network operations center personnel and field service personnel who configure, provision and monitor the equipment. It is assumed that this target audience is familiar with the TL1 management protocol.

1 INTRODUCTION

Transaction Language One (TL1) is a set of ASCII-based instructions—or “messages”—that an Operations Support System (OSS) uses to manage a Network Element (NE) and its resources. This chapter includes the following topics:

- TL1 history
- Command line interface
- Standards documents
- TL1 agent
- Types of connections
- TL1 command help
- User access levels
- Conventions and notation

1.1 Command Line Interface

TL1 is a standard, cross-vendor command line interface (CLI). It is well documented and has a well-defined syntax, making it suitable for both humans and computers.

Most network elements come with a CLI. These interfaces, accessible via Telnet and over a serial line, allow operators to type in ASCII commands to query and control the network element.

The OCS supports a TL1 interface based on Telcordia standards including GR-831, GR-199-CORE and GR-833-CORE.

A TL1 user ID can run multiple sessions concurrently, up to the maximum of 20. As with other CLIs, the TL1 interface is accessible through:

- Telnet
- SSH

1.2 Terminal Access Connections

You can access the OCS TL1 agent via Telnet over the Ethernet port or the serial interface port, as depicted in Figure 1.

1.2.1 Foundation Software

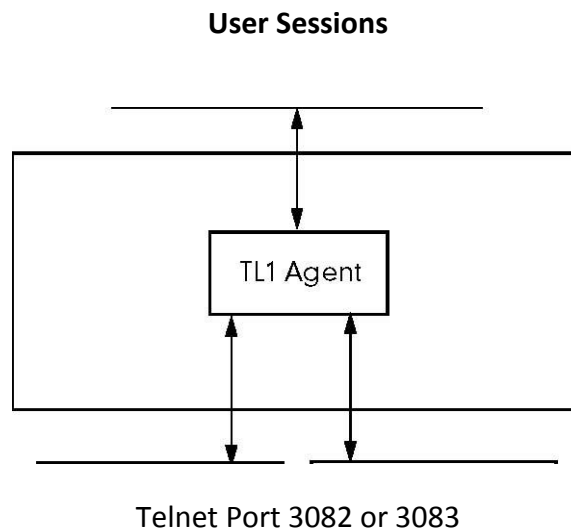


Figure 1 – TL1 Connections

1.2.2 Connecting Using Telnet

The OCS TL1 agent supports up to 20 simultaneous sessions. To connect via Telnet, specify the node IP address and the port socket that provides the communication path. Two ports are used—3082 and 3083—and each represents a mode of operation. For example:

- telnet 192.168.110.13 3082
- telnet 192.168.110.13 3083

Table 1 describes the differences between the two modes of operation.

Table 1 – TL1-RAW Mode vs. TL1-Telnet Mode

Port Socket	Mode	Description
3082	TL1-RAW	<ul style="list-style-type: none">• With this mode, the user does not interact with the TL1 agent, and does not receive the <i>agent></i> prompts at the console.

Port Socket	Mode	Description
		<ul style="list-style-type: none">• When provisioning in bulk, select this mode for executing automated scripts.• Online help is not available with this mode.
3083	TL1-Telnet	<ul style="list-style-type: none">• Typically, this mode is used for individual configuration or provisioning. This mode enables the user to interact with the TL1 agent through the console, and receive prompts and messages.• Online help is available with this mode.

1.2.3 Connecting Using SSH

As mentioned in section 1.1, the OCS TL1 Agent supports up to 20 simultaneous sessions. The following procedure describes how to connect to the OCS via SSH:

1. Specify the node IP address.
2. Specify the user ID as `t11user`.
3. Enter the following command from any SSH client-supported terminal:

```
ssh t11user@<switchip>
```

This will open a TL1 session communicated via SSH.

4. At the `agent>` prompt, enter the `act-user` command to log into the session.
5. When the session is finished, enter the following command to exit gracefully from the session:

```
agent> canc-user:::::exitsess=y;
```

1.2.4 TL1 Command Help

Once a TL1 connection to the OCS is established, TL1 command help is available by typing a question mark (?) at the agent prompt. When a question mark (?) is typed on an empty line, the TL1 interface displays all messages defined in the network element. The TL1 agent provides two ways of getting help information: general and command-specific responses.

1.2.4.1 Listing General Responses

If the entry before the question mark (?) does not provide a specific command match, the TL1 agent responds with a list of all available commands for the entry. Enter a question mark (?) again to display another screen of commands, or enter `q` to return to the `agent>` prompt.



The question mark (?) entered does not echo onscreen. For example, if you enter `agent> dlt-?`, the system will respond “Ambiguous command, possible matches are: DLT-CRSSET, DLT-CRS-ALL, DLT-CRS, DLT-CRS-BULK, DLT-GRP-PORT, DLT-USER-SECU ---Type ? to continue or q to quit---”.

1.2.4.2 Listing Command-Specific Responses

If the entry before the question mark (?) provides a unique command match, the TL1 agent returns the input format of that command.

```
agent> act-user
ACT-USER: [TID]:<uid>:[CTAG]:<pid>;
```

All possible matches are listed if the command entered has similar matches. Enter the intended command with a colon (:) followed by a question mark (?). For example:

```
agent> rtrv-port
Ambiguous command, possible matches are:
RTRV-PORT-SUM
RTRV-PORT---Type ? to continue or q to quit---
agent> rtrv-port-sum:
RTRV-PORT-SUM: [TID]: [<eqptId>]: [CTAG]: [<alias>;
```



The colon (:) and question mark (?) entered do not echo on the screen.

1.3 User Access Levels

To maintain security and prevent unauthorized actions, the TL1 agent supports five different user groups. Each group has different access privileges (see below).

The TL1 agent issues a DENY message when a user does not have sufficient privileges to access a particular command.

Refer to Appendix B (Command Usage by User Access) for a comprehensive list of TL1 commands and their associated user-access privileges.

The following TL1 user-access levels are supported by the CALIENT OCS:

- **Administrator (Admin):** The admin user is a super-user who has full access to all functions and activities of the equipment, including installation, provisioning, monitoring, maintenance and security functions. This level can perform all functions and controls other users' access to the system. Only the admin user can create, edit and delete users; perform Reset/SystemMgmt/SessionMgmt activities; and issue loopback and delete all connections.
- **Field:** This level allows users to access and change equipment information. Field users have access to Backup/Restore operations. Typically, this level is assigned to field-service or development engineers.
- **Provisioner (Prov):** This level is intended for users who primarily need to provision cross-connections. These users can also provision and view ports and connections, as well as view equipment events and alarms.
- **Install and Maintenance (IM):** The IM user level can issue commands related to installation and maintenance activities.
- **ReadOnly:** This level allows users to log on and retrieve information about the system, but it does not let them perform any other operations.

1.3.1 Configuring Users with TL1

The following information provides examples of how to create, retrieve, modify and delete users with TL1 on the CALIENT OCS. The user access privileges for each of the examples below are highlighted in Table 19 of this document.

1.3.1.1 Creating Users (ENT-USER-SECU)

Users can be created with Admin, Prov, Field, IM or ReadOnly access privileges. The examples below show how this is accomplished with the command line interface (CLI).

```
agent> ent-user-secu:  
ENT-USER-  
SECU: [TID]:<uid>:[CTAG]:<pid>,[<cid>],<uap>:[PORTGRP=<portgrp>],[MULTI  
I=<multi>],[ACCESS=<access>],[AUTOLOGOFF=<autologoff>];
```

```
agent> ent-user-secu::prov::*****,,prov
      TL1AGENT 14-12-09 13:23:17
M 0 COMPLD
;
```

Parameters for the `ent-user-secu` command include:

- `uid` – username
- `pid` – password
- `uap` – user access privilege
- `portgrp` – port group name assigned to the user (this parameter must be already configured in order to assign it to a user).
- `multi` – specifies multiple-sessions privilege for the user. When specified, the user can log in to multiple sessions at the same time.

Currently, there is a bug (#663) related to this parameter: specifically, when the `multi` flag is disabled for a user, that user can still access multiple sessions.

- `access` – specifies the access mode of service (TL1 or the Web) provided by the CALIENT OCS. The default value is both; however, Web-only or TL1-only access can be specified.
- `autologoff` – this parameter is not currently supported.

```
agent> ent-user-secu::test1::*****,,prov:ACCESS=t11 //this user
has access only to TL1
      TL1AGENT 14-12-09 13:44:54
M 0 COMPLD
;
```

```
agent> ent-user-secu::test2::*****,,field:ACCESS=web //This user
has access only to web
      TL1AGENT 14-12-09 13:45:59
M 0 COMPLD
;
```

```
agent> rtrv-user
      TL1AGENT 14-12-09 13:46:02
M 0 COMPLD
"admin:,ADMIN:PORTGRP=,PAGE=30,UOUT=45,WEB=YES,TL1=YES,DISABLE=NO,MULTI=
YES,AUTOLOGOUT=YES"
"test1:,PROV:PORTGRP=,PAGE=30,UOUT=45,WEB=NO,TL1=YES,DISABLE=NO,MULTI=
YES,AUTOLOGOUT=YES"
```



```
"test2:, FIELD:PORTGRP=, PAGE=30, UOUT=45, WEB=YES, TL1=NO, DISABLE=NO, MULTI=
YES, AUTOLOGOUT=YES"
;
```

1.3.1.2 Retrieving Users (RTRV-USER)

Users can also be retrieved. The example below shows how this is done.

```
Retrieve user (rtrv-user)
agent> rtrv-user:
RTRV-USER: [TID]: [<uid>]: [CTAG];
agent> rtrv-user
    TL1AGENT 14-12-09 13:25:42
M 0 COMPLD
"admin:, ADMIN:PORTGRP=, PAGE=30, UOUT=45, WEB=YES, TL1=YES, DISABLE=NO, MULTI=
YES, AUTOLOGOUT=YES"
"prov:, PROV:PORTGRP=, PAGE=30, UOUT=45, WEB=YES, TL1=YES, DISABLE=NO, MULTI=
YES, AUTOLOGOUT=YES"
;
```

1.3.1.3 Modifying Users (ED-USER-SECU)

The example below illustrates how to modify a user's role, name, port group and password.

```
Modify user (ed-user-secu)
agent> ed-user-secu::prov:::prov,*****,, admin //modifying user
role
    TL1AGENT 14-12-09 13:31:25
M 0 COMPLD
;
agent> ed-user-secu::prov:::test,*****,, admin //modify user name
    TL1AGENT 14-12-09 13:32:22
M 0 COMPLD
;
agent> ed-user-secu::test:::test,*****,, prov:PORTGRP=pg1
//assigning portgroup to user
    TL1AGENT 14-12-09 13:33:58
M 0 COMPLD
;
agent> ed-user-secu::test2:::test2,*****,, field //modify password
    TL1AGENT 14-12-09 13:50:50
M 0 COMPLD
;
```

1.3.1.4 Deleting Users (DLT-USER-SECU)

The example below shows how to delete a user from the system.

```
Delete user
agent> dlt-user-secu:
DLT-USER-SECU: [TID] :<uid>: [CTAG] ;
agent> dlt-user-secu::test
  TL1AGENT 14-12-09 13:35:56
M 0 COMPLD
;
```

1.3.2 Conventions and Notation

Uppercase characters in the format expression appear as they are in the message. Table 2 lists syntactical characters.



Semicolons (;), commas (,), colons (:), and dashes (–) are transmitted exactly as shown.

Table 2 – Syntactical Characters

Characters	Description
;	A semicolon indicates the end of a message or a delimiter between messages. For a delimiter, press Enter to obtain the agent prompt.
,	A comma separates parameters within a parameter block.
:	A colon separates a parameter.
–	A dash is used to separate the verb and the first and second modifier.
“ ”	A pair of quotation marks is used to delimit an expression that can be parsed.
[]	One or more parameters (including delimiters) enclosed within brackets indicates the parameters are optional. If a user inputs an empty field for an optional parameter, then a default value is substituted automatically in the transmitted input field.
< >	Angle brackets are used to enclose one or more information items

Characters	Description
	such as <date> or <time>. Angle brackets are not transmitted.

2 SCOPE

This section provides a sample worksheet that can be used as a guide to start configuring the OCS and provisioning cross-connections. It also provides a list of TL1 commands supported in this release.

For users who are familiar with TL1, Table 4 in section 2.2 lists alphabetically all CALIENT TL1 commands currently supported by the OCS. Refer to Section 3 (TL1 Message Structure) for parameter options.

For a task-oriented approach, refer to the following sections:

- Section 4 – Node Configuration and Provisioning Commands
- Section 5 – Security Management Commands
- Section 6 – Performance Monitoring Commands
- Section 7 – Maintenance Commands

2.1 Sample Configuration Worksheet

Table 3 provides a sample configuration worksheet.

Table 3 – Sample Configuration Worksheet

Sample Worksheet Tasks	TL1 Commands	Parameters
1. Log in to the TL1 agent	ACT-USER	<uid> = admin <pid> = pxc***
2. Provision connection	ENT-CRS	<srcport> = 1.1.1 <dstport> = 1.2.1 <groupName> = Calient [<connType>] = 1way or 2way [<connName>] = SF_LA [<waveband>] = Cband
3. Log out of the TL1 agent	CANC-USER	[<uid>]
OR		
4. Log out of the TL1 session	CANC-USER	canc-user:::::exitsess=yes

2.2 TL1 Commands

Table 4 lists TL1 commands supported in the current release of OCS software.

