Glimmerglass
Optical Cyber Solutions

Transaction Language 1 Manual

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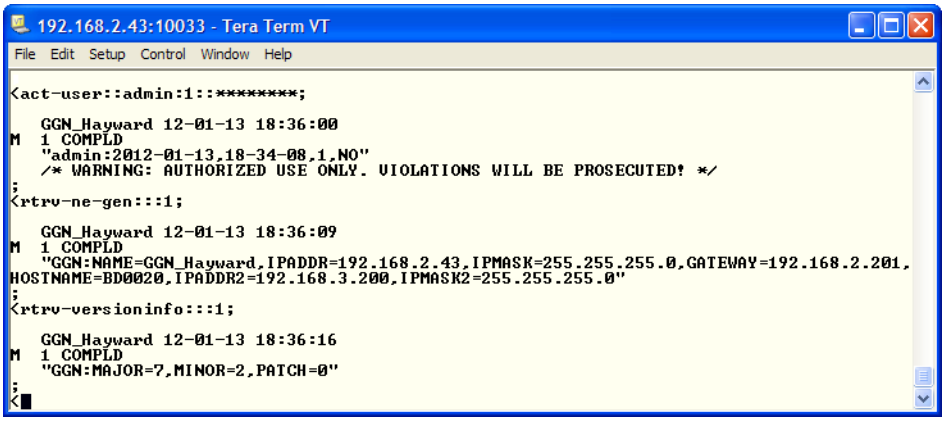

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The Glimmerglass Transaction Language 1 (TL1) interface allows a user to control and monitor remotely the Glimmerglass Intelligent Optical Switches.

This user manual describes concepts and capabilities of the Glimmerglass Intelligent Optical Switch and how to use the TL1 commands to configure the Glimmerglass System 100, System 500, and System 600 products.

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Release Notice

The following table lists the version of this document that supports the current release of the Intelligent Optical Switch application:

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Getting Started with TL1

1

Transaction Language 1 (TL1) is a management protocol defined in Bellcore Generic Requirements GR-831-CORE. The Glimmerglass Intelligent Optical Switch system extends the TL-1 language with a command set that enables command-line and programmatic operation and monitoring of the Intelligent Optical Switch.

This section provides a brief overview of the basic topics required to begin using the TL1 command set. These topics include:

- Connecting to the TL1 Server
- Secure Sockets Layer (SSL)
- TL1 Language Overview
- TL1 Privilege Levels
- Online, Context Sensitive Help
- TL1 User Command Summary
- Overview of this TL1 Manual

Connecting to the TL1 Server

The Glimmerglass TL1 Server is accessed by establishing a TCP/IP connection to the designated TCP port on the system (enumerated in Table 1 on page 2). The TL1 Server may also be accessed from the system's Maintenance Console (more information on the Maintenance Console may be found in Chapter 10 of the *Glimmerglass System Installation and Maintenance Guide*). The Glimmerglass TL1 Server supports the two access types defined below:

- Smart mode—for user interaction; it provides the following functionality:
  - Online, context sensitive help for commands
  - Control sequences for command line processing
  - Terminal echo of user input
  - Command response output
  - Receipt of autonomous alarm messages

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- Fast mode—for programmatic control of the system; it provides the following functionality:
  - No terminal echo
  - Command response output
  - Receipt of autonomous alarm event messages

Table 1 describes each of the TL1 ports available on the system.

	The TL1 interface supports both non-secure and SSL operation when shipped.
NOTE:	To enable only SSL operation (disable the non-secure fast and smart ports), follow the procedures defined in the *System Installation and Operation Guide*.

Table 1 Default Port Numbers

Interface	Description
Port 10034 (tl1FastPort)	The interface on TCP port 10034 is intended for programmatic use by application programs. This interface provides only minimal line-editing capabilities (backspace), and does not provide character echo or command history.
Port 10036 (tl1FastSSLPort)	This port is identical to port 10034, except that port 10036 establishes a secure SSL connection.
Port 10033 (tl1SmartPort)	Port 10033 is used for Smart mode access to TL1 and provides the capabilities described in ”Command Line Processing” on page 5. This interface is not suitable for programmatic control.
Port 10035 (tl1SmartSSLPort)	This port is identical to port 10033, except that port 10035 establishes a secure SSL connection.

For an example of connecting to TL1, see “Establishing a TL1 Connection” on page 3.

The TL1 Server has the following attributes:

- The TL1 Server will accept a maximum of 16 concurrent sessions. There is a limit of two Smart mode sessions.
- The TL1 Server allows multiple login sessions for any user.
- The TL1 Server has a configurable no activity timeout setting, ranging from 0-99 minutes (0 = OFF). The default setting is ten minutes for each session. If a new message is not received within 10 minutes of the prior message, the system will log out the user. See the ED-CID-SECU command on page 134 for more information on configuring the session timeout.

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Establishing a TL1 Connection

Establishing a connection to the TL1 Server requires a TCP/IP socket to be opened to the system (e.g., the system IP address using one of the TL1 TCP ports indicated in Table 1 on page 2).

For Smart mode connections (interactive user session), a terminal emulator, such as Windows HyperTerminal, is used by the user to connect. The terminal emulation type should be set to VT100. Upon connecting to the TL1 server, the command prompt (“<“) will signal the connection is established and to proceed with login. After successful login, Smart mode sessions support command line processing, context-sensitive help, and command history for entered TL1 commands.

NOTE:	Not all terminal programs support SSL (e.g., HyperTerminal). Please check your emulation program for SSL compatibility prior to reconfiguring the system for SSL only operation. Glimmerglass supports SSL security versions 2 and 3.

For Fast mode connections (machine-to-machine), the script programmer will open a socket to the system IP and port. The system will respond with a command prompt to signal a successful connection to the server. In Fast mode, command entry is not echoed and command line processing/history are not supported. Command responses are issued in response to TL1 commands and autonomous messages for alarm conditions not issued unless allowed by the script.

The following example illustrates a Smart mode connection process using the Windows HyperTerminal terminal emulator. The TL1 server will terminate and close the connection is a successful login is not completed within 1 minute of the connection request.

To establish a TCP connection to the TL1 Server using the Windows HyperTerminal (ask the system administrator for the IP address of the Glimmerglass system):

1. From the Windows desktop, click on **Start > Programs > Accessories > Communications > HyperTerminal**.

2. From the Connection Description window, select an icon and name for the connection. Click **OK**.

3. From the Connect To window, do the following:
   - Click the **Connect Using** pull-down menu and select the **TCP/IP** option.
   - In the **Host Address** field, enter the IP address of the Glimmerglass system.
   - Change the **Port Number** value to **10033**. This is the TCP port for an interactive TL1 session (Smart mode).