Table 4 – OCS TL1 Commands

TL1 Command	Function
ACK-ALM	Acknowledge alarm
ACT-CRS	Activate a cross-connection
ACT-USER	Log in to the OCS
ALW-MSG	Allow autonomous message
ALW-USER-SECU	Activate a user
CANC-CRS	Cancel (deactivate) a cross-connection
CANC-SESS	Terminate a session
CANC-USER	Log off the OCS
CLR-FAULT-EQPT	Clears the equipment fault history
DLT-CRS	Delete a cross-connection
DLT-CRS-ALL	Delete all cross-connections
DLT-CRS-BULK	Delete multiple cross-connections from a list
DLT-CRSSET	Delete a cross-connection set
DLT-GRP-PORT	Delete a port group
DLT-USER-SECU	Delete a user
ED-CFG-DAT	Edit the date and NTP format
ED-PID	Change user password
ED-PORT	Edit port parameters
ED-USER-SECU	Edit user security parameters
ENT-CRS	Enter (provision) a cross-connection
ENT-CRS-BULK	Enter (provision) multiple cross-connections
ENT-CRS-ENH	Enter (provision) a cross-connection after deleting the existing cross-connection with the same source or destination source

TL1 Command	Function
ENT-GRP-PORT	Enter (provision) a port group
ENT-USER-SECU	Enter (provision) a new user
INH-MSG	Inhibit autonomous messages
INH-USER-SECU	Inhibit a user
INIT-SYS	Reset the OCS equipment
OPR-BKUPRST	Back up the database
OPR-CRSSET-LPBK	Generate a set of cross-connections for the internally generated loopback set
OPR-CRSSET-RECALL	Establishes the set of cross-connections defined by the named set
OPR-CRSSET-SAVE	Saves all current cross-connections into the named set
OPR-CRSSET-UNLOAD	Removes the set of cross-connections defined by the named set
REC-CRS	Recover (retry) a cross-connection
RTRV-ALM-ALL	Retrieve active alarms
RTRV-ALM-COM	Retrieve common alarms
RTRV-ALM-CRS	Retrieve transit connection alarms
RTRV-ALM-ENV	Retrieve environmental alarms
RTRV-ALM-EQPT	Retrieve equipment related alarms
RTRV-ALM-SECU	Retrieve security related alarms
RTRV-CFG-DAT	Retrieve NTP address
RTRV-CMD-HIST	Retrieve history of all commands issued on system
RTRV-CRS	Retrieve a list of cross-connections
RTRV-CRSSET	Retrieve a list of all cross-connection sets
RTRV-CRS-SUM	Retrieve connection summary along with the power information for each port
RTRV-DET-EQPT	Retrieve equipment details
RTRV-DFLT-CRS	Retrieve current cross-connection details

TL1 Command	Function
RTRV-DFLT-SECU	Retrieve default values for the node's systemwide security parameters
RTRV-EQPT	Retrieve hardware inventory information
RTRV-FAULT-EQPT	Retrieve the fault list of a cross-connection
RTRV-IP	Retrieve IP parameters
RTRV-LOG-ALM	Retrieve alarm logs
RTRV-LOG-EVT	Retrieve event logs
RTRV-NE	Retrieve the name, serial #, software version and status
RTRV-PORT	Retrieve the port
RTRV-PORT-SUM	Retrieve input/output power
RTRV-SAVERECALL	Retrieve latest system recall
RTRV-SOAK	Retrieve alarm soak interval
RTRV-SESS	Retrieve active user session
RTRV-STATUS-BULK	Retrieve the status of the previous bulk request
RTRV-UPTIME	Retrieve system and in service up time
RTRV-USER	Retrieve current user
RTRV-USER-HIST	Retrieve history of all user logins
SET-ATTR-CRSDFLT	Set default cross-connection value
SET-IP	Configure system IP Address
SET-SOAK	Set alarm soak interval
SND-SESS-MSG	Send session message

3 TL1 MESSAGE STRUCTURE

TL1 messages consist of ASCII strings exchanged between management systems and TL1-managed NEs. Valid characters for TL1 messages include all printable ASCII characters.

This chapter describes message and parameter types defined for the TL1 messages, including:

- Input message format
- Output message format
- Input/output message interactions
- Parameter types

3.1 Message Types

There are two categories of messages: input and output. *Input* messages are used to issue command requests to the NE. *Output* messages relate either to *responses* to given command messages, or they are *autonomous* (i.e., generated by the NE as a result of some condition change on the NE).

3.2 Input Messages

Input command messages are built on the following blocks:

- Command code
- Staging block
- Payload blocks

Each block is separated from the other by a colon (:), and the message is terminated with a semicolon (;). In addition, each of the subcomponents has a unique form. The basic format of a command message is as follows:

```
<command_code>:<staging_block>:<payload_blocks>;
```

3.3 Command Code

Command codes consist of a verb plus a modifier. The verb indicates the class of command being issued to the NE; it identifies the action to be taken on the NE as a result of the TL1 message. The modifier refines and qualifies the command being specified. For example:

- Verb: SET-ATTR-COM
- Modifier: qualifies the verb to add the specified attributes to the equipment

3.4 Staging Block

Before a command can be acted upon, it needs to identify the resources to which it pertains. The staging block is used to perform this task, which includes:

- Identifying the NE on which the command is to be performed
- Identifying the actual resources within the NE on which the command is to be performed
- A correlation tag (CTAG), allowing the command response to be correlated by the invoker with the original request
- An optional general block

Staging blocks take the following form:

```
: [TID] : [<src>] : [CTAG] : [<general_blocks>] :
```

3.5 Payload Block

The payload block consists of zero or more data blocks, each separated by commas. Each data block itself may have multiple components, each further separated by commas. These data components may be positional, in which case commas are used to convey empty fields, or they may be defined names, in which case they take the form *[INOPTDEGR=<inoptdegr>]*.

Following is an example of a message including the payload:

```
ENT-USER-SECU: [TID] :<uid>: [CTAG] ::<pid>, [<cid>],  
<uap>: [MULTI=<multi>], [ACCESS=<access>];
```

3.6 Output Messages

There are three classes of output messages:

- Acknowledgments
- Responses
- Autonomous

3.7 Acknowledgments

Acknowledgments are brief messages that provide an update on the status of a given command. The acknowledgment is sent when processing is complete. When formed, the response is automatically sent without further OSS intervention. The input command messages that generate acknowledgements are normally used for:

- Logging on and off the equipment
- Administering the user security level
- Configuring or modifying network connections
- Configuring or modifying equipment

3.8 Responses

The message-specific information output response is sent when a requested task has been completed.

The response may be “COMPLD” if successful or “DENY” if erroneous. The input command messages that generate output response messages are normally used for:

- Obtaining current equipment configuration information
- Obtaining status information

The basic format of a response message is shown in the response header below:

```
TL1-Agent 2001-07-01 23:05:51  
Response identifier  
M0 COMPLD  
Text block
```

3.9 Autonomous Messages

Autonomous messages are used to report alarms, configuration changes, or condition changes. Many of these messages, such as those relating to alarm conditions, are spontaneously triggered by the NE itself without intervention.

Autonomous messages are disabled by default unless the user manually enables receipt of autonomous messages with the `alw-msg` command, as shown below:

```
agent> alw-msg:::all;
```

```
TL1AGENT 16-11-16 12:50:03  
M 0 COMPLD  
;
```

Refer to section A.1 herein for a detailed description of the `alw-msg` command.

3.10 Access Parameters

Access parameters include:

- AID
- CTAG
- TID

3.10.1 AID

The access identification code (AID) directs an input command to its intended physical or data entity inside the NE. For commands that generate a response (e.g., RTRV-LOG-ALM), the AID directs the response back to the user interface.



In the OCS TL1 implementation, AID corresponds to the `<src>` input parameter in the command input formats.

3.10.2 CTAG

A correlation tag (CTAG) is used to correlate input and output messages. The value of a CTAG consists of up to 6 alphanumeric ASCII characters. If a CTAG value is not specified, 0 (zero) is used.

3.10.3 TID

The target identifier (TID) represents the target network element (NE) that receives the TL1 command. It corresponds to the network element's name. A message sent to an NE may be addressed at that NE or routed by it to the message's target NE. If an NE is the only target possible for a message sent on a connection, then the TID may be omitted from that message. Otherwise, a TID must be specified.

3.11 Other TL1 Parameters

This section describes other parameters used in OCS TL1.

3.11.1 Access

Used in *ED-USER-SECU* and *ENT-USER-SECU* commands, this parameter indicates the mode of service access that is provided by OCS.

Table 5 – OCS TL1 Access Parameters

Options	Description
Both	Default setting; access OCS using TL1 or the Web Service
TL1	Access OCS using TL1 only
Web	Access OCS using the Web Service only

3.11.2 Alarm_id

Used in the *ACK-ALM* command, this parameter identifies an individual alarm. Assigned by the OCS, you can obtain the *alarm_id* by issuing the *RTRV-ALM-ALL* command.

3.11.3 BkuprstType

Used in the *OPR-BKUPRST* command, this parameter specifies the type of operational action.

Table 6 – Backup and Restore Parameters

Options	Description
Backup	Back up data on the node
Restore	Restore data on the node

3.11.4 CircuitId

Associated with cross-connection commands, this parameter specifies the connection identifier, which uses the following format: *source port_id-destination port_id* or *source port_id>destination port_id*.

For example, 1.1.1>1.2.1: The `circuitId` is returned as the output of the `ENT-CRS` command and is automatically assigned based on the `ENT-CRS` input parameters.

 **Note**

A dash (–) indicates a bi-directional connection, and a greater-than symbol (>) indicates a uni-directional connection.

3.11.5 Condtype

Condition Type is used in `SET-ATTR-COM` and `RTRV-ATTR-COM`, as well as retrieve alarm and retrieve log commands. This parameter identifies the specific alarm on which the command should operate. If `condtype` is not specified, all alarms are returned.

 **Note**

Refer to the Condition Type column in Table 21 of Appendix C.2 for a complete list of the TL1 condition types supported on the OCS.

3.11.6 ConnName

Used in the `ENT-CRS` command, this parameter defines an identifier to describe a source connection port and the destination connection port. This identifier consists of 1 to 35 alphanumeric characters, including special characters such as periods (.), underscores (_) and hyphens (-). For example, `SF_LA` means the source connection port is in San Francisco and the destination connection port is in Los Angeles.

 **Note**

The `ConnName` must be unique within a customer group. Also, do not use duplicate connection names for the same customer.

3.11.7 ConnType

Used in the *ENT-CRS* command, this parameter defines the direction of a connection.

Table 7 – OCS Connection Types

Options	Description
1way	Uni-directional
2way (default)	Bi-directional

3.11.8 DstPort

Used in cross-connection-related commands, this parameter specifies the destination port in a connection. The format is:

s.c[a|b].p.

For example, 1.1.1.

3.11.9 EqptId

This parameter specifies the equipment identifier for the OCS.

3.11.10 FileType

Used in the *OPR-BKUPRST* command, this parameter specifies the type of the file to be backed up or restored. Only one option is available in the current release: data.

3.11.11 Gateway

Used in the *SET-IP* command, this parameter specifies the gateway 32-bit Internet protocol address of the node. Express the address in the industry-standard format: XXX.XXX.XXX.XXX, where XXX is between 0 and 255.

3.11.12 GroupName

Used in *ENT-CRS* and *RTRV-CRS* commands, this parameter defines the name of the group serviced by a connection. The group name consists of 1 to 35 alphanumeric characters, including special characters such as periods (.) and underscores (_).

The option *all* is reserved for the *RTRV-CRS* command and cannot be used as a group name when provisioning a connection. *all* is case sensitive; it must be entered in lower-case letters.

3.11.13 Kind

Used in the *SET-ATTR-COM* command, this parameter specifies an alarm category. The only option is *system*.

3.11.14 Location

Used in the *OPR-BKUPRST* command, this parameter specifies the location where the database is backed up and restored. The two options for this parameter are:

- *Local* – Back up to or restore from the local flash drive.
- *Remote* – Back up to or restore from the network FTP server.

3.11.15 Msg

Used in the *SND-SESS-MSG* command, this parameter specifies a message string that is sent by an administrator. This message consists of up to 150 ASCII characters.

3.11.16 Multi

Used in *ED-USER-SECU* and *ENT-USER-SECU* commands, this parameter specifies multiple-sessions privilege for the user. When specified, the user can log in to multiple EMS sessions at the same time.

The options are:

- *N* – The user cannot log in to multiple Element Management Systems simultaneously.
- *Y* – This is the default setting. The user has multiple-sessions privilege and can log in to various Element Management Systems simultaneously.

3.11.17 Ntfcncde

This parameter specifies the notification code used to set the alarm severity. Table 8 lists the different notification codes used by the OCS.

Table 8 – OCS Notification Codes

Options	Description
CR	Critical
MJ	Major
MN	Minor

3.11.18 Nwmask

Used in the *SET-IP* command, this parameter specifies the network mask of the node. The mask is expressed in a 32-bit Internet protocol address format, XXX.XXX.XXX.XXX, where XXX is between 0 and 255.

3.11.19 Page

Used in the *SET-ATTR-SECUDEFLT* command, this parameter specifies the password aging interval expressed in days. The valid range is 20 to 90 days. The default value is 30 days.

3.11.20 Ph

Used in the *INIT-SYS* command, the phase parameter specifies the degree of system initialization.

This parameter is expressed as an integer—either 1 or 2—where 1 specifies a Restart of Services and 2 specifies a System Reboot. A System Reboot, or “cold start,” is the highest-phase initialization, causing the processor to unconditionally execute the same routine as for system power-up.

3.11.21 Pid

Used in *ED-USER-SECU* and *ENT-USER-SECU* commands, this parameter specifies the user’s password.

Passwords may contain 3 to 10 characters. The password must have at least two non-alphabetic characters and at least one special character. Table 9 lists valid characters that can be used in passwords.

Table 9 – Valid User Password Characters

Character Type	Description
Alphabetic	ABCDEFGHIJKLMNOPQRSTUVWXYZ or abcdefghijklmnopqrstuvwxyz
Numeric	0123456789
Special	!@#\$%^*



User passwords may not contain the associated user ID (UID).

3.11.22 Sessid

Used in the *CANC-SESS*, *RTRV-SESS* and *SND-SESS-MSG* commands, this parameter indicates a session identifier that is assigned by the OCS when a user logs in to a node. The identifier is used to track that particular user session. There is a maximum of 20 simultaneous sessions; however, the session identifier can be almost any number. The format is *tN* or *wN*, where *N* is a numeric identifier assigned to the user session by the OCS. The *t* indicates a TL1 session, while the *w* indicates a WebService session.

3.11.23 Sid

Used in the *SET-SID* command, this parameter specifies the name of the node that is affected by the command. Starting with an alphabetic character, the name consists of 1 to 20 alphanumeric characters, including special characters such as periods (.) and underscores (_). No spaces are allowed.

3.11.24 SoakInt

Used in the *SET-SOAK* command, this parameter specifies the amount of time to wait before setting or clearing an alarm. The valid range is 0 to 15 seconds.

3.11.25 Sourceld

Used in *CLR-FAULT-EQPT* and *RTRV-FAULT-EQPT* commands, this parameter specifies the type of equipment from which the OCS retrieves fault history.

3.11.26 Src

While considered optional, *src* is not used. It is included here to be Bellcore compliant.

3.11.27 SrcPort

This parameter specifies the source port in a connection. The format for the SrcPort parameter is the same as that for the DstPort parameter described in section 3.11.8.

3.11.28 TMOUT

Used in the *SET-ATTR-SECUDFLT* command, this parameter specifies the node's systemwide security parameters.

Timeout is the amount of time a user session can remain inactive before the OCS software automatically cancels (logs off) the session. The range of values for this parameter is 10 to 30 minutes, and the default timeout is 15 minutes. Setting the TMOUT value to 0 (zero) will disable the parameter.

3.11.29 Uap

Used in *ED-USER-SECU* and *ENT-USER-SECU* commands, this parameter defines the user's access privilege. Table 19 in Appendix B.1 lists the user access privileges needed to execute TL1 commands. User role options are:

- Administrator – can perform all functions and control other users' access to the system
- Provisioner – can issue commands related to provisioning
- Field – can issue commands related to field activities
- IM – can issue commands related to installation and maintenance activities
- Read Only – can see the status of the system and view information, but is not permitted to issue any commands related to provisioning

3.11.30 Uid

Used in *ED-USER-SECU* and *ENT-USER-SECU* commands, this parameter specifies the user name or descriptor. It consists of up to 8 alphanumeric characters, including periods (.), underscores (_) and hyphens (-): for example, "J_Doe-1."