4. Click **OK**.

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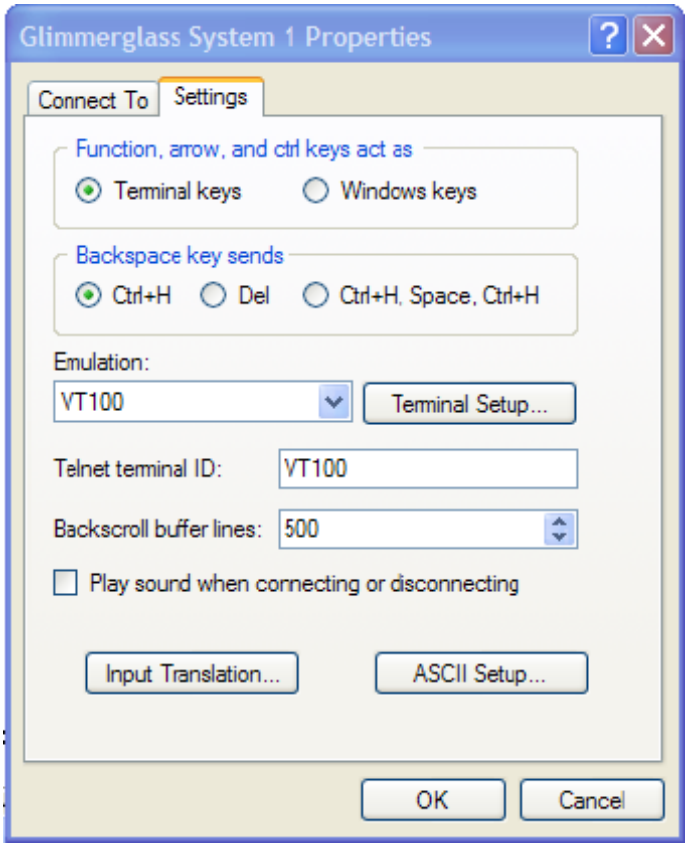
5. From the HyperTerminal session, select **File > Properties**.

6. From the Properties window, click on the **Settings** tab (Figure 1), then verify that the session is configured as follows:
   - Function, arrow, and ctrl keys act as: **Terminal keys**
   - Backspace key sends: **Ctrl+H**
   - Emulation: **VT100**

Figure 1 HyperTerminal Properties, Settings Tab



7. Log into the TL1 server as shown in the next section (“Login” on page 5).

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Login

Use the ACT-USER command to log into the TL1 Server. (See ACT-USER on page 89 for more information.) Type the following at the prompt:

```
act-user::<username>:<ctag>::<password>;
```

- <username>: the username of the user logging in
- <password>: the password
- <ctag>: correlation tag, a string with a maximum of 6 characters

For example:

```
<act-user::admin:1::********;

   BD090 08-06-23 20:15:12
M  1 COMPLD
   "admin:2008-06-23,17-13-32,0,NO,"
   /* WARNING: AUTHORIZED USE ONLY. VIOLATIONS WILL BE
PROSECUTED! */
;
```

The above example shows a login by the admin user. Entry of the password echoes "*" characters for security. System administrator users (such as the admin user) can create new user accounts using the ENT-USER-SECU (see ENT-USER-SECU on page 107 for more information).

When logging out of a TL1 session, the TL1 server will hold up the socket for 1 minute unless the socket is closed by the user. After 1 minute, the socket will be dropped.

Command Line Processing

The following keys can be used to manipulate the cursor on the input line for Smart mode sessions when the terminal emulation is set to VT100.

- **"Backspace"** or "**Ctrl-h"** erases the character to the left of the cursor.
- **"Delete"** erases the character to the right of the cursor.
- "**Ctrl-x**" cancels the input on the current line.

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- "**Left arrow**" and "**right arrow**" move one character to the left and right of the cursor, respectively.
- "**Ctrl-b**" moves the cursor to the beginning of the input line.
- "**Ctrl-e**" moves the cursor to the end of the input line.

Once logged into TL1 (see "Login" on page 5 or "ACT-USER" on page 89), the following command line processing features are also available:

- **"Tab"** or **"Ctrl-I"** toggles to between insert mode and overwrite mode.
- **"Ctrl-r"** recalls the previously typed command to the current input line.
- "**Up arrow**" and "**down arrow**" scroll up and down in the command history, recalling a command to the current input line.

TL1 Scripting Recommendations

Use the following guidelines to optimize performance and avoid unexpected behavior:

- To avoid being logged out by the server by the no activity time out, periodically issue a command as a "keep alive" mechanism. The "RTRV-HDR" command is suggested for this purpose.
- For best performance, use the operation mode setting of ASYNC when issuing connection commands. See "Synchronous and Asynchronous Commands" on page 52.
- If making multiple connections, use a port list in a single command, rather than issuing a separate command for each port.
- Use the long format for port numbers: Input port numbers start at 10001, not 1; output port numbers start at 20001, not 1.
- Use the same user session for multiple commands, as opposed to issuing login-command-logout sequences.
- When processing responses using a program, use pattern matching (e.g., regular expressions) rather than exact matches.

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Logout

Use the CANC-USER command to log out of the TL1 Server. Type the following at the prompt:

```
CANC-USER:::<ctag>;
```

For example:

```
<canc-user:::1;

   BD090 08-06-23 22:32:16
M  1 COMPLD
;
<
```

See CANC-USER on page 95 for more information on the CANC-USER command.

Secure Sockets Layer (SSL)

The Glimmerglass systems use the Secure Sockets Layer (SSL) protocol to secure connections to the following control interfaces:

- ClickFlow™ web-based Graphical User Interface (GUI)
- Transaction Language 1 (TL1) command line interface

The SSL protocol works by exchanging a certificate between the server (the Glimmerglass system) and the client application. This certificate is used to authenticate the server and to exchange encryption keys for securing the communications link between the client and the server.

If SSL is enabled for TL1, then the system listens for SSL connections on ports 10035 (Smart mode) and 10036 (Fast mode) instead of the regular 10033 and 10034 ports, respectively (see Table 1 on page 2 for a description of these ports).

Disabling Non-secure Access

The default configuration for the system enables TCP ports 10033, 10034, 10035, and 10036.

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When the -tl1SSLEnable parameter is set to “1” (discussed below), TCP ports 10033 and 10034 are disabled and TCP ports 10035 and 10036 remain enabled.

To enable SSL-only operation with the TL1 Server:

1. Connect to the Console port.

2. Log in as the “admin” user and enter the admin password at the prompt.

3. From the Maintenance Console, enter **6** to configure the start-up options.

4. From the Configure Start-up Options menu, enter **1** to list/edit options.
   The system will present the Configure Start-Up Options submenu.

5. From the List/Edit Options prompts, press **<ENTER>** until the **-tl1SSLEnable [0]:** prompt is displayed.

6. At the **-tl1SSLEnable [0]:** prompt, enter the value of either **0** or **1** to configure SSL for connecting to the system via the TL1 interface:
   - The value **0** indicates that both non-secure and SSL ports are open for use.
   - The value **1** indicates that only SSL ports are open for use.

7. Press **<ENTER>** for the remaining prompts.
   You will be returned to the Configure Start-Up Options submenu.

8. From the Configure Start-up Options menu, enter **4** to restart application services (ClickFlow, TL1, etc.).

NOTE:	This will cause the ClickFlow and TL1 services to restart, which puts the SSL mode change into effect. ClickFlow and TL1 users will be disconnected when selecting this option. Other connections will not be affected and the system will not be rebooted.

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TL1 Language Overview

TL1 is formally defined in Bellcore Generic Requirements GR-831-CORE, Issue 1, November 1996. The GR-831 document details the language grammar, character set and command structure. This section provides an overview for using TL1.

Input Syntax and Structure

TL1 commands are formatted in the following general form:

```
<verb>[-<modifier1>[-<modifier2>]]:[<tid>]:[<aid>]:<ctag>
[:[<general_block>]:[<position_defined_block>]:
[<name_defined_block>]:[<state_block>]];
```

In keeping with common convention, this manual indicates a variable with angle brackets and indicates an optional variable with square brackets. For example, in the above syntax the variable <ctag> is a required parameter for which a value must be entered, and [<aid>] is an optional parameter that can be omitted. When optional variables are omitted, the system uses either the default value (when creating a record) or the existing value (when modifying a record) for the parameter.

For each TL1 command implemented on the Glimmerglass system, this manual provides the input/output syntax of the command and a description of each of the parameters in the command, as well as the possible values for each variable. For optional variables, the default values for each variable are indicated in bold font.

All commands and named parameters are case insensitive unless otherwise noted in this manual.

The following table describes the elements in a common TL1 command:

Table 2 Common Elements in TL1 Commands

TL1 Element	Description
Command Block	The command block is made up of a <verb> and one or two <modifiers>. The <verb> portion of a TL1 command identifies the action to be taken; the modifiers provide additional information. The first modifier typically defines the object to be acted upon. The second modifier narrows the scope of the command and is typically command dependent.

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TL1 Element	Description
Target Identifier	The <tid> is the Target Identifier (TID) and specifies the network element (system) to which the command is directed. A TID can be up to 20 alpha-numeric characters in length. It has a default value and can be modified by the SET-SID TL1 command (page 163). A command containing a NULL TID is assumed to be addressing the system directly. TIDs that do not match the target system can belong to other systems reachable through gateway functionality.
Access Identifier	The <aid> portion of the TL1 command is the Access Identifier (AID). An AID can be used to identify uniquely an entity within the system. They are more specific than the modifiers in the command block.
Correlation Tag	The correlation tag (<ctag>) is a unique identifier used to correlate an input command with its output response. It is arbitrarily defined by the system or user sending the command and is limited to 6 alpha-numeric characters. Its value should not be “0”, as this is the value used by the system for responses to invalid login attempts.
General Block	The General Block follows the CTAG. It is used for staging parameters that can control such capabilities as delayed command execution and indirect data retrieval. It is not used by any of the built-in commands.
Position-Defined Block	The Position-Defined Block is used for input parameters where no keyword or name is needed. The meaning of the parameter is inferred from its position within the block. Typically, this is used where there are a few options available to the command. Each parameter is separated by a comma. If a parameter can be omitted, leading commas must be present. Where parameters at the end of the block are omitted, their leading commas also can be omitted.
Name-Defined Block	The Name-Defined Block is used for parameters represented by keyword-value pairs. ...ctag:::KEYWORD1=value1,KEYWORD2=value2; The keyword and value must be separated by an equal sign (=). Multiple keyword-value parameters are separated by commas (,) but no comma is entered in front of the first keyword-value parameter. Order is not significant.
State Block	The State Block containing a primary and an optional secondary state (<pst> and <sst>) is used in commands affecting entities for which variable states are defined. Please refer to GR-1093-CORE for details about states and state transitions.

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Parameter Value Input and Presentation

TL1 imposes restrictions on the characters that may appear in parameters that are string values entered by the user:

- The TL1 command syntax uses the colon (:) and comma (,) characters to delimit fields and values.
- Semi-colon (;) is used to terminate command entry.
- White space in the string is stripped unless the string value is enclosed in double quotes (“).

Each command indicates the characters allowed for the string parameters. In general, parameters which are unique keys for a record are constrained to alphanumeric characters plus hyphen (-), underscore (_), and period (.) characters. For parameters which are for description, all characters are allowed with the exception of the semi-colon.

The rules for data entry in description fields are as follows:

- Semi-colon character is not allowed.
- The entry must start and end with double quotes (“) when comma, colon, or whitespace characters appear in the description
- If the desired entry is to contain double quotes, these double quotes must be escaped with a backslash (\) within the exterior double quotes, see examples below.

Below are examples of the second and third bullets above. There are only three instances of description fields entered via TL1: Port Comment, Port Group Description, and Backup File Description. The examples below reflect input of a port comment using the SET-CFG-FIBER command where double quotes are required.

Example 1: Desired value is *Item1:Item2, Item3*.

```
set-cfg-fiber::10001:1:::portcomment="Item1:Item2, Item3";
```

Example 2: Desired value is *"Item1:Item2, Item3"* (with quotes). The value must be placed inside two sets of double quotes and the interior double quotes must be escaped with a backslash.

```
set-cfg-fiber::10001:1:::portcomment="\"Item1:Item2, Item3\"";
```

For command responses, TL1 escapes the certain characters for parameters which are string-typed. The escaped characters are: comma (,), apostrophe (‘), backslash (\), and the equal sign (=). For the above examples, the parameters appear as follows when retrieved or presented in a GGNMSG.

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Port comment value as displayed when retrieved for Example 1. The last comma is a delimiter in the response. The comma internal to the value is escaped with the backslash character:

```
PORTCOMMENT=Item1:Item2\, Item3,
```

Port comment value as displayed when retrieved for Example 2. The interior double quotes are escaped, the interior comma is escaped:

```
PORTCOMMENT=\"Item1:Item2\, Item3\",
```

Command Response Format

Depending on the command, there are three possible command responses.

- Commands that complete successfully return a COMPLD (completed) response.
- Commands with AIDs which address a list of items may return a PRTL (partial) response if the operation could not be successfully completed on all items in the list. As the name suggests, the PRTL response means partial completion of the requested action. The items in the list which were not completed are enumerated in the response output.
- Commands that fail for any reason return a DENY response.