3.11.31 Uidnew

Used in the *ED-USER-SECU* command, this parameter specifies the new user identifier of an existing user, and has the same format as *uid*. When changing security privileges that do not include changing the uid, the *uidnew* field must be the same as the *uid* field.

3.11.32 Uout

Used in the *RTRV-DFLT-SECU* command, this parameter specifies the UID aging interval. If during the aging interval a UID is not used to log on to the system, the UID is disabled.

3.11.33 Warn (1-4)

Used in the *SET-ATTR-SECUDFLT* command, this parameter specifies security warning messages. Each text string message consists of up to 80 ASCII characters.

3.11.34 Waveband

Used in the *ENT-CRS* command, this parameter specifies the waveband constraint when making a connection. The options for this parameter are:

- CBand – for wavelengths of 1550 nm
- LBand – for wavelengths of 1625 nm
- OBand, OBand/Wide_Band – for wavelengths of 1310 nm
- SBand – for wavelengths of 1490 nm

4 NODE CONFIGURATION AND PROVISIONING COMMANDS

This chapter provides commands to configure and provision the OCS. Configuration involves tasks such as setting the IP address and date/time. Provisioning involves tasks such as setting up a circuit/path (cross-connection) through the switch matrix.

The commands are organized into the following task groups:

- Node configuration
- Equipment Provisioning
- Port Group Provisioning
- Cross-Connection Provisioning
- Cross-Connection Sets
- System configuration



Typing a question mark (?) after the command displays the syntax of that command.

4.1 Node Configuration

Table 10 lists the node (OCS) configuration commands.

Table 10 – OCS Node Configuration Commands

Command	Function
ED-CFG-DAT	Edits the system date and NTP format
RTRV-CFG-DAT	Retrieves the NTP address
RTRV-IP	Retrieves the node's IP address
SET-IP	Sets the node's IP address



Be sure you log into the system using the *ACT-USER* command before issuing any node configuration commands, or you'll get a PLNA (Privilege Login Not Active) error code.

4.1.1 ED-CFG-DAT: Editing Date and NTP Format

This command is used to edit the system date and NTP (Network Time Protocol) format.

Input Format:

```
agent> ed-cfg-dat:
ED-CFG-
DAT:[TID]::[CTAG]::[NTP_ADDR="<ntp_addr>"],[DATE_TIME="<date_time>"];
agent> ed-cfg-dat:
```

Output:

```
agent> ed-cfg-dat::::NTP_ADDR="192.168.120.13"
board 16-11-18 16:49:09
M 0 COMPLD
;
The date time string can be YYYY-MM-DD HH:MM:SS
ed-cfg-dat::::DATE_TIME="2016-12-06 10:00:00AM"

It can be MM/DD/YYYY HH:MM:SS
ed-cfg-dat::::DATE_TIME="06/12/2016 09:00:00PM"

It can also be a string like below
ed-cfg-dat::::DATE_TIME="Dec 6 11:00:00 2016AM"

ed-cfg-DAT::::DATE_TIME="2 OCT 2016 18:00:00"
```

4.1.2 RTRV-CFG-DAT: Retrieving NTP Address

This command retrieves the NTP address.

Input Format:

```
agent> rtrv-cfg-dat:
RTRV-CFG-DAT:[TID]:[<src>]:[CTAG];
```

Output:

```
agent> rtrv-cfg-dat:
  board 16-11-18 16:49:54
M  0 COMPLD
  "NTP address=192.168.120.13"
;
```

4.1.3 RTRV-IP: Retrieving IP Address

This command retrieves a node's IP address parameters.

User Access: All Levels

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
RTRV-IP: [TID]: [<eqptId>]: [CTAG];
```

Output Format Syntax:

```
  SID DATE TIME
M CTAG COMPLD
  "[IP=<ip>], [MASK=<mask>], [GATEWAY=<gateway>], [PORT=<port>]"
;
```

Input Format:

```
agent> RTRV-IP;
```

Output Format:

```
  TL1AGENT 12-04-30 18:31:16
M  0 COMPLD
  "IP=192.168.102.180,MASK=255.255.255.0,GATEWAY=192.168.102.1"
;
```

4.1.4 SET-IP: Setting IP Address



CALIENT recommends updating the *ipAddr*, *nw-mask* and *gateway* parameters the first time this command is issued. If not specified, the parameter uses the default value, 255.255.255.255, until it is changed.

User Access: Admin, IM, Field

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
SET-IP
a. Bonding.
SET-
IP: [TID]:<eqptId>:[CTAG]:: [<ipaddr>], [<nwmask>], [<gateway>], [<bond0pri
mary>];
```

Output Format Syntax:

```
SID DATE TIME
M CTAG COMPLD
```

Input Format:

```
agent> set-ip::bond0:::192.168.101.205,255.255.255.0,192.168.101.3,ethB
```

Output Format:

```
TL1AGENT 13-03-18 08:52:23
M 0 COMPLD
/* Session will be disconnected -- Resetting System!! */
;
// verify
agent> rtrv-ip

TL1AGENT 13-03-18 08:53:21
M 0 COMPLD

"NAME=BOND0:IP=192.168.101.205,MASK=255.255.255.0,GATEWAY=192.168.101.
3,MAC=00-80-F9-58-5A-01,LINK=ETHB-ACTIVE,IFSTATE=ENABLED"
"NAME=ETHA:IP=N/A,MASK=N/A,GATEWAY=N/A,MAC=00-80-F9-58-5A-
03,LINK=DOWN,IFSTATE=BOND0-ENABLED"
```

```
"NAME=ETHB:IP=N/A, MASK=N/A, GATEWAY=N/A, MAC=00-80-F9-58-5A-01, LINK=UP, IFSTATE=BOND0-PRIMARY"  
;  
agent>
```

b. Regular

```
// set ip for either ethA, or ethB, automatically, disables bonding.
```

```
agent> set-ip::ethb::192.168.101.205,255.255.255.0,192.168.101.3
```

```
TL1AGENT 13-03-18 08:58:14  
M 0 COMPLD  
/* Session will be disconnected -- Resetting System!! */  
;  
// verify  
agent> rtrv-ip
```

```
TL1AGENT 13-03-18 08:58:47  
M 0 COMPLD  
"NAME=BOND0:IP=N/A, MASK=N/A, GATEWAY=N/A, MAC=, LINK=N/A, IFSTATE=DISABLED"  
"  
"NAME=ETHA:IP=192.168.102.181, MASK=255.255.255.0, GATEWAY=192.168.102.1,  
MAC=00-80-F9-58-5A-03, LINK=DOWN, IFSTATE=ENABLED"  
"NAME=ETHB:IP=192.168.101.205, MASK=255.255.255.0, GATEWAY=192.168.101.3,  
MAC=00-80-F9-58-5A-01, LINK=UP, IFSTATE=ENABLED"
```



After changing an IP address, all active user sessions (TL1 and Web Server) of the changed address are disconnected. Consequently, you will need to restart those sessions.

4.2 Equipment Provisioning Commands

The OCS consists of the OCS shelf. Table 11 lists the commands used to provision the switch.

Table 11 – OCS Equipment Provisioning Commands

Command	Function
ED-PORT	Edit port parameters and alias
RTRV-ALM-EQPT	Retrieve alarms
RTRV-DET-EQPT	Retrieve equipment details
RTRV-ENV-EQPT	Retrieve equipment environmental details
RTRV-EQPT	Retrieve equipment inventory
RTRV-PORT	Retrieve port information
RTRV-PORT-SUM	Retrieve port summary information
RTRV-STATUS-BULK	Retrieve status of bulk connections



Make sure you log in to the system using the *ACT-USER* command before issuing any equipment provisioning commands, or you will receive a PLNA (Privilege Login Not Active) error code.

4.2.1 ED-PORT: Editing Port Parameters and Alias

This command edits (modifies) an existing port's configuration parameters and connection ownership. If *AliasClassificationEnabled=1* is set in */flash/config/swconfig.cfg*, the user can configure the alias independently for the input and/or output port. The following modifications can also be made to port parameters:

- Setting *ALIAS=<some alias>* sets the alias for both the input and output port.
- Setting *ALIAS_IN=<some alias>* sets the alias for the IN PORT ONLY
- Setting *ALIAS_OUT=<some alias>* sets the alias for the OUT PORT ONLY.

User Access: Admin, Prov

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
ED-
PORT: [TID] : <eqptId> : [CTAG] :: [ <owner> ] : [ INOPTDEGR=<inoptdegr> ], [ INOPTCR
IT=<inoptcrit> ],
```

```
[INOPHI=<inopthi>], [OUTOPTDEGR=<outoptdegr>], [OUTOPTCRIT=<outoptcrit>],  
], [POWERMODE=<powermode>], [OUTPOWER=<outpower>],  
[VARIANT=<variant>], [ALIAS=<alias>], [ALIAS IN=<alias in>], [ALIAS OUT=<alias out>], [PROT=<prot>], [LINK=<link>], [REMOTEPORTLABEL=<remoteportlabel>], [BANDWIDTH=<bandwidth>], [LSPENCODE=<lspencode>], [MINPRIOR=<minprior>], [SWCAP=<swcap>], [COLOR=<color>];
```



Note

The ED-PORT command parameters highlighted above are not currently supported.

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent> ed-port:
```

Output Format:

```
TL1AGENT 12-04-30 20:58:17M 0 COMPLD  
;
```

4.2.1.1 Setting Port Alias

The following examples show how to configure a port when the alias classification is enabled and when it is disabled:

- **Alias Classification Enabled** (AliasClassificationEnabled=1)

```
agent> ed-port::4.1.1:::ALIAS_IN=alias411in,ALIAS_OUT=alias411out
```

```
board 16-12-06 10:58:04  
M 0 COMPLD
```

```
agent> rtrv-port::4.1.1
```

```
board 16-12-06 11:01:26  
M 0 COMPLD  
"4.1.1:WX,NONE,NONE:INOPTDEGR=-15.00,INOPTCRIT=-17.00,OUTOPTDEGR=-  
18.00,OUTOPTCRIT=-  
20.00,INOPHI=13.00,ALIAS_IN=ALIAS411IN,ALIAS_OUT=ALIAS411OUT,INAS=OOS
```

```
-NP, INOS=OOS, INOC=NOHW, OUTAS=OOS-  
NP, OUTOS=OOS, OUTOC=NOHW, PORTID=67200513"  
;
```

- **Alias Classification Disabled** (AliasClassificationEnabled=0)

```
agent> ed-port::5.1.1:::ALIAS=alias511
```

```
board 16-12-06 11:05:59  
M 0 COMPLD  
;
```

```
agent> rtrv-port::5.1.1
```

```
board 16-12-06 11:06:05  
M 0 COMPLD  
"5.1.1:WX,NONE,NONE: INOPTDEGR=-15.00, INOPTCRIT=-17.00, OUTOPTDEGR=-  
18.00, OUTOPTCRIT=-20.00, INOPTHI=13.00, ALIAS=ALIAS511, INAS=OOS-  
NP, INOS=OOS, INOC=NOHW, OUTAS=OOS-  
NP, OUTOS=OOS, OUTOC=NOHW, PORTID=83977729"  
;
```

4.2.2 RTRV-ALM-EQPT: Retrieving Alarms on Equipment

This command retrieves alarm information.

User Access: All Levels

Error Generation: Refer to Appendix C (Error Codes and Alarms)



All *RTRV-ALM-ALL* commands share the same input and output formats. The syntax returned shows *RTRV-ALM-ALL* regardless which alarm condition you specified.

Input Format Syntax:

```
RTRV-ALM-EQPT;
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

```
"<AID>:<ntfcncde>,<condtype>,<srveff>,<ocrdat>,<ocrtm>:[conddescr]"  
;
```

Input Format:

```
agent> RTRV-ALM-EQPT;
```

Output Format:

```
node 14-10-22 11:58:58  
M 0 COMPLD  
/* Active Alarm List is Empty */  
;
```

4.2.3 RTRV-DET-EQPT: Retrieving Equipment Details

This command retrieves the equipment details.

User Access: All levels

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
RTRV-DET-EQPT:[TID]:<eqptId>:[CTAG];
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD  
"<AID>:<swver>,<cpn>,<revision>"  
;
```

Input Format:

```
agent> RTRV-DET-EQPT::  
RTRV-DET-EQPT:[TID]:<eqptId>:[CTAG];
```

```
agent> RTRV-DET-EQPT::CP-ACT;
```

Output Format:

```
TL1AGENT 14-09-19 08:54:42  
M 0 COMPLD  
"CP-ACT:HWPARTNUM=270294-  
01,REVISION=B,SERIALNUM=F00014892,MFGDATE=01-24-2013,FPGAREVNUM=0204"  
;
```

```
agent> RTRV-DET-EQPT::CP-STND;

      TL1AGENT 14-09-19 09:01:19
M 0 COMPLD
      "CP-STND:HWPARTNUM=270294-
02,REVISION=C,SERIALNUM=F00014893,MFGDATE=01-24-2013,FPGAREVNUM=0204"
;
agent> RTRV-DET-EQPT::OMM-IN;

      TL1AGENT 14-09-19 09:01:48
M 0 COMPLD
      "OMM-
IN:HWPARTNUM=NONE,REVISION=1.0,SERIALNUM=NONE,MFGDATE=6/26/2012,FPGAR
VNUM=NONE"
;
agent> RTRV-DET-EQPT::OMM-OUT;

      TL1AGENT 14-09-19 09:01:52
M 0 COMPLD
      "OMM-
OUT:HWPARTNUM=NONE,REVISION=1.0,SERIALNUM=NONE,MFGDATE=6/26/2012,FPGAR
EVNUM=NONE"
;
agent>
```

4.2.4 RTRV-ENV-EQPT: Retrieving Environmental Information

This command retrieves the environmental information.