The table below provides the format for these responses. Each command reference in the manual provides an example of the COMPLD and, where appropriate, PRTL response for the command. DENY responses are as indicated in the table.

Table 3 Command Response Formats

Response Type	Description

COMPLD	The COMPLD response indicates the command completed successfully.
	`cr lf lf`
	`^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf`
	`M^^<ctag>^COMPLD cr lf`
	`[^^^/*<optional_free_format_text*/ cr lf]`
	`;`

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Response Type	Description

PRTL	The PRTL responses indicate partial completion. The items not completed are enumerated with a cause string.
	`cr lf lf`
	`^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf`
	`M^^<ctag>^PRTL cr lf`
	`^^^"<ggnid>:KEYWORD=<value>,RESULT=<cause>" cr lf +`
	`[^^^/*<optional_free_format_text*/ cr lf]`
	`;`
	
	Multiple KEYWORD=<value> pairs may be provided. Refer to the specific command for detail on the content of the PRTL response.

DENY	DENY responses include an error code, <ercde>. Error codes are documented on page 421.
	`cr lf lf`
	`^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf`
	`M^^<ctag>^DENY cr lf`
	`^^^"<ercde>" cr lf`
	`[^^^"<error_description>" cr lf`
	`[^^^/*<optional_free_format_text*/ cr lf]`
	`;`
	
	Error codes are returned when the command is either syntactically incorrect, contains invalid keywords/values, or when a required access identifier (AID) list resolves to an empty set.

Autonomous Messages

Autonomous messaging refers to the native TL1 mechanisms for logging events and notifying logged in users of these events. These events include database changes, alarms, and system events. Glimmerglass supports display of log information in autonomous message format as well as issuing autonomous message notifications to active TL1 sessions (logged in users) for alarm and system events.

See Chapter 11, “Autonomous Messages,” on page 397 for more details on the autonomous messages sent by the Glimmerglass system.

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Glimmerglass Message (GGNMSG) Format

The underlying logging and notification structure in the system is separate from the native TL1 mechanisms used only to display or notify. Autonomous messages, in fact, are derived from this underlying structure. The format for GGNMSGs is shown below and GGNMSGs are documented in Appendix B starting on page 427.

```
^^^"GGNMSG:SYSTEMID= <sysID>,TYPE= <msgType>,SEVERITY= <sev>,
OPERATION= <oper>,OBJECT= <obj>,SEQNO= <seqno>,CLEARSEQ=<seqno>,
DATETIME= <datetime>[,OPKEYWORDS= <opValues>]" cr lf
```

Referencing the above, a GGNMSG is a series of keyword/value pairs prefixed with the “GGNMSG:” tag and enclosed in quotes. The first eight keyword/value pairs are mandatory for all GGNMSGs. After the last mandatory keyword/value (DATETIME=), the GGNMSG may contain additional keyword/value pairs. In the above, these are shown as OPKEYWORDS. If present, these pairs provide additional detail on the OPERATION performed on the OBJECT. Again, refer to Appendix B to view the additional keyword/value pairs associated with the various operations.

Users may view the system logs in the GGNMSG format via TL1. The also system uses the GGNMSG format for Syslog messaging as well as for sending notifications to external servers such as CyberSweep™ Path Manager. Notifications are issued via UDP and the GGNMSG payload may be encrypted between the systems and Path Manager.

Common Parameters

The following parameters are used in many or all of the TL1 commands:

Table 4 Common Parameters in TL1 Commands

Parameter	Description
<ctag>	The correlation tag (<ctag>) is a unique identifier used to correlate an input command with its output response. It is arbitrarily defined by the system or user sending the command and should not be “0”, as this is the value used by the system for responses to invalid login attempts. • Values: alpha-num.: 6 characters max.
<ggnid>	The <ggnid> is used in command responses to prefix each parsable response line so that each line is easy to separate from the next. • Values: GGN | GGNMSG

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Parameter	Description
<sid>	(Response parameter) System ID - same as <tid> if <tid> is provided. • Values: alpha-numeric: 20 characters max The system ID can be retrieved using the RTRV-NE-GEN command (page 181) and changed using the SET-SID TL1 command (page 163).
<tid>	(Input parameter) Target ID • Values: alpha-num.: 20 characters max. The target ID can be retrieved using the RTRV-NE-GEN command (page 181) and changed using the ED-NE-GEN command (page 179).
<almcode>	Alarm Code. This field appears in autonomous messages and indicates the severity of the message. • Values: *C | ** | * | A *C: critical **: major *: minor A: autonomous/notice These severity assignments will reflect the same severity assignment in the SEVERITY field of the GGNMSG payload.
<atag>	Autonomous message tab, the sequence number by which TL1 autonomous messages are tracked. • Values: integer, system-generated sequence number **NOTE**: This sequence number is not the same as the SEQNO value carried in the GGNMSG payload.
CTRL_ERRNUM=	GGN error code, only if there is a CTRL_ERRMSG • Values: unsigned integer
CTRL_ERRMSG=	Error message describing GGN error • Values: String
PARSE_TOK=	Error message describing GGN parse error • Values: String

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TL1 Privilege Levels

A user's privilege to execute operations in the system is controlled by the switch-level System and Port level privileges assigned to the user by the system administrator. These switch-level privilege assignments override the privilege level model provided with TL1. It is not possible to use the TL1 privilege model to allow a user to execute a command not permitted by their System or Port level privilege assignments. It is possible, however, to impose greater restrictions on a user when accessing the system via TL1. Access to most commands can be disabled, thus limiting the user to using the ClickFlow interface for provisioning and configuration. The operation of the TL1 privilege level model is described below.

TL1 supports four command categories, Administration (A), Provisioning (P), Maintenance (M), and Test (T). Within each category (A, P, M, or T), 6 privilege levels are provided, 0 through 5. The lowest privilege level is 0, the highest is 5.

Each TL1 command is assigned both a category and privilege level which together are known as the command access privilege (<cap>). For example, the login command, ACT-USER, is assigned a command access privilege of A0 (meaning a privilege level of at least 0 (or higher) in the administrative category is required to run this command).

Each user is assigned a user access privilege (<uap>). The user access privilege (<uap>) parameter is represented in the form "A<x>&P<x>&M<x>&T<x>" where "x" is the privilege level assigned to the user for each category.

Lastly, TL1 supports channel access privileges (<chap>). This is intended to allow the administrator to further restrict access via channel type (e.g., TCP vs. Serial access). For Glimmerglass, only the TCP channel type (“OSI”) is supported. The channel access privilege (<chap>) parameter is also of the form "A<x>&P<x>&M<x>&T<x>" where "x" is the privilege level permitted when the system is accessed on this channel. For Glimmerglass, this is defaulted to "A0&P0&M0&T0".