User Access: All levels

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
RTRV-ENV-EQPT: [TID] :<eqptId>: [CTAG] ;
```

Output Format Syntax:

```
SID DATE TIME
M CTAG COMPLD
"<AID>: [<EQUIPTYPE=<EquipType>], [FLASHDISK=<flashdisk>], [MEMORY=<memor
y>], [CPU=<cpu>]
```

Input Format:

```
agent> RTRV-ENV-EQPT::  
RTRV-ENV-EQPT: [TID] :<eqptId>: [CTAG];  
agent> RTRV-ENV-EQPT::CP-ACT;
```

Output Format:

```
TL1AGENT 14-09-19 09:04:03  
M 0 COMPLD  
"CP-  
ACT:EqptType=CP, ROOTDSKUSED=65%, OPTDSKUSED=69%, VOLATILEDISKUSED=1%, TOTALMEMORY=701720, TEMPERATURE1=40.25, TEMPERATURE2=35.00"  
;  
agent> RTRV-ENV-EQPT::OMM-IN;  
  
TL1AGENT 14-09-19 09:04:10  
M 0 COMPLD  
"OMM-  
IN:EqptType=OMM, TEMPERATURE=NONE, SCANFREQ=NONE, RHDETECTOR=NONE, LHDETECTOR=NONE"  
;  
agent> RTRV-ENV-EQPT::OMM-OUT;  
  
TL1AGENT 14-09-19 09:04:16  
M 0 COMPLD  
"OMM-  
OUT:EqptType=OMM, TEMPERATURE=NONE, SCANFREQ=NONE, RHDETECTOR=NONE, LHDETECTOR=NONE"  
;  
agent>
```

4.2.5 RTRV-EQPT: Retrieve Equipment Inventory

This command retrieves provisioning data associated with the OCS hardware.

User Access: All levels

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

Input Format:

```
agent> RTRV-EQPT:  
RTRV-EQPT: [TID]: [<eqptId>]: [CTAG];
```

Output Format:

```
TL1AGENT 13-02-12 13:22:52  
M 0 COMPLD  
"1LHI-0:TYPE=HVCARD,AS=0,OS=1,RS=4,AL=3"  
"1LHI-1:TYPE=HVCARD,AS=0,OS=1,RS=4,AL=3"  
"1LHI-2:TYPE=HVCARD,AS=0,OS=1,RS=4,AL=3"  
"1LHI-3:TYPE=HVCARD,AS=0,OS=1,RS=4,AL=3"  
;
```

4.2.6 RTRV-PORT: Retrieving Port Information

This command retrieves port information.

User Access: All levels

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
RTRV-PORT: [TID]:<eqptId>:[CTAG]::<owner>],[<portcategory>]: [<alias>];
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD  
"<AID>:<portType>,<inOwner>,<outOwner>: [INOPTDEGR=<inoptdegr>],  
[INOPTCRIT=<inoptcrit>], [OUTOPTDEGR=<outoptdegr>],  
[OUTOPTCRIT=<outoptcrit>], [INOPHI=<inophi>], [ALIAS=<alias>],  
[POWERMODE=<powermode>], [OUTPOWER=<outpower>], [VARIANT=<variant>],  
[INAS=<inas>],[INOS=<inos>],[INOC=<inoc>], >], [OUTAS=<outas>],  
[OUTOS=<outos>], [PORTID=<portId>]"  
;
```

Input Format:

```
agent> rtrv-port::2.2.1
```

Output Format:

```
TL1AGENT 12-06-29 14:54:15  
M 0 COMPLD
```

```
"2.2.1:WX, TRANSIT, TRANSIT: INOPTDEGR=-15.00, INOPTCRIT=-  
35.00, OUTOPTDEGR=-23.00, OUTOPTCRIT=-  
26.00, INOPHI=13.00, ALIAS=, INAS=IS, INOS=IS, INOC=OK, OUTAS=IS, OUTOS=IS, O  
UTOC=OK, PORTID=33711617"  
;
```

4.2.7 RTRV-PORT-SUM: Retrieving Port Summary Information

This command retrieves port summary information including connection information and input power/output power information. The power information takes into account the wavelength values provided at the time of connection creation as long as the port (input or output) is part of the connection. If the port is not part of the connection, then default WIDE-BAND settings are considered.

User Access: All levels

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
RTRV-PORT-SUM: [TID] : <eqptId> : [CTAG] :: [<alias>];
```

Input Format:

```
agent> rtrv-port-sum::2.2.1
```

Output Format:

```
TL1AGENT 12-06-29 14:54:21  
M 0 COMPLD
```

```
"2.2.1:ALIAS=NONE, INPWR=5.04688, OUTPWR=12.2578, CONNNAME1=2.2.1>2.2.1, C  
ONNSTATE1=NONE, CONNNAME2=2.2.1>2.2.1, CONNSTATE2=NONE"  
;
```

4.2.8 RTRV-STATUS-BULK: Retrieving Status of Bulk Connections

This command retrieves the status of previously executed Bulk Connection commands.

User Access: All levels

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
RTRV-STATUS-BULK: [TID] : [<src>] : [CTAG] ::;
```


Output Format Syntax:

```
SID DATE TIME
M CTAG COMPLD
"<AID>:<saveRecallType>, [<setname>]: [RESULT=<result>], [CONNECTIONCOUNT
=<conncount>], [USERID=<userid>], [DATE=<date>], [TIME=<time>], [DESCRIPTI
ON=<description>]"
```

Input Format:

```
agent> rtrv-status-bulk::;
```

Output Format:

```
TL1AGENT 13-05-01 20:45:36
M 0 COMPLD

"SYSTEM:RECALL, BULKCONN:RESULT=\"Completed\", CONNECTIONCOUNT=2, USERID=
ADMIN, DATE=13-05-01, TIME=20-01-30, DESCRIPTION=\"\":"
;
```

4.3 Port Group Provisioning

The following commands are used to provision port groups on the OCS:

4.3.1 ENT-GRP-PORT: Adding Ports to Port Group

This command adds ports to the port group.

User Access: Admin only

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
ENT-GRP-PORT:
ENT-GRP-PORT: [TID]:<portGrp>:[CTAG]:<eqptId>, [<owner>], [<portType>;
```

Input Format:

```
agent> ENT-GRP-PORT::PG12:::1.1.1&1.1.2
```

Output Format:

```
TL1AGENT 12-01-15 05:43:24
M 0 COMPLD
;
```

4.3.2 ED-GRP-PORT: Editing Ports in Port Group

This command edits (modifies) ports in the port group.



The ports in a port group can be edited only if they are not in connection.

User Access: Admin

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
ED-GRP-  
PORT: [TID]:<portGrp>: [CTAG]:: [<eqptId>], [APPEND=<append>], [INOPTDEGR=<  
inoptdegr>], [INOPTCRIT=<inoptcrit>], [INOPHI=<inophi>], [OUTOPTDEGR=<o  
utoptdegr>], [OUTOPTCRIT=<outoptcrit>], [POWERMODE=<powermode>], [OUTPOWE  
R=<outpower>], [VARIANT=<variant>], [FORCE=<force>];
```

Input Format (to retrieve the port group to be edited):

```
agent> rtrv-grp-port::PG1
```

Output Format (showing the retrieved port group):

```
TL1AGENT 16-06-06 11:03:19  
M 0 COMPLD  
"pg1:TRANSIT,WX,5,1.1.1&1.1.2&1.1.3&1.1.4&1.1.5:INOPTDEGR=-  
10.00,INOPTCRIT=-12.00,OUTOPTDEGR=-15.00,OUTOPTCRIT=-  
18.00,INOPHI=13.00"  
;
```

Input Format (to edit the retrieved port group):

```
agent> ed-grp-port::PG1:::1.1.6&1.1.7&1.1.8
```

Output Format:

```
TL1AGENT 16-06-06 11:04:35  
M 0 COMPLD  
;
```

Input Format (to retrieve the edited port group)

```
agent> rtrv-grp-port::PG1
```

Output Format (verifying that the edit has been implemented):

```
TL1AGENT 16-06-06 11:04:46
M 0 COMPLD
"pg1:TRANSIT,WX,3,1.1.6&1.1.7&1.1.8:INOPTDEGR=-10.00,INOPTCRIT=-
12.00,OUTOPTDEGR=-15.00,OUTOPTCRIT=-18.00,INOPHI=13.00"
;
```

4.3.3 DLT-GRP-PORT: Deleting a Port Group

This command deletes a specified port group.



Note

A port group can be deleted only if its ports are not in connection and the port group is not assigned to any user.

User Access: Admin

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
DLT-GRP-PORT: [TID] :<portGrp>: [CTAG] :: [<eqptId>]
```

Input Format:

```
agent> dlt-grp-port::PG1
```

Output Format:

```
TL1AGENT 16-06-06 11:38:04
M 0 COMPLD
;
```

4.4 Cross-Connection Provisioning

Before provisioning a cross-connection, make sure the OCS has been provisioned. Cross-connections can be provisioned even if there are no physical fiber-optic cables connected to

the shelf; however, in such cases, an additional step is required after light is added. Table 12 lists the TL1 commands used to provision and maintain cross-connections.

The state of the connection determines which command can be issued. Refer to Appendix D (Command States) for a description of CRS commands and connection states.

Table 12 – TL1 Cross-Connection Provisioning Commands

Command	Description
ACT-CRS	Activate or re-activate a cross-connection
CANC-CRS	Cancel (deactivate) a cross-connection
DLT-CRS	Delete a cross-connection
DLT-CRS-ALL	Delete all cross-connections
DLT-CRS-BULK	Delete multiple connections
ENT-CRS	Enter (provision) a cross-connection
ENT-CRS-BULK	Add multiple cross-connections
ENT-CRS-ENH	Enter a cross-connection after deleting an existing cross-connection(s) with the same source or destination resource
REC-CRS	Recover (retry) a cross-connection
RTRV-ALM-CRS	Retrieve alarm information on transit connections
RTRV-CRS	Retrieve a list of cross-connections on the system
RTRV-CRS-SUM	This command retrieves the connection summary along with the power information on each port. It provides information for bi-directional and uni-directional connections.
RTRV-DFLT-CRS	Retrieve current default values

 **Note**

Make sure you log in to the system using the *ACT-USER* command before issuing any TL1 cross-connection provisioning commands, or you will receive a PLNA (Privilege Login Not Active) error code.

4.4.1 ACT-CRS: Activating Cross-Connections

This command activates (monitors for alarms) or reactivates a cross-connection that had previously been deactivated by the CANC-CRS command. This command moves the connection from an under management state (AS_UMA) to an in-service state (AS_IS).

User Access: Admin, Prov



Field, IM and ReadOnly user accounts cannot activate connections created by other users.

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
ACT-CRS: [TID]: [<srcPort>], [<dstPort>]: [CTAG]:: [<circuitid>],  
[<groupName>], [<connName>];
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent> ACT-CRS:::::1.1.4>1.1.5;
```

Output Format:

```
TL1AGENT 12-04-30 20:55:36M 0 COMPLD;
```

4.4.2 CANC-CRS: Canceling Cross-Connections

This command cancels (deactivates) a previously active cross-connection, moving the connection state from in-service (AS_IS) to under management (AS_UMA). While in an AS_UMA state, the connection still functions normally; however, alarms are not logged. When a connection is deactivated, all outstanding alarms associated with the connection are cleared.

Use the *ACT-CRS* command to fully return the card to service (i.e., reactivate alarm monitoring).

User Access: Admin, Prov



Field, IM and ReadOnly user accounts cannot deactivate connections created by other users.

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
CANC-  
CRS: [TID] : [<srcPort>], [<dstPort>] : [CTAG] :: [<circuitid>], [<groupName>],  
[<connName>];
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent> CANC-CRS:::::1.1.4>1.1.5;
```

Output Format:

```
TL1AGENT 12-04-30 20:55:36M 0 COMPLD;
```

4.4.3 DLT-CRS: Deleting Cross-Connections

This command deletes an existing cross-connection, removing it from the equipment database. Use the *ENT-CRS* command to return the connection to service.

User Access: Admin, Prov



Field, IM and ReadOnly user accounts cannot delete connections created by other users.

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
DLT-CRS: [TID] : [<srcPort>], [<dstPort>] : [CTAG] :: [<circuitid>],  
[<groupName>], [<connName>];
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent> DLT-CRS:::::1.1.4>1.1.5;
```

Output Format:

```
TL1AGENT 12-04-30 20:55:36M 0 COMPLD  
;
```

4.4.4 DLT-CRS-ALL: Removing All Cross-Connections

This command removes all existing cross connections on the system.

User Access: Admin, Prov

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
DLT-CRS-ALL: [TID] :: [CTAG] ::;
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent> dlt-crs-all
```

Output Format:

```
TL1AGENT 13-06-24 10:40:50  
M 0 COMPLD  
;
```

4.4.5 DLT-CRS-BULK: Deleting Multiple Connections

This command allows the user to delete multiple connections on an arbitrary batch of connections that have been entered and separated using the ampersand (&) character.

The connections can be uni-directional, bi-directional or a combination of both. Uni-directional connections are designated by entering the greater-than (>) character between the specified

ports, while bi-directional connections are designated by entering the dash (–) character between the specified ports.

The highlighted text under “Input Format” below shows the proper way to specify uni-directional and bi-directional connections.

User Access: Admin

Error Generation: Refer to Appendix C, Error Codes and Alarms.

Input Format Syntax:

```
DLT-CRS-BULK: [TID] : [<connList>] : [CTAG] ::;
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent> dlt-crs-bulk::1>2&11-12;  
OR  
agent> dlt-crs-bulk::1.1.1>1.1.2&1.1.4-1.1.5;
```

Output Format:

```
TL1AGENT 13-05-01 20:34:15  
M 0 COMPLD  
;
```

4.4.6 ENT-CRS: Entering Cross-Connections

This command creates an input/output cross-connection between two fiber paths.



After a cross-connection is created, it needs to be activated (*ACT-CRS*) in order to be monitored for alarms.

User Access: Admin, Prov

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
agent> ent-crs::  
ENT-  
CRS:[TID]:<srcPort>,<dstPort>:[CTAG]:: [<groupName>], [<connType>], [<connName>], [<waveband>], [<autofocus>], [<nolightconn>], [<optimizeconn>], [<force>], [<inpwrnge>];
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD  
/* ENT-CRS OK. <srcPort>,<dstPort>*/
```

Input Format:

```
agent> ENT-CRS::1.1.4,1.1.5:::,1way,,cband;
```

Output Format:

```
TL1AGENT 12-04-30 20:55:36M 0 COMPLD  
/* ENT-CRS OK. 1.1.4>1.1.5 */  
;
```

4.4.7 ENT-CRS-BULK: Adding Multiple Cross-Connections

This command allows the user to make multiple connections on an arbitrary batch of connections that have been entered and separated using the ampersand (&) character.

The connections can be uni-directional, bi-directional or a combination of both. Uni-directional connections are designated by entering the greater-than (>) character between the specified ports, while bi-directional connections are designated by entering the dash (–) character between the specified ports.

The highlighted text under “Input Format” below shows the proper way to specify uni-directional and bi-directional connections.

User Access: Admin

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
ENT-CRS-BULK: [TID]:<connList>: [CTAG]:: [<connSetName>], [<wavelength>],  
[<overwrite>], [<comment>;
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent> ent-crs-bulk::1>2&3>4&10-19;  
OR  
agent> ent-crs-bulk::1.1.1>1.1.2&1.1.3-1.1.4;
```

Output Format:

```
TL1AGENT 14-09-19 09:29:19  
M 0 COMPLD  
;
```

4.4.8 ENT-CRS-ENH: Creating Cross-Connections Between Two Ports

This command creates cross-connections between two ports, even if either of the ports were involved in other cross-connects. This command returns the SUCCESS or DENY status, as well as the list of deleted cross-connects (if any).

User Access: Admin

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
ENT-CRS-  
ENH: [TID]:<srcPort>,<dstPort>: [CTAG]:: [<groupName>], [<connType>],  
[<connName>], [<waveband>;
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent> ent-crs-enh::1.1.3,1.1.5
```

Output Format:

```
TL1AGENT 14-09-19 09:14:56
M 0 COMPLD
/* ENT-CRS-ENH OK. 1.1.3-1.1.5: Deleted Old xConns: 1.1.3-1.1.4 */
;
agent>
```

4.4.9 REC-CRS: Recovering Cross-Connections

This command retries a cross-connection between two ports. If you try to correct a fiber problem on a cross-connection and the attempt fails, you can manually retry (refresh) the cross-connection. During the retry, the connection is re-made on the switch matrix.