To execute a TL1 command, the user's <uap> (privilege in the category) for the command must be equal to or greater than both the command <cap> and the corresponding channel <chap>.

The table below shows the mapping of the TL1 command categories to the underlying system and port level model as well as the mapping of TL1 privilege levels with the 4 privilege levels supported in the system and port privilege model (manage, modify, view or none).

Table 5 Privilege Level Mapping for Each TL1 User Access Privilege

TL1 Category	**Mapping to System or Port Level**	**Privilege Level Mapping**					
		<x> = 0	<x> = 1	<x> = 2	<x> = 3	<x> = 4	<x> = 5
A<x>	System Level	None	View	*	*	Modify	Manage

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TL1 Category	Mapping to System or Port Level	Privilege Level Mapping					
		<x> = 0	<x> = 1	<x> = 2	<x> = 3	<x> = 4	<x> = 5
P<x>	Port Level	None	View	*	*	Modify	Manage
M<x>	System Level	None	View	*	*	Modify	Manage
T<x>	Port Level	None	View	*	*	Modify	Manage

Note that TL1 privilege levels 2 and 3 are not mapped. Changing the <cap> from 1 to either 2 or 3 will preclude users with a <uap> of 1 from executing the command. Alternatively, changing a user's <uap> to 2 or 3 from 4 will preclude them from running commands with a <cap> of 4.

See Table 7 on page 20 for a listing of the privilege level for each TL1 command. The RTRV-USER-SECU command (page 141) can be used to retrieve the user's full <uap>. The RTRV-CMD-SECU command (page 143) can be used to retrieve the access privilege level required to execute specified TL1 command(s).

Online, Context Sensitive Help

During an interactive TL1 session, online, context-sensitive help is available for each command. The help request is processed internally as a normal command, and the response is formatted according to normal TL1 output syntax.

The following table describes how to access the different types of online help:

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Table 6 Ways to Access TL1 Online Help

Help Type	Description

Command Name Help	Typing a question mark (‘?’) at the input prompt (‘<‘) followed by the terminating semi-colon (‘;’) displays a list of all known TL1 commands. This list can be quite long, occupying more that one screen.
	Typing any portion of a command, up to the first colon (‘:’), and following it with a question mark/semi-colon (‘?;’) displays all available commands, beginning with the typed string.
	For example:
	`<RTRV-USER?;`
	`RFX 99-05-17 10:31:19`
	`M HELP COMPLD`
	`/*`
	`RTRV-USER:[<tid>]:[<uid>]::<ctag>;`
	`RTRV-USER-SECU:[<tid>]:[<uid>]::<ctag>;`
	`*/`
	`;`

Context Sensitive Help	The user may type a question mark/semicolon (‘?;’) to display information about the current block and field. After the help text has been displayed, the partially typed command (stripped of the question mark and semicolon) is redisplayed, and the user may continue typing.
	For example:
	`<RTRV-USER-SECU::?;`
	`Field: <uid> - (Optional) List of User IDentifiers`
	`(null references all accounts)`
	`Value: 3 to 10 alpha-numeric characters -`
	`A list of <uid>s may be grouped with '&'`
	`<RTRV-USER-SECU::`

Position Block Help	In position-defined blocks (the AID block, the position-defined parameter block, and the State block), help is available for each comma-separated field. The help text appears in the form of a field description and a value description.
	For example:
	`<ED-USER-SECU::PFC:1::NEW_ID,*****,?;`
	`Field: <cid> - (Optional) Channel IDentifier -`
	`null`
	`defaults to ALL`
	`Value: MNT | OSI | X25 | [ALL] | null`
	`Multiple values may be grouped with '&'`
	`<ED-USER-SECU::PFC:1::NEW_ID,*****,OSI,?;`
	`Field: <uap> - (Optional) User Access Privilege:`
	`0-lowest, 5-highest`
	`Value: Ax&Px&Mx&Tx where x = 0..5 - Defaults to A4&P4&M4&T4`
	`<ED-USER-SECU::PFC:1::NEW_ID,*****,OSI,`

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Help Type	Description

Keyword Block Help	On-line help appears in two forms while typing within the keyword-defined block. If a complete keyword, followed by the equal sign ('='), is typed, the displayed text will provide information about the keyword and its usage.
	For example:
	`<ED-USER-SECU::PFC:1:::PAGE=9,UOUT=?;`
	`UOUT - UID Aging Interval`
	`Enter an integer between 0 and 999`
	`<ED-USER-SECU::PFC:1:::PAGE=9,UOUT=`
	`At any other point in the keyword defined block,`
	`the displayed text will list all applicable keywords.`
	`For example:`
	`<ED-USER-SECU::PFC:1:::PA?;`
	`Keywords are:`
	`PAGE - Password Aging Interval`
	`PCND - Mandatory Password Change Interval`
	`UOUT - UID Aging Interval`
	`<ED-USER-SECU::PFC:1:::`

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TL1 User Command Summary

Table 7 describes all of the TL1 user commands available on the system and their associated privilege levels.

Table 7 TL1 User Commands

Command	Privilege Level	Description	Page
ACK-ACT-ALARM	M4	Used to acknowledge (ack) active alarms	325
ACT-USER	A0	Opens a TL1 session between the specified user and the system	89
ALW-MSG-ALL	M5	Enable autonomous message notifications for alarms and system events on the current TL1 session.	355
ALW-MSG-ALM	M5	Starts logging messages to the specified log.	358
ALW-MSG-ALM	M5	Enable Autonomous Message notifications for alarms on the current TL1 session.	358
ALW-MSG-EVT	M5	Enable Autonomous Message notifications for system events on the current TL1 session.	361
ALW-MSG-EVT	M1	Inhibit Autonomous Message notifications for system events on the current TL1 session.	361
ALW-USER-SECU	M5	Places one or more user accounts into an IS (In-Service) state.	123
APPLY-CFG	M5	Applies (restore) the system configuration from a system configuration XML (backup) file.	369
APPLY-ROLLBACK	M5	System software rollback - Rolls back the system software release to the prior release (the release in the rollback partition)	384
APPLY-UPGRADE	M5	System software upgrade - Upgrades the non-volatile inactive/rollback partition from the system software upgrade file in the system's /dnld directory	378
CANC-CID-SECU	A5	Terminates all active user sessions in the switch.	140
CANC-RFILE	M5	Cancels a system file FTP transfer (see COPY-RFILE).	395
CANC-USER	A0	Terminates the TL1 session of the current user.	95