User Access: Admin

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
REC-
CRS:[TID]:[<src>]:[CTAG]::[<circuitid>],[<groupName>],[<connName>];
```

Output Format Syntax:

```
SID DATE TIME
M CTAG COMPLD
```

Input Format:

```
agent> REC-CRS:::::1.1.4>1.1.5;
```

Output Format:

```
TL1AGENT 12-04-30 20:55:36M 0 COMPLD
;
```

4.4.10 RTRV-ALM-CRS: Retrieving Alarms on Connections

This command retrieves alarms information for a specified connection or all connections.

User Access: All levels

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
RTRV-ALM-CRS;
```

Output Format Syntax:

```
SID DATE TIME
M CTAG COMPLD
/* <Status of Active Alarm List> */
```

Input Format:

```
agent> RTRV-ALM-CRS;
```

Output Format:

```
TL1AGENT 70-01-03 12:10:14
M 0 COMPLD
"2.3.6>3.5.6:CR,T-INOPTCRIT,SA,70-01-03,10-20-26:\\"AlarmId=87:
Description=Transit Connection Receive Signal Critical\\""
```



All *RTRV-ALM-ALL* commands share the same input and output formats. The syntax returned shows *RTRV-ALM-ALL*, regardless of which alarm condition is specified. For example:

```
agent> rtrv-alm-crs;
TL1AGENT 12-04-30 20:58:17
M 0 COMPLD
"21.1>29.1:CR,T-INOPTCRIT,SA,06-02-06,02-28-59:\\"AlarmId=20:
Description=Transit Connection Receive Signal Critical\\"" ;
```

4.4.11 RTRV-CRS: Retrieving Connections

This command retrieves information for a specified connection or all connections.

User Access: All levels

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
RTRV-CRS:::::[<groupName>],[<circuitId>],[<connName>];
```

Output Format Syntax:

```
SID DATE TIME
```

```
M CTAG COMPLD
"<AID:[SRC_PORT=<src_port>].[DST_PORT=<dst_port>],[GROUPNAME=<groupName>], [CONNNAME=<connName>], [CONNTYPE=<connType>], [AS=<AS>], [OS=<os>], [OC=<oc>], [PS=<ps>], [AL=<al>]
;
```

Input Format:

```
agent>RTRV-CRS;
```

Output Format:

```
TL1AGENT 12-04-30 20:58:17M 0 COMPLD

"1.1.4>1.1.5:SRCPOR=1.1.4,DSTPOR=1.1.5,GRPNAM=SYSTEM,CONNNAME=1.1.4
>1.1.5,CONNTYPE=1WAY,AS=UMA,OS=RDY,OC=OK,PS=UPR,AL=CL"
;
```

4.4.12 RTRV-CRS-SUM: Retrieving Connection Summary

This command retrieves the connection summary along with the power information on each port. It provides information for bi-directional and uni-directional connections.

User Access: All levels

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
RTRV-CRS-
SUM: [TID]: [<srcPort>], [<dstPort>]: [CTAG]: [<groupName>], [<circuitid>],
[<connName>], [PWRVALS=<pwrvals>];

// F_XX denotes the attributes of the forward connection, and R_XX
denotes the attributes of the reverse connection( if bi-direction
connection)
```

Output Format Syntax:

```
SID DATE TIME
M CTAG COMPLD

"<AID:[SRC_PORT=<src_port>].[DST_PORT=<dst_port>],[GROUPNAME=<groupName>], [CONNNAME=<connName>], [CONNTYPE=<connType>], [WAVEBAND=<waveband>],
[F_CONNID=<circuitid>], [F_AS=<AS>], [F_OS=<os>], [F_OC=<oc>], [F_PS=<ps>],
[F_AL=<al>], [F_INPWR=<pwrvals>], [F_OUTPWR=<pwrvals>], [F_LOSS=<pwrvals>],
//optional
```

```
[R_CONNID=<circuitid>], [R_AS=<AS>], [R_OS=<os>], [R_OC=<oc>], [R_PS=<ps>],  
[R_AL=<al>], [R_INPWR=<pwrvals>], [R_OUTPWR=<pwrvals>], [R_LOSS=<pwrvals>  
]"
```

Input Format:

```
agent> rtrv-crs-sum;
```

Output Format:

```
TL1AGENT 16-06-08 12:50:17  
M 0 COMPLD  
"1.1.2-  
1.1.1:SRCPOR=1.1.2,DSTPOR=1.1.1,GRPNAM=SYSTEM,CONNNAM=1.1.2-  
1.1.1,CONNTP=2WAY,WAVEBAN=CBAND,F_CONNID=1.1.2>1.1.1,F_AS=UMA,F_OS=  
RDY,F_OC=OK,F_PS=UPR,F_AL=CL,F_INPWR=4.25,F_OUTPWR=2.25,F_LOSS=2.00,R_  
CONNID=1.1.1>1.1.2,R_AS=UMA,R_OS=RDY,R_OC=OK,R_PS=UPR,R_AL=CL,R_INPWR=  
4.25,R_OUTPWR=2.25,R_LOSS=2.00,"  
;  
agent>
```

4.4.13 RTRV-DFLT-CRS: Retrieving Current Default Values

This command retrieves current default values for cross-connections and related parameters.

User Access: Admin, Prov

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
RTRV-DFLT-CRS: [TID] : [<src>] : [CTAG]
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent> RTRV-DFLT-CRS;
```

Output Format:

```
TL1AGENT 13-02-12 12:22:16  
M 0 COMPLD  
"AUTOFOCUS=YES,NOLIGHTCONN=NO,OPTIMIZECONN=YES"  
;
```

4.5 Cross-Connection Sets

Up to 50 named sets of cross-connections can be saved. A cross-connection set consists of all the *source_port* to *destination_port* connections contained in the set. Cross-connection sets are stored in the database.

It is an error to try overwriting a connection set, and attempts to do so will be denied. In order to modify an existing set, delete the cross-connection set with *DLT-CRSSET*, modify the connections, then save the new connection set with the same name.

Table 13 lists the TL1 commands relating to cross-connection sets.

Table 13 – TL1 Cross-Connection Set Commands

Command	Description
OPR-CRSSET-SAVE	Saves all current cross-connections into the named set
OPR-CRSSET-LPBK	Establishes the set of cross-connections for the internally generated loopback set
OPR-CRSSET-RECALL	Establishes the set of cross-connections defined by the named set
OPR-CRSSET-UNLOAD	Removes the set of cross-connections defined by the named set
DLT-CRSSET	Deletes a cross-connection set
SET-ATTR-CRSDFLT	Sets connection default
RTRV-CRSSET	Retrieves a list of all cross-connection sets
RTRV-CRSSET-DET	Retrieves the details of a specific cross-connection set.
RTRV-SAVERECALL	Retrieves the result of the last save/recall cross-connection set operation

4.5.1 OPR-CRSSET-SAVE: Saving Connection Set

This command saves all current cross-connections into the named set.

User Access: Admin, Prov

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
OPR-CRSSET-SAVE: [TID] :<connSetName>: [CTAG] :: [<description>;
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent> OPR-CRSSET-SAVE::SJCLAB1:::San Jose Lab XconnSet 1;
```

Output Format:

```
TL1AGENT 12-04-30 20:58:17M 0 COMPLD  
;
```

4.5.2 OPR-CRSSET-LPBK: Establishing Loopback Mode

This command establishes the set of cross-connections for the internally generated loopback set.

User Access: Admin

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
OPR-CRSSET-LPBK: [TID] : [<src>] : [CTAG] ;
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent> OPR-CRSSET-LPBK:::;
```

Output Format:

```
TL1AGENT 12-04-30 20:58:17  
M 0 COMPLD  
;
```


4.5.3 OPR-CRSSET-RECALL: Recalling Connection Set

This command establishes the set of cross-connections defined by the named set. When a cross-connection set is recalled, a broadcast message indicating the change is automatically sent to all logged-in users.

User Access: Admin

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
OPR-CRSSET-RECALL: [TID] : <connSetName> : [CTAG] : : [<force>] ;
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent> OPR-CRSSET-RECALL::SJCLAB1;
```

Output Format:

```
TL1AGENT 12-04-30 20:58:17  
M 0 COMPLD  
;
```

4.5.4 OPR-CRSSET-UNLOAD: Unloading Connection Set

This command removes the set of cross-connections defined by the named set.

User Access: Admin

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
OPR-CRSSET-UNLOAD: [TID] : <connSetName> : [CTAG] : : ;
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent> OPR-CRSSET-UNLOAD::SJCLAB1;
```

Output Format:

```
TL1AGENT 12-04-30 20:58:17  
M 0 COMPLD  
;
```

4.5.5 DLT-CRSSET: Deleting Connection Set

This command will delete the named cross-connection set.

User Access: Admin, Prov

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
DLT-CRSSET: [TID] :<connSetName>: [CTAG] ::;
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent> DLT-CRSSET::SJCLAB1;
```

Output Format:

```
TL1AGENT 12-04-30 20:58:17M 0 COMPLD  
;
```

4.5.6 SET-ATTR-CRSDFLT: Setting Connection Default

This command changes the default value used when creating cross-connections.

User Access: Admin, Prov

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
SET-ATTR-  
CRSDFLT: [TID] : [<src>] : [CTAG] :: [AUTOFOCUS=<autofocus>], [NOLIGHTCONN=<no  
lightconn>], [OPTIMIZECONN=<optimizeconn>];
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent> SET-ATTR-CRSDFLT:::::AUTOFOCUS=1,NOLIGHTCONN=0,OPTIMIZECONN=1
```

Output Format:

```
TL1AGENT 13-06-24 10:44:07  
M 0 COMPLD  
;
```

4.5.7 RTRV-CRSSET: Retrieving Connection Set List

This command retrieves a list of the connections in a cross-connection set.

User Access: Admin, Prov

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
RTRV-CRSSET: [TID] : [<connSetName>] : [CTAG] ::;
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent> RTRV-CRSSET::SJCLAB1::::;
```

Output Format:

```
TL1AGENT 12-04-30 20:58:17M 0 COMPLD  
;
```

4.5.8 RTRV-CRSSET-DET: Retrieving Connection Set Details

This command retrieves the details of a specific cross-connection set.

User Access: Admin, Prov

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
RTRV-CRSSET-DET: [TID] : [<connSetName>] : [CTAG] : ::;
```

Output Format Syntax:

```
SID DATE TIME
M CTAG COMPLD
"GROUP-NAME, CONN-NAME, CONN-ID, USER, LIGHTBAND, ADMIN-STATE"
;
```

Input Format:

```
agent> RTRV-CRSSET::PROV_SAVED::::;
```

Output Format:

```
TL1AGENT 16-06-02 04:41:21
M 0 COMPLD
"SYSTEM, 002-001, 1.1.2-1.1.1, ADMIN, OBAND, UMA"
"SYSTEM, 004-003, 1.1.4-1.1.3, PROV, OBAND, UMA"
;
```

4.5.9 RTRV-SAVERECALL: Retrieving Status of Last Set Operation

This command displays the status of the last save or recall operation performed on the set. Table 14 lists the parameters for the *RTRV-SAVERECALL* command.

Table 14 – Last Save/Recall Status Parameters

Parameters	Description
AID	Access identification code of the last operation
saveRecallType	Saves the type of operation last performed; the type can be Save, Recall, Delete or Idle
connSet	Cross-connection set name involved in the last operation; the field remains empty if there was no save or recall operation
Result	State of the last operation; the value for this parameter can be Completed, Deny or Fail
ConnectionCount	Number of cross-connections in the set
UserId	ID of the person performing the last operation
Date	Date of the last operation

Parameters	Description
Time	Time of the last operation
Description	Optional text

User Access: Admin, Prov

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
RTRV-SAVERECALL: [TID] : [<src>] : [CTAG] ::;
```

Output Format Syntax:

```
SID DATE TIME
M CTAG COMPLD
"<AID>:<saveRecallType>, [consent] : [RESULT=<result>], [CONNECTIONCOUNT=
<conncount>], [USERID=<userid>], [DATE=<date>], [TIME=<time>], [DESCRIPTIO
N=<description>]"
```

Input Format:

```
agent> RTRV-SAVERECALL;
```

Output Format:

```
TL1AGENT 12-04-30 20:58:17M 0 COMPLD
"SYSTEM:SAVE,SJCLAB1:RESULT=\"Completed\",CONNECTIONCOUNT=320,USERID=ADMIN,DATE=08-02-13,TIME=10-25-18,DESCRIPTION=\"San Jose Lab XconnSet 1\":"
```

4.6 System Configuration

Table 15 lists the commands used to set and retrieve systemwide information.

Table 15 – System Configuration Commands

Command	Function
INIT-SYS	Resets the system
RTRV-CFG-DB	Retrieves database status
RTRV-NE	Retrieves node information
RTRV-SCP	Retrieves node SCP parameters
SET-CFG-DB	Sets database status

SET-SCP	Sets SCP parameters for a node
SET-SID	Sets system ID



Make sure you log into the system using the *ACT-USER* command before issuing any system configuration commands, or you will receive a PLNA (Privilege Login Not Active) error code.

4.6.1 INIT-SYS: Resetting System

This command resets the system at various phases of operation.

User Access: Admin

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
INIT-SYS: [TID] : [<eqptId>] : [CTAG] :: <ph>;  
/* Phase needs to be an integer between 1 or 2 where 1 for Restart  
Services and 2 for System Reboot */
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent> init-sys:::::1
```

Output Format:

```
TL1AGENT 14-09-19 10:22:19  
M 0 COMPLD  
;
```

4.6.2 RTRV-CFG-DB: Retrieving Database Status

This command retrieves the current status of the system database.

Input format:

```
agent> rtrv-cfg-db:
RTRV-CFG-DB: [TID]: [<src>]: [CTAG];
```

Output:

```
agent> RTRV-CFG-DB
TL1AGENT 16-11-16 11:39:22
M 0 COMPLD
"DB Status: USER-DB"
```

4.6.3 RTRV-NE: Retrieving Network Element

This command retrieves the network element name, serial number, software version and current status.

User Access: All levels

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
RTRV-NE: [TID]: [<src>]: [CTAG];
```

Output Format Syntax:

```
SID DATE TIME
M CTAG COMPLD
"<AID>: [SERIALNUMBER=<serialnumber>], [SWPACKAGE=<swpackage>], [STATUS=<
status>]"
;
```

Input Format:

```
agent> RTRV-NE;
```

Output Format:

```
TL1AGENT 14-09-19 10:25:46
M 0 COMPLD
"sw728:SERIALNUMBER=C00000728, SWPACKAGE=6.0-
0cS1, STATUS=OK, CHASSISTYPE=X272, PLATFORM=VERSION1"
```

4.6.4 RTRV-SCP: Retrieving SCP Parameters

This command retrieves the SCP parameters for a node.