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Command	Privilege Level	Description	Page
CANC-USER-SECU	A5	Terminates active sessions for the specified users (ClickFlow and TL1).	121
COPY-CFG	M5	Copies (backs up) the system configuration to a system configuration XML file.	371
COPY-RFILE	M5	Copies a system file from/to an external FTP server.	388
DLT-CFG	M5	Deletes the system configuration XML (backup) file.	373
DLT-CFG-ALARM	A5	Delete customized severity assignment for port alarm and restore the default setting.	320
DLT-CFG-CMAP	P4	Deletes the specified connection map from the system.	236
DLT-CFG-PORTGROUP	A5	Deletes the specified port group from the system.	269
DLT-CFG-PROTECTION	P4	Deletes a protection rule from the system.	309
DLT-CFG-SIGTHRESH	P4	Deletes a signal threshold from the system.	299
DLT-CRS-FIBER	P4	Disconnects each of the specified ports from its connected port.	220
DLT-GGNMSG-SERVER	A5	Remove a GGNMSG target server from the system configuration.	353
DLT-NAME-FIBER	P4	Deletes the names associated with the specified port(s).	260
DLT-SNMP-COMMUNITY	A5	Delete SNMP community name(s) from the snmpCommunityTable rows.	197
DLT-SNMP-SERVER	A5	Deletes an SNMP target address from snmpTargetAddrTable.	204
DLT-SYSLOG-SERVER	A5	Delete a Syslog server from the configuration.	347
DLT-UPGRADE	M5	Cancels a partially applied system software upgrade	380
DLT-USER-SECU	A5	Deletes the user accounts of the specified user(s).	127
ED-CID-SECU	A5	Modifies the security parameters (policy) for the switch.	134

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Command	Privilege Level	Description	Page
ED-CMD-SECU	A5	Modifies the access privilege associated with a specified command or commands.	141
ED-DAT	A5	Changes the time and date of the system clock.	165
ED-NE-GEN	A5	Sets the name, IP address, and gateway parameters for the system.	179
ED-PARAM	A5	Configures the system-level parameters, including the restoration mode for the Topology Restoration feature.	186
ED-PID	A0	Changes the password for the current user's account.	129
ED-USER-SECU	A5	Modifies the user account parameters associated with the specified user.	112
ENT-CRS-CMAP	P4	Applies the specified connection map to the system.	238
ENT-CRS-FIBER	P4	Creates a cross connection between the specified input port(s) and the specified output port(s).	208
ENT-USER-SECU	A5	Creates a new user account on the system	107
INH-MSG-ALL	M1	Inhibit autonomous message notifications for alarms and system events on the current TL1 session. (The default setting for sessions is for autonomous messages to be inhibited.)	357
INH-MSG-ALM	M1	Inhibit autonomous message notifications for alarms on the current TL1 session.	360
INH-MSG-EVT	M1	Inhibit autonomous message notifications for system events on the current TL1 session.	363
INH-USER-SECU	A5	Places one or more user accounts into an OOS (Out-Of-Service) state.	125
INIT-LOG	A5	Initializes a specific log, clearing the contents of the existing log without changing the log attributes.	340
INIT-SYS	M5	Shuts down or reboots the system.	366
RTRV-ACT-ALARM	M1	Retrieve active alarms	322

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Command	Privilege Level	Description	Page
RTRV-ATTR-LOG	A5	Retrieves the attributes associated with the specified log.	338
RTRV-ATTR-LOG	A5	Retrieves the attributes associated with the specified log.	338
RTRV-BUILDINFO	A0	Retrieves the release number of the software build that the system is running.	173
RTRV-CFG	M5	Retrieves summary information from the system configuration XML (backup) file.	375
RTRV-CFG-ALARM	M1	Retrieve list of customized alarm severities.	316
RTRV-CFG-CMAP	P1	Retrieves the specified connection map saved in the system software.	233
RTRV-CFG-FIBER	P1	Retrieves the configuration for the specified port(s).	252
RTRV-CFG-PORTGROUP	A1	Retrieves the configuration for the specified port group(s).	266
RTRV-CFG-PROTECTION	P1	Retrieves the configuration for all protection rules loaded into the system.	306
RTRV-CFG-SIGTHRESH	P1	Retrieves the configuration for the specified signal threshold(s).	297
RTRV-CID	A0	Retrieves the security parameters in use for the current session.	132
RTRV-CID-SECU	A5	Retrieves the security parameters (policy) for the switch.	137
RTRV-CMAPINFO	P1	Retrieves the general information about connection maps on the system.	228
RTRV-CMD-SECU	A5	Retrieves the access privilege level required to execute the specified TL1 command(s).	143
RTRV-CRS-FIBER	P1	Retrieves the cross-connect details for each specified port.	216
RTRV-DFLT-SECU	A5	Retrieves the system-wide security defaults that are used when setting up a new user account.	103
RTRV-EQPT	A1	Retrieves information about the system hardware.	177

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Command	Privilege Level	Description	Page
RTRV-GGNMSG-LOG	A1	Retrieve the contents of the specified log. (GGNMSG format)	332
RTRV-GGNMSG-SERVER	A5	Retrieves list of servers receiving proprietary UDP alarm, event, and configuration change notifications from the system.	351
RTRV-HDR	A0	Elicits a normal completed (COMPLD) response from the system	157
RTRV-LOG	M1	Retrieves the contents of the specified log.	329
RTRV-NAME-FIBER	P1	Retrieves the port name assigned to the specified port(s).	258
RTRV-NE-GEN	A1	Retrieves the name, IP address, and gateway settings from the system	181
RTRV-NTP-SERVER	A1	Retrieves the NTP (Network Time Protocol) configuration and clock synchronization status.	171
RTRV-PARAM	A1	Retrieves the restoration mode for the Topology Restoration feature on the system	190
RTRV-PLIST	P1	Tests the specified port list filtering and offset values by returning the list of ports that results when the port list and offset values are applied.	245
RTRV-POWER-FIBER	P1	Retrieves the port power for the specified input port(s).	279
RTRV-PRIV-FIBER	P1	Lists port-level privilege assignments for themselves and other users.	148
RTRV-PRIV-SYSTEM	A0	Lists the user's system privilege level. Allows administrators to query system privilege for other users.	153
RTRV-RFILE	M5	Retrieves the status of the COPY-RFILE command.	393
RTRV-ROLLBACK	M5	Retrieves the system software rollback status	386
RTRV-SIGBAND-FIBER	P1	Retrieves the signal band assigned to the specified port(s).	284
RTRV-SIGTHRESH-FIBER	P1	Retrieves the signal threshold assignment information for the specified port(s).	290
RTRV-SNMP-COMMUNITY	A1	Retrieve the SNMP community names from the snmpCommunityTable rows.	195