Input format:

```
agent> RTRV-SCP:
RTRV-SCP: [TID]: [<src>]: [CTAG];
```

Output:

```
agent> RTRV-SCP

      TL1AGENT 16-11-16 11:51:30
M  0  COMPLD
      "SCPADDRESS=192.168.120.13,UID=user1,SCPDIR=/home/logs"
;
```

4.6.5 SET-CFG-DB: Setting Database Status

This command sets the database status.

Input format:

```
agent> SET-CFG-DB:
SET-CFG-DB: [TID]: [<src>]: [CTAG]::<dbconf>;  ///Dbconf accepts value
'USER'
```

Output:

```
agent> SET-CFG-DB:::::USER

      TL1AGENT 16-11-16 11:43:01
M  0  COMPLD
;
```

4.6.6 SET-SCP: Setting SCP Parameters

This command sets the SCP parameters for a node.

Input format:

```
agent> SET-SCP:
SET-SCP: [TID]: [<src>]: [CTAG]::<ipaddr>,<uid>,<pid>,<scpdir>;
```

Output:

```
agent> SET-SCP:::::192.168.120.13,user1,*****/home/logs

      TL1AGENT 16-11-16 11:48:53
```



```
M 0 COMPLD  
;
```

4.6.7 SET-SID: Setting System ID

This command changes the TID/SID node name.

User Access: Admin, Field, IM

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
SET-SID: [TID] : [<src>] : [CTAG] ::<sid>;
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent> set-sid:::::Switch728
```

Output Format:

```
Switch728 14-09-19 10:32:46  
M 0 COMPLD;
```

5 SECURITY MANAGEMENT COMMANDS

This chapter provides the OCS TL1 commands to provision users and monitor the node's user database and session activity.

For an explanation of OCS TL1 user access levels, see User Access Levels in section 1.3. For information about the privileges required for each TL1 command, see Commands by User Privilege in section B.1.

The security management commands are organized into the following task groups:

- Security Management
- User Administration
- Session Administration

5.1 Security Management

The Security Management TL1 commands are used to provision systemwide security parameters.

5.1.1 RTRV-DFLT-SECU: Retrieving Default Security

This command reinstates the default values for the node's systemwide security parameters.

User Access: Admin, Prov, Field, IM

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
RTRV-DFLT-SECU: [TID] : [<src>] : [CTAG] ;
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD "[PAGE=<page>], [UOUT=<uout>], [TMOUT=<tmout>],  
[WARN=<warn>], [WARN1=<warn1>], [WARN2=<warn2>], [WARN3=<warn3>],  
[WARN4=<warn>4]"  
;
```

Input Format:

```
agent> RTRV-DFLT-SECU;
```

Output Format:

```
TL1AGENT 12-04-30 21:05:19M 0 COMPLD  
"TMOUT=20,PAGE=35,UOUT=50,WARN=\"NOTICE. \",WARN1=\"This is a  
private computer system. \",WARN2=\"Unauthorized access or use may  
lead to prosecution.\",WARN3=\"\",WARN4=\"\"  
;
```

5.1.2 SET-ATTR-SECUDFLT: Setting Attribute Security Default

The Set Attribute Security Default (*SET-ATTR-SECUDFLT*) command sets the systemwide default values associated with several security parameters.

User Access: Admin, Field, IM

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
SET-ATTR-  
SECUDFLT: [TID]: [<src>]: [CTAG]: [PAGE=<page>], [TMOUT=<tmout>], [UOUT=<uout>], [WARN=<warn>], [WARN1=<warn1>], [WARN2=<warn2>], [WARN3=<warn3>], [WARN4=<warn4>];
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD  
//[PAGE=<page>], [TMOUT=<tmout>], [UOUT=<uout>], [WARN=<warn>], [WARN1=<warn1>], [WARN2=<warn2>], [WARN3=<warn3>], [WARN4=<warn4>];
```

Input Format:

```
agent> set-attr-secudflt:  
agent> set-attr-  
secudflt:::100::PAGE=35, TMOUT=20, UOUT=50, WARN=NOTICE, WARN1=This is a  
private computer system., WARN2=Unauthorized access or use may lead to  
prosecution.  
  
board 16-12-06 11:13:01  
M 100 COMPLD  
;
```

Output Format:

```
TL1AGENT 12-06-26 14:09:19
M 0 COMPLD
;
```

5.2 User Administration

When logging in to the OCS for the first time, use the default user ID (*admin*) and default password (*pxc****).

Table 16 lists the TL1 commands used to provision and administer a user.

Table 16 – TL1 User Administration Commands

Command	Function
ACT-USER	Login
ALW-USER-SECU	Allow (re-activate) a user
CANC-USER	Logoff
DLT-USER-SECU	Delete a user
ED-PID	Change user password
ED-USER-SECU	Edit a user's securities
ENT-USER-SECU	Enter (provision) a new user
INH-USER-SECU	Inhibit (deactivate) a user
RTRV-ALM-SECU	Retrieve user security information
RTRV-USER	Retrieve the list of users currently logged in

5.2.1 ACT-USER: Logging In

This command enables a valid user login. At initial login (i.e., before changing the default user settings), use the default user ID (*admin*) and default password (*pxc****). For subsequent logins, use your assigned user ID and password.

User Access: All levels

Error Generation: Refer to Appendix C (Error Codes and Alarms)



For security purposes, the password does not echo back on the console.

Input Format Syntax:

```
ACT-USER: [TID] :<uid>: [CTAG] ::<pid>;
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD  
" <uId>: <currentTime>, <currentDate>"  
/* <MTOD> */  
;
```

Input Format:

```
agent> act-user::admin:::*****;
```

Output Format:

```
TL1AGENT 12-04-30 20:53:49  
M 0 COMPLD  
"admin:admin,2"  
/* securitynotice..... */;
```

5.2.2 ALW-USER-SECU: Allowing User Security

This command restores user access that was temporarily restricted by the *INH_USER_SECU* command.

User Access: Admin only

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
ALW-USER-SECU: [TID] : [<src>] : [CTAG] ::<uid>;
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent> ALW-USER-SECU:::::tech1;
```

Output Format:

```
TL1AGENT 12-04-30 20:53:49M 0 COMPLD;
```

5.2.3 CANC-USER: Logging Off

This command cancels (logs off) a user session.

User Access: All levels

Error Generation: Refer to Appendix C (Error Codes and Alarms)



Up to 40 simultaneous sessions among all services (i.e., 20 TL1 sessions and 20 Web sessions) are allowed. Be sure to log off when not using a session. If the session is not released properly, use the *CANC-SESS* command to forcibly end the session (admin privilege required).

Input Format Syntax:

```
CANC-USER:[TID]:[<uid>]:[CTAG]::[EXITSESS=<exitsession>];
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent>CANC-USER:::::exitsess=y;
```

Output Format:

```
TL1AGENT 12-04-30 20:53:49M 0 COMPLD  
;
```

5.2.4 DLT-USER-SECU: Deleting User Security

This command deletes a user from the user database.



To ensure the system can be properly managed and maintained, the `DLT-USER-SECU` command *cannot* delete the default admin user.

User Access: Admin only

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
DLT-USER-SECU: [TID] :<uid>: [CTAG];
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent>DLT-USER-SECU::TECH1;
```

Output Format:

```
TL1AGENT 12-04-30 20:53:49M 0 COMPLD  
;
```

5.2.5 ED-PID: Changing User Password

This command changes your personal and/or the current user password.

User Access: Admin, Prov, Field, IM

Error Generation: Refer to Appendix C (Error Codes and Alarms)

CALIENT uses the symbolic naming scheme of Telcordia specification GR-0835, which states that user passwords must:

- Have at least two non-alphabetic characters, with at least one special character (e.g., asterisk, hash sign, etc.)
- Not contain the associated UID (user ID)

- Not contain a colon (:), semicolon (;), hyphen (-), comma (,) question mark (?), single quotation mark (') or double quotation mark (")
- Be different from the current password

 **Note**

A password has a limited life span based on the aging configuration (see SET-ATTR-SECUDFLT in section 5.1.2). When a password expires, the only two commands allowed for the user are *ED-PID* and *CANC-USER*. After changing the password, you must log out of the system and log in again using the new password in order to gain proper access to the system.

Input Format Syntax:

```
ED-PID: [TID]:<uid>:[CTAG]::<oldpid>,<newpid>;
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent>ED-PID::TECH1:::*****,****;
```

Output Format:

```
TL1AGENT 12-04-30 20:53:49M 0 COMPLD;
```

5.2.6 ED-USER-SECU: Editing User Security

This command modifies a user's role and access privilege.

User Access: Admin only

Error Generation: Refer to Appendix C (Error Codes and Alarms)

 **Note**

Changing a user name deletes that user; a new user is created with the *uidnew* parameter. These events are reported in that sequence.

Input Format Syntax:

```
ED-USER-SECU: [TID]:<uid>:[CTAG]::<uidnew>,<pid>,[<cid>],  
<uap>:[MULTI=<multi>],[ACCESS=<access>];
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent>ED-USER-SECU::TECH1:::,*****,,field:multi=n;
```

Output Format:

```
TL1AGENT 12-04-30 20:53:49M 0 COMPLD  
;
```

5.2.7 ENT-USER-SECU: Entering User Security

This command creates a new user in the user database.

User Access: Admin only

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
ENT-USER-  
SECU: [TID]:<uid>:[CTAG]::<pid>,[<cid>],<uap>:[MULTI=<multi>],[ACCESS=<  
access>];
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent>ENT-USER-SECU::TECH2:::,*****,,admin;
```

Output Format:

```
TL1AGENT 12-04-30 20:53:49M 0 COMPLD  
;
```

5.2.8 INH-USER-SECU: Inhibiting User Security

This command prevents a user from logging in. Before issuing the INH-USER-SECU command, issue a RTRV-SESS to see which users are currently active.

If the user to be inhibited is logged in when the INH-USER-SECU command is issued, the command is ignored and the session remains active.



To ensure the system can be properly managed and maintained, the default admin user cannot be inhibited with the *INH-USER-SECU* command.

User Access: Admin only

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
INH-USER-SECU: [TID] : [<src>] : [CTAG] :: <uid>;
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent>INH-USER-SECU:::::TECH2;
```

Output Format:

```
TL1AGENT 12-04-30 20:53:49M 0 COMPLD  
;
```

5.2.9 RTRV-ALM-SECU: Retrieving Alarms on Security

This command retrieves a list of active security-related alarms.

User Access: All levels

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format:

```
agent> RTRV-ALM-SECU;
```

Output Format:

```
TL1AGENT 12-04-30 20:53:49M 0 COMPLD  
/* Active Alarm List Empty */  
;
```

5.2.10 RTRV-USER: Retrieving User List

This command retrieves a user or list of users, along with associated privileges, from the node's user database.

User Access: Admin only

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
RTRV-USER: [TID] : [<uid>] : [CTAG];
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD  
"<UID>:<CID>,<UAP>:[PAGE=<page>],[UOUT=<uout>],[WEB=<web>],[TL1=<t11>]  
,[DISABLE=<disable>],[MULTI=<multi>]"  
;
```

Input Format:

```
agent> rtrv-user;
```

Output Format:

```
board 16-12-06 11:18:37  
M 0 COMPLD  
  
"admin: ,ADMIN:PORTGRP=, PAGE=35,UOUT=50,WEB=YES,TL1=YES,DISABLE=NO,MULTI=YES,AUTOLOGOUT=YES"  
"admin1: ,ADMIN:PORTGRP=, PAGE=35,UOUT=50,WEB=YES,TL1=YES,DISABLE=NO,MULTI=YES,AUTOLOGOUT=YES"  
"field: ,FIELD:PORTGRP=, PAGE=35,UOUT=50,WEB=YES,TL1=YES,DISABLE=NO,MULTI=YES,AUTOLOGOUT=YES"
```

```
"field1:, FIELD:PORTGRP=PG2, PAGE=35, UOUT=50, WEB=YES, TL1=YES, DISABLE=NO, MULTI=YES, AUTOLOGOUT=YES"
```

```
"install:, IM:PORTGRP=, PAGE=35, UOUT=50, WEB=YES, TL1=YES, DISABLE=NO, MULTI=YES, AUTOLOGOUT=YES"
```

```
"readl:, READONLY:PORTGRP=PG1&PG2&PG3, PAGE=35, UOUT=50, WEB=YES, TL1=YES, DISABLE=NO, MULTI=YES, AUTOLOGOUT=YES"
```

```
"tl1only:, ADMIN:PORTGRP=, PAGE=35, UOUT=50, WEB=NO, TL1=YES, DISABLE=NO, MULTI=YES, AUTOLOGOUT=YES"
```

```
"webonly:, PROV:PORTGRP=, PAGE=35, UOUT=50, WEB=YES, TL1=NO, DISABLE=NO, MULTI=YES, AUTOLOGOUT=YES"
```

5.3 Session Administration

Table 17 lists the TL1 commands used to monitor user sessions.

Table 17 – Session Admin Commands

Command	Function
CANC-SESS	Cancel a user session (log off a user)
RTRV-SESS	Retrieve the node's active sessions
SND-SESS-MSG	Broadcast a message to all sessions

5.3.1 CANC-SESS: Canceling a Session

This command immediately cancels (ends) a user session previously created by an ACT-USER command.

User Access: Admin only

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
CANC-SESS: [TID] :<sessId>: [CTAG];
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent> CANC-SESS::t30;
```

Output Format:

```
TL1AGENT 70-01-03 06:10:45
M 0 COMPLD
;
```

5.3.2 RTRV-SESS: Retrieving Session List

This command retrieves active session information or all active sessions or single sessions. By entering an individual session ID, it can also return individual session information.

User Access: Admin only

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
RTRV-SESS: [TID] : [<sessId>] : [CTAG];
```

Output Format Syntax:

```
SID DATE TIME
M CTAG COMPLD
"<AID>:USER=<user>],ROLE=<role>], [SERVICE=service],ADDRESS<address>],
{LOGONDATE=<logondate>],LOGONTIME=<logontime>}"
```

Input Format to retrieve all sessions:

```
agent> RTRV-SESS;
```

Output Format for all active sessions:

```
TL1AGENT 70-01-03 06:06:49
M 0 COMPLD

"t30:User=admin,Role=ADMIN,Service=TL1,Address=192.168.101.128,LogonDate=70-01-03,LogonTime=06-03-59"

"t31:User=admin,Role=ADMIN,Service=TL1,Address=192.168.101.128,LogonDate=70-01-03,LogonTime=06-05-26"

"t32:User=admin,Role=ADMIN,Service=TL1,Address=192.168.101.128,LogonDate=70-01-03,LogonTime=06-05-42"
;
```

Input Format to retrieve a single active session:

```
agent> rtrv-sess::t30
```

Output Format for a single active session:

```
TL1AGENT 70-01-03 06:08:08
M 0 COMPLD

"t30:User=admin,Role=ADMIN,Service=TL1,Address=192.168.101.128,LogonDate=70-01-03,LogonTime=06-03-59"
```

5.3.3 SND-SESS-MSG: Sending a Session Message

This command sends a message to some or all users who are currently logged in.

User Access: Admin only

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
SND-SESS-MSG: [TID] : [<sessId>] : [CTAG] :: <msg>;
```

Output Format Syntax:

```
SID DATE TIME
M CTAG COMPLD
/*<MESSAGE:<message>*/
```

Input Format:

```
agent> snd-sess-msg::t32:::contact administrator
```

Output Format:

```
TL1AGENT 70-01-03 06:18:08
M 0 COMPLD
/* Message: 'contact administrator' is sent to t32 */
;
```

Broadcast messages are disabled by default, so messages sent using the `snd-sess-msg` command may not appear, unless the user manually enables receipt of broadcast messages with the `alw-msg` command, as shown below:

```
agent> alw-msg:::all;

TL1AGENT 16-11-16 12:50:03
M 0 COMPLD
;
```

Refer to section A.1 herein for a detailed description of the `alw-msg` command.

6 PERFORMANCE MONITORING COMMANDS

This chapter describes commands for monitoring alarm and event activities. The commands are organized into the following task groups:

- Fault Monitoring
- Alarm and Event Monitoring

6.1 Fault Monitoring

Faults cause an alarm to be generated by crossing a threshold for a sustained period of time. A fault report is generated for each alarm as an aid in troubleshooting the fault source. Different faults can generate the same alarms, so examining the fault report will isolate the fault source.



Make sure you log into the system using the *ACT-USER* command before issuing any fault monitoring commands, or you will receive a PLNA (Privilege Login Not Active) error code.

6.1.1 RTRV-FAULT-EQPT: Retrieve Equipment Fault History

This command retrieves the fault history of the specified equipment. The fault history is stored in the fault-report database. Faults are generated due to the occurrence of some event. Currently, faults are generated only for connections.

User Access: All levels

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
RTRV-FAULT-EQPT: [TID] :<sourceid>: [CTAG] :: [<faultType>];
```

Output Format Syntax:

```
      SID DATE TIME  
M    CTAG COMPLD
```

Input Format:

```
agent> RTRV-FAULT-EQPT::1.1.4>1.1.5;
```

Output Format:

```
TL1AGENT 12-04-30 20:53:49M 0 COMPLD  
;
```

6.1.2 CLR-FAULT-EQPT: Clearing Equipment Fault History

This command clears the fault history of the specified equipment. The fault history includes inactive faults that have been reported but have not been cleared. Clearing the fault history removes all inactive alarms from the history.

User Access: Admin, Prov, Field, IM

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
CLR-FAULT-EQPT: [TID] :<sourceId>: [CTAG] ;
```

Output Format Syntax:

```
      SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent>CLR-FAULT-EQPT::1.1.4>1.1.5;
```

Output Format:

```
TL1AGENT 12-04-30 20:53:49M 0 COMPLD  
;
```

6.2 Alarm and Event Monitoring

Alarms indicate that a problem exists within the node. The source of the problem can be with either hardware or software. Alarms are generated by faults crossing a threshold for a sustained period of time (soak interval). Information specific to each of the alarms defined within the system return is written to an alarm log.

Events are simple text strings that contain a limited amount of data. They provide a history trail of provisioning activities. Events are written to an event log and can be accessed using the *RTRV-LOG-EVT* command.

Table 18 lists the TL1 commands used to monitor alarms and events.

Table 18 – Alarm/Event Monitoring Commands

Command	Description
ACK-ALM	Acknowledge an active alarm
RTRV-ALM-ALL	Retrieve a node's active alarm list
RTRV-LOG-ALM	Retrieve a node's alarm log
RTRV-LOG-EVT	Retrieve a node's event log
SET-ATTR-COM	Set or change the severity of a node alarm



Make sure you log in to the system using the *ACT-USER* command before issuing any alarm/event monitoring commands, or you will receive a PLNA (Privilege Login Not Active) error code.

6.2.1 ACK-ALM: Acknowledging Alarm

This command acknowledges an active alarm.

User Access: Admin, Prov, Field, IM

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
ACK-ALM: [TID] :<alarmId> : [CTAG] ;
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent> ACK-ALM: :5;
```

Output Format:

```
TL1AGENT 16-11-15 11:33:08
M 0 COMPLD
;
agent>
```

```
TL1AGENT 16-11-15 11:33:08
A 2 REPT ACK ENV
"ENVMON:MJ,PWR,NSA,16-11-15,11-33-08,,:\\"AlarmId=5:
Description=Power Feed Unit A Failed\\""
;
```

```
TL1AGENT 16-11-15 11:33:08
A 3 REPT ACK ENV
"ENVMON:MJ,PWR,NSA,16-11-15,11-33-08,,:\\"AlarmId=5:
Description=Power Feed Unit A Failed\\""
;
```

6.2.2 RTRV-ALM-*nnn*: Retrieving Alarms

This command retrieves alarms based on the event types you specify. *RTRV-ALM-*nnn** commands share the same output formats. The syntax returned shows *RTRV-ALM-ALL*, regardless which alarm type you specified.

User Access: All levels

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
agent> RTRV-ALM-nnn;
```

Output Format Syntax:

```
SID DATE TIME
M CTAG COMPLD
"<AID>:<ntfncncl>,<condtype>,<srveff>,<ocrdat>,<ocrtm>:[<conddescr>]"
```

Input Format:

```
agent> RTRV-ALM-ALL;
```

Output Format:

```
agent> rtrv-alm-all
```

```
TL1AGENT 16-11-15 11:35:53
M 0 COMPLD
"ENVMON:MJ,FAN,NSA,16-11-10,15-05-59:\"AlarmId=3: Description=Fan
Failed\"
"ENVMON:MJ,PWR,NSA,16-11-10,15-06-03:\"AlarmId=5:
Action=ACK,Description=Power Feed Unit A Failed\"
"2.0:CR,EXT-LINK,SA,16-11-10,15-06-04:\"AlarmId=6:
Description=External Link B Down\"
;
```

6.2.3 RTRV-ATTR-COM: Retrieving Attributes Command

This command retrieves a list of alarms and their associated severity that can be configured on the node. This command can distinguish between classes of conditions and allows for separate reporting of each.

User Access: All levels

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
RTRV-ATTR-COM: [TID] :<kind>: [CTAG] :: [<condtype>];
```

Output Format Syntax:

```
SID DATE TIME
M CTAG COMPLD
```

Input Format:

```
agent> RTRV-ATTR-COM::SYSTEM;
```

Output Format:

```
agent> rtrv-attr-com::system
```

```
TL1AGENT 16-11-15 11:36:46
M 0 COMPLD
"SYSTEM:MJ,FAN,, "
"SYSTEM:MJ,T-T,, "
"SYSTEM:NA,PROCROVLD,, "
"SYSTEM:MJ,T-MEM,, "
"SYSTEM:MJ,T-DISK,, "
```

```
"SYSTEM:CR,EXT-LINK,, "  
"SYSTEM:CR,EXT-LINK,, "  
"SYSTEM:MJ,PWR,, "  
"SYSTEM:MJ,FAN,, "  
"SYSTEM:MJ,ACCESS-T,, "  
"SYSTEM:MJ,SW-UIB,, "  
"SYSTEM:MJ,PWR,, "  
"SYSTEM:CR,T-IN-ADC,, "  
"SYSTEM:CR,T-OUT-ADC,, "  
"SYSTEM:MJ,EQPT-PROTNA,, "  
"SYSTEM:MJ,EQPT-PROTNA,, "  
"SYSTEM:MJ,T-INOPTDEGR,, "  
"SYSTEM:CR,T-INOPTCRIT,, "  
"SYSTEM:MJ,T-OUTOPTDEGR,, "  
"SYSTEM:CR,T-OUTOPTCRIT,, "  
"SYSTEM:MN,OPTPWRCTRL,, "  
"SYSTEM:MN,T-PWRLOSSNEGATIVE,, "  
;
```

6.2.4 RTRV-LOG-ALM: Retrieving Alarm Log

This command retrieves the node's alarm log according to the specified filter conditions. Refer to Appendix C (Error Codes and Alarms) for a description of alarms.

User Access: All levels

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
RTRV-LOG-  
ALM: [TID]: [<src>]: [CTAG]:: [<ntfncde>], [<condtype>], [<srveff>];
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD  
"<AID>:<nrfncde>,<condtype>,<srveff>,<ocrdat>,<ocrtm>: [<conddescr>]"
```

Input Format:

```
agent> RTRV-LOG-ALM;
```

Output Format:

```
agent> rtrv-log-alm

      TL1AGENT 16-11-15 11:38:17
M  0  COMPLD
      "ENVMON:MJ,FAN,NSA,16-11-10,15-05-59:\"AlarmId=3: Description=Fan
Failed\"""
      "ENVMON:MJ,PWR,NSA,16-11-10,15-06-03:\"AlarmId=5: Description=Power
Feed Unit A Failed\"""
      "2.0:CR,EXT-LINK,SA,16-11-10,15-06-04:\"AlarmId=6:
Description=External Link B Down\"""
      "ENVMON:MJ,PWR,NSA,16-11-15,11-33-08:\"AlarmId=5:
Action=ACK,Description=Power Feed Unit A Failed\"""
;
```

6.2.5 RTRV-LOG-EVT: Retrieving Log Event

This command retrieves the node's event log according to the specified filter conditions.

User Access: All levels

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
RTRV-LOG-EVT: [TID] : [<src>] : [CTAG] :: [<condtype>];
```

Output Format Syntax:

```
      SID DATE TIME
M  CTAG COMPLD
      "<AID>:<condtype>,<condef>,<ocrdat>,<ocrtm>,[<conddescr>]"
;
```

Input Format:

```
agent> RTRV-LOG-EVT;
```

Output Format:

```
      TL1AGENT 12-06-29 15:29:24
M  0  COMPLD
      "admin:SEC-U-ADD,TC,12-06-29,10-37-04:\"Administrator added user\"""
      "TL1Service:SVC-REG,TC,12-06-29,10-38-21:\"Service registered\"""
      "admin:SEC-LOGON,TC,12-06-29,10-57-10:\"User login\"""
```

```
"admin:SEC-LOGOFF,TC,12-06-29,10-57-36:\"User logged off\""  
"admin:SEC-LOGON,TC,12-06-29,14-34-25:\"User login\""  
"admin:SEC-LOGON,TC,12-06-29,14-49-09:\"User login\""  
"admin:SEC-LOGOFF,TC,12-06-29,14-49-30:\"User logged off\""  
"admin:SEC-LOGON,TC,12-06-29,14-49-48:\"User login\""  
;
```

6.2.6 SET-ATTR-COM: Setting Attributes Command

This command changes (sets) the severity of the alarms logged by the node.

User Access: Admin, IM, Field

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
SET-ATTR-COM: [TID] :<kind>: [CTAG] ::<ntfcncde>,<condtype>;
```

Output Format Syntax:

```
      SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent> SET-ATTR-COM::SYSTEM:::MJ,PROCROVLD
```

Output Format:

```
TL1AGENT 12-04-30 20:53:49M 0 COMPLD  
;
```

6.2.7 SET-SOAK: Setting Soak Interval

This command sets the soak interval used for alarm scheduling. The soak interval is the amount of time an alarm has to continuously remain beyond a threshold before it is set or cleared. It is not uncommon for the power level of the light over a connection to fluctuate above and below an alarm threshold. Setting the soak interval helps to avoid setting or clearing an alarm for brief fluctuations beyond a threshold.

User Access: Admin, IM, Field

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
SET-SOAK: [TID]: [<src>]: [CTAG]::<soakint>;
```

Output Format Syntax:

```
      SID DATE TIME  
M    CTAG COMPLD
```

Input Format:

```
agent> SET-SOAK:::::10;
```

Output Format:

```
TL1AGENT 12-04-30 20:53:49M 0 COMPLD  
;
```

6.2.8 RTRV-SOAK: Retrieving Soak Interval

This command retrieves the current soak interval used for alarm scheduling. The soak interval is the amount of time an alarm has to continuously remain beyond a threshold before it is set or cleared.

User Access: All levels

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
RTRV-SOAK:::;
```

Output Format Syntax:

```
      SID DATE TIME  
M    CTAG COMPLD  
"[SOAKINTERVAL=<soakinterval>]"
```

Input Format:

```
agent> RTRV-SOAK:::;
```

Output Format:

```
TL1AGENT 12-04-30 20:53:49M 0 COMPLD  
"SoakInterval=15"  
;
```

6.2.9 RTRV-UPTIME: Retrieving System Uptime

This command retrieves both the system uptime and the service uptime, in seconds, recorded since the last time either of these options was reset on the switch.

User Access: All levels

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format:

```
RTRV-UPTIME: [<tid>]:<aid>:<ctag>;
```

Output Format:

```
TL1AGENT 13-06-11 11:36:16  
M 0 COMPLD  
":SYSUPTIME=91685,SERVUPTIME=91056"  
;  
agent> rtrv-uptime  
;
```


7 MAINTENANCE COMMANDS

This section provides commands for performing maintenance tasks on the OCS. Some maintenance tasks, such as backing up the database, are performed routinely; other tasks, such as performing a software upgrade, are performed as needed.

7.1 Backup and Restore Commands

There are two methods used for backup and restore: local and remote. Local pertains to the local flash disk, and remote pertains to the network SCP server. Section 7.1.1 describes the TL1 commands used to back up and restore the OCS database.



Make sure the SCP configurations (see sections 4.6.4 and 4.6.6) are set prior to performing a backup and restore.

7.1.1 OPR-BKUPRST: Operating Backup-Restore

This command backs up the OCS database.

User Access: Admin, Field, IM

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
OPR-BKUPRST: [TID] : [<src>] : [CTAG] :: <location>, <bkuprsttype>, <fileType>;
```

Output Format Syntax:

```
      SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent> OPR-BKUPRST:::::local,backup,data;
```

Output Format:

```
TL1AGENT 12-04-30 20:53:49M 0 COMPLD  
;
```

A AUTONOMOUS MESSAGE COMMANDS

Autonomous messages are used to report alarms, configuration changes, or condition changes. Many of these messages, such as those relating to alarm conditions, are spontaneously triggered by the network element itself without intervention. Other messages, such as those relating to the reporting of periodic condition states, are scheduled by the NE operator.