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Command	Privilege Level	Description	Page
RTRV-SNMP-SERVER	A1	Retrieves the SNMP target addresses in snmpTargetAddrTable.	202
RTRV-STATUS	A0	Retrieves a record of all user sessions logged onto the system at the time the command is executed.	97
RTRV-SYSLOG-SERVER	A1	Retrieves the SYSLOG (System Log) configuration.	345
RTRV-SYSTEM-INFO	A1	Retrieves the system's hardware configuration and software licenses.	158
RTRV-TOD	A0	Retrieves the time of day information as set on the system.	167
RTRV-UPGRADE	M5	Retrieves the system software upgrade status	382
RTRV-USER	A0	Retrieves the user account parameters associated with the current user.	92
RTRV-USER-SECU	A5	Retrieves user account parameters associated with the specified user(s).	118
RTRV-VERSIONINFO	A0	Retrieves the version number of the software on the system.	175
RTRV-VOA-CFG	P1	Retrieves the VOA settings for the specified VOA port(s).	277
RTRV-VOA-FIBER	P1	Retrieves the VOA settings for the specified output port(s). NOTE: To support future functionality, this command retrieves VOA information for both VOA ports and standard output ports.	274
SET-ATTR-LOG	A5	Sets the attributes associated with the specified log.	336
SET-CFG-ALARM	A5	Used to customize optical alarm severity for specific ports.	313
SET-CFG-CMAP	P4	Creates a connection map on the system.	230
SET-CFG-FIBER	P4	Modifies comment, port group, and/or alarm severity configuration for port(s).	247
SET-CFG-PORTGROUP	A5	Adds a port group to the system.	263
SET-CFG-PROTECTION	P4	Adds a protection rule to the system.	302

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Command	Privilege Level	Description	Page
SET-CFG-SIGTHRESH	P4	Creates signal threshold records or modifies existing signal threshold records.	294
SET-CFG-SIGTHRESH	P4	Create signal threshold records or modify existing signal threshold records.	294
SET-CRS-LOCK	P4	Locks or unlocks the connection on the specified port(s).	224
SET-CRS-NAME	P4	Assigns or replaces a connection name for an existing connection without affecting the connection.	213
SET-DLFT-SECU	A5	Configures the system-wide security defaults that are used when setting up a new user account.	99
SET-GGNMSG-SERVER	A5	Configure the system to issue notifications to a CyberSweep™ Path Manager server or server capable of receiving/processing GGNMSGs.	349
SET-NAME-FIBER	P4	Assigns a port name to the specified port(s).	255
SET-NTP-SERVER	A5	Enables or disables the NTP (Network Time Protocol) service and configures NTP server IP addresses.	169
SET-PRIV-FIBER	P4	Sets the port privileges governing the specified users' access to ports for which this user has Manage level port privileges.	146
SET-PRIV-SYSTEM	A5	Allows a user with the system-level privilege of Manage to set the system-level privilege levels for other users.	151
SET-SID	A5	Sets the system identifier (SID).	163
SET-SIGBAND-FIBER	P4	Assigns the specified signal band to the specified port(s).	281
SET-SIGBAND-FIBER	P4	Assign a signal band to the specified input port(s).	281
SET-SIGTHRESH-FIBER	P4	Assigns the specified signal threshold to the specified port(s).	287
SET-SNMP-COMMUNITY	A5	Change or restore the SNMP community names in the snmpCommunityTable rows.	193
SET-SNMP-SERVER	A5	Inserts an SNMP target address in snmpTargetAddrTable.	199

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Command	Privilege Level	Description	Page
SET-SYSLOG-SERVER	A5	Configure system logging to up to three external SYSLOG servers.	342
SET-VOA-FIBER	P4	Configures the Variable Optical Attenuation (VOA) settings for the specified port(s).	271
WRT-DB	A4	Saves the system's current configuration to the persistent configuration file.	183

TL1 Autonomous Message Summary

Table 8 describes all of the TL1 autonomous messages available on the system.

Table 8 TL1 Autonomous Messages

Command	Description	Page
REPT DBCHG	Generated for system, port, and connection configuration operations.	399
REPT DBCHG SECU	Generated for user and security policy configuration as well as system access activity.	402
REPT ALM FIBER	Generated when an optical alarm is detected, acknowledged or cleared.	409
REPT ALM SYS	Generated when a hardware or software alarm condition is detected, acknowledged, or cleared.	405
REPT EVT FIBER	Generated by system to record non-alarm related optical events.	417
REPT EVT SYS	Generated by system to confirm completion of maintenance events.	414

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Overview of this TL1 Manual

This chapter (Chapter 1) introduces the TL1 language. The remaining chapters of this manual provide an overview of the software features of the Glimmerglass Intelligent Optical Switch system and detailed descriptions of TL1 commands and autonomous messages:

- Chapter 2: Software Features Overview
- Chapter 3: Access and Security Management
- Chapter 4: System Configuration
- Chapter 5: Connection Configuration
- Chapter 6: Port Configuration
- Chapter 7: Signal Threshold Configuration
- Chapter 8: Protection
- Chapter 9: Alarms, Logs, and Notifications
- Chapter 11: Autonomous Messages

Similar commands are grouped together within each chapter. For example, ACT-USER, RTRV-USER, and CANC-USER are listed together. For an alphabetical listing of the commands, see the TL1 User Commands table on page 20.

Additional reference information appears in the following appendices:

- Appendix A: Error Codes
- Appendix B: GGNMSG Structure and Contents

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Related Documentation

The TL1 commands available on the Glimmerglass system are based on the Telcordia requirements outlined in the following documents:

- Bellcore Generic Requirements GR-831-CORE, Issue 1, November 1996: Language (TL1) For Operations Application Messages, Telcordia
- Bellcore Generic Requirements GR-199-CORE, Issue 1, December 1994: OTGR: Operations Application Messages - Memory Administration Messages
- Bellcore Generic Requirements GR-833-CORE, Issue 1, December 1994: Network Maintenance: Network Element and Transport Surveillance Messages
- Bellcore TR-NWT-835, Issue 3, January 1993: OTGR: Operations Application Messages - Network Element and Network System Security Administration Messages

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Software Features Overview

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This chapter provides an overview of the Glimmerglass system features and capabilities. For quick reference, each section lists the associated TL1 commands. Subsequent chapters provide more detailed descriptions of each TL1 command.

Access and Security Management

The section provides an overview of the TL1 commands governing system access and the management of user accounts, user privileges, and user and session security policies.

Default User Accounts

All Glimmerglass systems have 3 default user accounts. Two of these, *admin* and *madmin*, are accounts with full system administrative privileges. The third account, *snmpuser*, is used by the system for tracking changes through the SNMP interface. The characteristics for each account are shown below

- admin user account:
    - Factory default password = password
    - Factory default state = In Service
    - System Privilege = manage
    - Port Privilege = manage
    - The admin account cannot be deleted or set out of service.
    - The system and port privileges for the admin account cannot be modified.