This appendix covers the following topics:

- Autonomous Message Commands
- Autonomous Message Types

A.1 ALW-MSG: Allowing Autonomous Messages

This command re-enables the TL1 agent to send autonomous messages during the current session. Autonomous messages can be inhibited based on severity. This command is issued after an INH-MSG command has been sent earlier in the session.

User Access: All levels

Error Generation: Refer to Appendix C (Error Codes and Alarms)

Input Format Syntax:

```
ALW-MSG: [TID] : [<src>] : [CTAG] :: [<ntfncde>] , <msgtype>;
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent> alw-msg:::all;
```

Output Format:

```
TL1AGENT 12-04-30 20:53:49M 0 COMPLD  
;
```

A.2 INH-MSG: Inhibiting Autonomous Messages

This command prevents the TL1 agent from sending autonomous messages during the current session.

Use the *ALW-MSG* command to re-enable the sending of autonomous messages.

User Access: All levels

Error Generation: Refer to Appendix C (Error Codes and Alarms)



This command is only valid for the current session. The next time you log in, the TL1 agent resumes sending autonomous messages.

Input Format Syntax:

```
INH-MSG: [TID] : [<src>] : [CTAG] :: [<ntfcncde>], <msgtype>;
```

Output Format Syntax:

```
SID DATE TIME  
M CTAG COMPLD
```

Input Format:

```
agent> INH-MSG:::::,all;
```

Output Format:

```
TL1AGENT 12-04-30 20:53:49M 0 COMPLD  
;
```

A.3 Autonomous Message Types

There are three types of autonomous messages sent by the TL1 agent:

- REPT ALM
- REPT DBCHG
- REPT EVT



The *REPT ALM* message issued is based on the condition type.

A.3.1 REPT ALM: Report Alarm

This message cannot be issued from the console. It is displayed on the console after receipt from the TL1 agent. For example:

Output Format:

```
TL1AGENT 12-04-30 20:53:49** 15 REPT ALM ENV
"0.11b:MJ,T-ADC,NSA,02-12-04,13-01-35,, :\"AlarmId=42:
Description=ADC Bus Errors detected\""
;
```

A.3.2 REPT DBCHG: Report Database Change

This message cannot be issued from the console. It is displayed on the console after receipt from the TL1 agent. This autonomous message reports database changes that have occurred as a result of commands to change:

- Equipment provisioning or configuration
- The value of the TID or SID
- The value of the keywords defined in the common block or specific block

Examples of events or commands that trigger this message include *DLT*, *ED*, *ENT*, *RMV*, *RST* and *SET*.

For security reasons, the following commands will not generate *REPT DBCHG* messages:

- ED-USER-SECU
- ENT-USER-SECU



Because *REPT DBCHG* messages are broadcast to all users currently logged into the system, you may notice *REPT DBCHG* messages for commands that you did not issue. These messages are due to other users being logged in on other consoles.

For each external update that has occurred, the response includes one line of data in quotes, followed by a carriage return and a line feed. Within the quotes, the format resembles the structure of the input commands.

A.3.3 REPT ENV: Report Environmental Event

This message cannot be issued from the console. It is displayed on the console after receipt from the TL1 agent. If an environmental alarm is triggered by the system, the TL1 agent will display the appropriate autonomous alarm as a result.

A.3.3.1 Report Event Messages

There are two types of event messages:

- REPT EVT SECU: Report Event Security
- REPT EVT COM: Report Event Commons

These messages cannot be issued from the console. They are displayed on the console after receipt from the TL1 agent. These autonomous messages result in the display of an event on the console. For example:

Output Format:

```
calient 02-11-25 11:18:25 A 350 REPT EVT SECU "admin:SEC-LOGON,TC,02-11-25,11-18-25,,,,:\\"User login\\"";  
calient 02-12-04 13:01:35  
A 14 REPT EVT COM  
  
"0.11b:MON-MJ,TC,02-12-04,13-01-35,,,,:\\"Monitor major threshold crossed\\"";
```

B COMMAND USAGE BY USER ACCESS

B.1 Commands by User Privilege

Table 19 lists the OCS TL1 commands along with the user access privileges required to successfully execute each command.

Table 19 – User Access Privileges for OCS TL1 Commands

TL1 Command	User Access Privileges				
	Admin	Prov	Field	IM	ReadOnly
ACK-ALM	X	X	X	X	
ACT-CRS	X	X			
ACT-USER	X	X	X	X	X
ALW-MSG	X	X	X	X	X
ALW-USER-SECU	X				
CANC-CRS	X	X			
CANC-SESS	X				
CANC-USER	X	X	X	X	X
CLR-FAULT-EQPT	X	X	X	X	
DLT-CRS	X	X			
DLT-GRP-PORT	X				
DLT-CRS-ALL	X	X			
DLT-CRS-BULK	X				
DLT-CRSSET	X	X			
DLT-USER-SECU	X				
ED-CFG-DAT	X		X	X	
ED-PID	X	X	X	X	
ED-PORT	X	X			
ED-USER-SECU	X				
ENT-CRS	X	X			
ENT-CRS-BULK	X				
ENT-CRS-ENH	X				
ENT-GRP-PORT	X				

TL1 Command	User Access Privileges				
	Admin	Prov	Field	IM	ReadOnly
ENT-USER-SECU	X				
INH-MSG	X	X	X	X	X
INH-USER-SECU	X				
INIT-SYS	X				
OPR-BKUPRST	X		X	X	
OPR-CRSSET-LPBK	X				
OPR-CRSSET-RECALL	X	X			
OPR-CRSSET-SAVE	X	X			
OPR-CRSSET-UNLOAD	X	X			
REC-CRS	X				
RTRV-ALM-ALL	X	X	X	X	X
RTRV-ALM-COM	X	X	X	X	x
RTRV-ALM-CRS	X	X	X	X	X
RTRV-ALM-ENV	X	X	X	X	X
RTRV-ALM-EQPT	X	X	X	X	X
RTRV-ALM-SECU	X	X	X	X	X
RTRV-CFG-DAT	X	X	X	X	X
RTRV-CMD-HIST	X				
RTRV-CRS	X	X	X	X	X
RTRV-CRSSET	X	X			
RTRV-DET-EQPT	X	X	X	X	X
RTRV-DFLT-SECU	X	X	X	X	
RTRV-DFLT-CRS	X	X			
RTRV-ENV-EQPT	X	X	X	X	X
RTRV-EQPT	X	X	X	X	X
RTRV-FAULT-EQPT	X	X	X	X	X
RTRV-IP	X	X	X	X	X
RTRV-LOG-ALM	X	X	X	X	X
RTRV-LOG-EVT	X	x	X	X	X
RTRV-NE	X	X	X	X	X
RTRV-PORT	X	X	X	X	X

TL1 Command	User Access Privileges				
	Admin	Prov	Field	IM	ReadOnly
RTRV-PORT-SUM	X	X	X	X	X
RTRV-SAVERECALL	X	X			
RTRV-SOAK	X	X	X	X	X
RTRV-SESS	X				
RTRV-STATUS-BULK	X	X	X	X	X
RTRV-UPTIME	X	X	X	X	X
RTRV-USER	X				
RTRV-USER-HIST	X				
SET-ATTR-SECUDFLT	X		X	X	
SET-IP	X		X	X	
SET-SID	X		X	X	
SET-SOAK	X		X	X	
SND-SESS-MSG	X				

C ERROR CODES AND ALARMS

The OCS provides error codes and alarms to help diagnose and troubleshoot equipment. This appendix addresses the following topics:

- TL1 Error Message
- TL1 Alarms
- Alarm Notification

C.1 Interpreting TL1 Error Messages

Errors may be generated by any input command message and are displayed on the console. The following example shows the error format:

```
sid date time
M ctag DENY
  <errcde>
/* <errmsg> */
;
```

Table 20 in this section lists common error codes that appear for all commands.

With the exception of simple input errors, such as improper message syntax or improper parameter format, error codes and messages help identify the cause of an error and develop a solution for it. The following procedure describes how to determine the solution for an error:

1. Look up the error message in the table.
2. Determine if a RTRV message can be issued. If so, issue an appropriate RTRV message to obtain more information.
3. Analyze the returned information, and take appropriate action.
4. If necessary, contact CALIENT Service and Support.

Table 20 – Common Error Codes

Error Code	Description
IBEX	Extra block (beyond the required Telcordia blocks)
IDMS	Data missing

Error Code	Description
IDNV	Invalid Data (for some specific commands)
IIAC	Invalid Access Identifier (AID)
IICM	Invalid Command
IICT	Invalid Correlation Tag
IIFM	Invalid Data Format
IISP	Invalid Syntax or Punctuation
IITA	Invalid Target Identifier
IPEX	Invalid Payload block or extra parameters
IPMS	Missing Parameter
PICC	Privilege Invalid Command Code
PLNA	Privilege Login Not Active
SROF	System Requested Operation Failed
SSRE	System Resource Error, unable to write configuration registry
SSNF	Server Not Found

C.2 TL1 Alarms

The OCS dynamically generates an alarm when it detects a problem with a physical entity or software component that potentially can compromise its operation. Table 21 lists the alarms supported by the system, the default severity of each alarm, and the recommended action for clearing the alarm.

Table 21 – TL1 Alarms

Alarm Category	Alarm Description	Condition Type	Default Severity	Corrective Action
SYSTEM	External Link A down	LINK_A_DOWN_ALARM	CR	Verify that the Ethernet cable is plugged into EthA interface. Verify that the green LED on the power module is illuminated.

Alarm Category	Alarm Description	Condition Type	Default Severity	Corrective Action
	External Link B down	LINK_B_DOWN_ALARM	CR	Verify that the Ethernet cable is plugged into EthB interface. Verify that the green LED on the power module is illuminated.
	Power Feed Unit A Failed	PWR_FEEDA_ALARM	MJ	Verify that the power supply is connected to Unit A.
	Power Feed Unit B Failed	PWR_FEEDB_ALARM	MJ	Verify that the power supply is connected to Unit B.
	Fan Control Unit Access Failed	FAN_ACCESS_ALARM	MJ	If the system is unable to communicate with the internal fan, it is most likely a hardware failure. Contact Calient Support.
	Temperature Sensor Unit Access Failed	TEMP_ACCESS_ALARM	MJ	If the system is unable to communicate with the temperature sensor, it is most likely a hardware failure. Contact Calient Support.
	Switch UI Board Access Failed	SWUIBOARD_ACCESS_ALARM	MJ	Most likely a hardware failure. Contact Calient Support.
	Input OMM Interrupt Failure	T-IN-ADC	CR	If the system is unable to communicate with the Input OMM, perform a software shutdown followed by a power-cycle of the switch. If this fails to correct the problem, it indicates a hardware failure. Contact Calient Support.

Alarm Category	Alarm Description	Condition Type	Default Severity	Corrective Action
	Output OMM Interrupt Failure	T-OUT-ADC	CR	If the system is unable to communicate with the Output OMM, perform a software shutdown followed by a power-cycle of the switch. If this fails to correct the problem, it indicates a hardware failure. Contact Calient Support.
	No Standby Card Available	EQPT-PROTNA	MJ	Active/Standby CP card is running in standalone mode. Check redundancy status. May require escalation to Calient Support.
ENVIRONMENTAL	Fan failed	FAN	MJ	Hot-swappable; keep spare in case of failure.
	Temperature Exceeded	T-T	MJ	Check the ambient temperature; may require further analysis by Calient Support.
	CPU Over Utilized	PROCROVLD	NA	No action needed.
	Power has failed	PWR	MJ	Verify that the power supply is connected to the switch.
	Memory Usage exceeded threshold	T-MEM	MJ	Check for any abnormal behavior; may require further analysis by Calient Support.
	Disk Usage exceeded threshold	T-DISK	MJ	Requires further analysis by Calient Support. Clean up of logfiles/corefiles may be required by customer.
	CP Role Changed	EQPT-PROTNA	MJ	If system switches over from the Active CP to the Standby CP, contact Calient Support.

Alarm Category	Alarm Description	Condition Type	Default Severity	Corrective Action
CONNECTION	Transit Connection Receive Signal Degraded	T-INOPTDEGR	MJ	Check Input Port Power, Fiber, and Connector.
	Transit Connection Receive Signal Critical	T-INOPTCRIT	CR	Check Input Port Power, Fiber, and Connector.
	Transit Connection Transmit Signal Degraded	T-OUTOPTDEGR	MJ	Check Input and Output Port Power. Recreate connection if needed.
	Transit Connection Transmit Signal Critical	T-OUTOPTCRIT	CR	Check Input and Output Port Power. Recreate connection if needed.
	Connection Loss above threshold	OPTPWRCTRL	MN	Remake the connection via the WebGUI or TL1. If connection loss alarm still appears, contact Calient Support.
	Connection Loss Negative	T-PWRLOSSNEGATIVE	MN	If the connection loss becomes negative, contact Calient Support.

C.3 Alarm Notification

The presence of alarms can be detected from three sources:

- REPT ALM autonomous message

This message is sent to all users currently logged in when the OCS detects an alarm. The message includes the time the alarm was generated, the severity of the alarm, and a description of the alarm.



Autonomous messages are disabled by default, but they can be enabled using the `alw-msg:::all` command.

- RTRV-ALM-ALL message

This message is issued to retrieve active OCS alarms. The retrieved message includes an alarm identifier so that individual alarms can be acted on. It also provides enough detail about the alarm to correct any problem that might exist.

- RTRV-LOG-ALM message

This message is issued to retrieve the active OCS alarm log. The alarm log contains all alarms generated by the OCS that have been cleared.

D COMMAND STATES

Both the *EQPT* and *CRS* commands are affected by the administrative states, which determine what command can be issued. Administrative states include:

- Out-of-Service-Not Provisioned (OOS-NP)
- Out-of-Service (OOS)
- Under Management (UMA)
- In Service (IS)

E ACRONYMS AND ABBREVIATIONS

Table 22 lists acronyms and abbreviations used throughout this guide.

Table 22 – Acronyms and Abbreviations

Acronym/Abbreviation	Description
ASCII	American Standard Code for Information Exchange
AID	Access Identification Code
CLI	Command Line Interface
CP	Control Processor
CPU	Central Processing Unit
CR	Critical (alarm)
CTAG	Correlation Tag
FTP	File Transfer Protocol
IM	Install and Maintenance
IP	Internet Protocol
IS	In Service
MJ	Major (alarm)
MN	Minor (alarm)
NE	Network Element
NSA	Non-Service Affecting
NTP	Network Time Protocol
OC	Operational Capability
OCS	Optical Circuit Switch
OOS	Out of Service
OOS-NP	Out of Service-Not Provisioned
OS	Operating System
OSS	Operations Support System
PID	Password Identification (user password)
PLNA	Privilege Login Not Active (error message)
Prov	Provisioner (access privilege for commands related to provisioning)
PS	Power Supply

Acronym/Abbreviation	Description
SA	Service Affecting
TID	Target Identifier
TL1	Transaction Language 1 – network management protocol widely used in telecommunications
UID	User Identification
UMA	Under Management (administrative state)