- madmin user account:
    - Factory default password = password
    - Factory default state = Out-of-Service
    - System Privilege = manage
    - Port Privilege = manage
    - The madmin account cannot be deleted.

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  - The madmin account may be set out-of-service by the admin account.
  - The system and port privileges for the madmin account cannot be modified.

- snmpuser user account:
  - The system will not allow login by the snmpuser.
  - This account is used for tracking internal operations on the SNMP interface.
  - This account cannot be deleted, modified or set out of service.

With the exception of the snmpuser account, all user accounts may be used to log into either TL1 or ClickFlow. The user accounts are shared by both interfaces.

The madmin user account is used by the CyberSweep™ Path Manager server for administrative access and control of the system. When Path Manager is used to manage the system, Path Manager will manage password changes for this user as well as the admin user.

For systems not managed from a Path Manager server, the madmin account may be left disabled to preclude any requirements for administering the account.

The following sections provide an overview of the commands used to access the system as well as to administer user accounts and user privileges as well as the policies governing password complexity, password change, and session security.

These commands should not be used when the system is controlled by a Path Manager server as Path Manager is the primary interface for control of the systems and for establishing users, user privileges and access to switch resources.

User Access

The following commands allow users to log in and out of the system and change the account password via the TL1 interface. Once logged in, a user's privileges to system operations are determined by the user's assigned system-level and port-level privileges. The syntax for command entry and the format of command responses for these commands are described in the "Access and Security Management" chapter:

TL1 Command	Description	Page
ACT-USER	Login command containing user name and password for authentication upon receipt of TL1 prompt after raw TCP socket is opened.	89
RTRV-USER	Retrieves the user account parameters associated with the current user.	92

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TL1 Command	Description	Page
CANC-USER	Log out. The command cancels the TL1 session, leaving the TCP port open for 60 seconds prior to dropping the TCP socket.	95
ED-PID	Change password. The command used by user to change own password. Refer to the RTRV-DFLT-SECU command to view password complexity/ change policy settings.	129

System-level and Port-level Privileges

A user's access to system operations is ultimately governed by the user's system-level and port-level privileges. These privileges take precedence over the TL1 privilege model as described in the section, "TL1 Privilege Levels" on page 16.

The commands in the table below may be used by a system administrator to configure system-level and port-level privileges for a user.

TL1 Command	Description	Page
SET-PRIV-FIBER	Sets the port privileges governing the specified users' access to ports for which this user has Manage level port privileges.	146
RTRV-PRIV-FIBER	Lists port-level privilege assignments for themselves and other users.	148
SET-PRIV-SYSTEM	Allows a user with the system-level privilege of Manage to set the system-level privilege levels for other users.	151
RTRV-PRIV-SYSTEM	Allows a user with the system-level privilege of Manage to retrieve the system-level privilege levels for other users.	153

TL1 Command Operation

Before executing a command from a user, the following permission and privilege checks are performed:

1. The TL1 privilege for the command is checked to verify that the user has the TL1 privileges required to submit the command for execution.

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- If the user has the required TL1 privilege level, then step 2 below is executed.
- If the user does not have the required TL1 privilege level, then the command response will be "DENY" with an error code of "PICC" (Privilege, Invalid Command Code).

2. The System and/or Port Privilege level for the command is checked to ensure the user has the required privilege level to execute the command.
   - If the user has the required system/port privilege level, the command will be executed.
   - If the user does not have the required system/port privilege level, then the command response will be COMPLD with an error message indicating the cause of the failure as insufficient system or port privilege.

System and/or Port Level Privilege to TL1 Command Assignment

The table below presents the system-level or port-level privilege required to execute a TL1 command. The TL1 privileges described in the previous chapter are included for reference.

Again, the TL1 privilege only controls whether or not the user has the privilege to input the TL1 command. However, the command will only be executed if the user has the required system or port privilege shown in the table. The TL1 privileges can only be used to further restrict user access to commands from TL1.

Table 9 Privilege Levels Required to Access TL1 Commands

TL1 Command	TL1 Privilege	System Privilege	Port Privilege
Access and Security Management			
ACT-USER	A0	None	N/A
RTRV-USER	A0	None	N/A
CANC-USER	A0	None	N/A
RTRV-STATUS	A0	None	N/A
SET-DFLT-SECU	A5	Manage	N/A
RTRV-DFLT-SECU	A0	None	N/A
ENT-USER-SECU	A5	Manage	N/A
ED-USER-SECU	A5	Manage	N/A

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TL1 Command	TL1 Privilege	System Privilege	Port Privilege
RTRV-USER-SECU	A5	Manage	N/A
CANC-USER-SECU	A5	Manage	N/A
ALW-USER-SECU	A5	Manage	N/A
INH-USER-SECU	A5	Manage	N/A
DLT-USER-SECU	A5	Manage	N/A
SET-PRIV-FIBER	P4	N/A	Manage
RTRV-PRIV-FIBER	P1	N/A	View
SET-PRIV-SYSTEM	A5	Manage	N/A
RTRV-PRIV-SYSTEM	A0	None	N/A
ED-PID	A0	None	N/A
RTRV-CID	A0	None	N/A
ED-CID-SECU	A5	Manage	N/A
RTRV-CID-SECU	A5	Manage	N/A
CANC-CID-SECU	A5	Manage	N/A
ED-CMD-SECU	A5	Manage	N/A
RTRV-CMD-SECU	A5	Manage	N/A
System Configuration			
RTRV-HDR	A0	None	N/A
RTRV-SYSTEM-INFO	A1	View	N/A
SET-SID	A5	Manage	N/A
ED-DAT	A5	Manage	N/A
RTRV-TOD	A0	None	N/A
SET-NTP-SERVER	A5	Manage	N/A
RTRV-NTP-SERVER	A1	View	N/A
RTRV-BUILDINFO	A0	None	N/A

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TL1 Command	TL1 Privilege	System Privilege	Port Privilege
RTRV-VERSIONINFO	A0	None	N/A
RTRV-EQPT	A1	View	N/A
ED-NE-GEN	A5	Manage	N/A
RTRV-NE-GEN	A1	View	N/A
WRT-DB	A4	Modify	N/A
ED-PARAM	A5	Manage	N/A
RTRV-PARAM	A1	View	N/A
SET-SNMP-COMMUNITY	A5	Manage	N/A
RTRV-SNMP-COMMUNITY	A1	Manage	N/A
DLT-SNMP-COMMUNITY	A5	Manage	N/A
SET-SNMP-SERVER	A5	Manage	N/A
RTRV-SNMP-SERVER	A1	View	N/A
DLT-SNMP-SERVER	A5	Manage	N/A
Connection Configuration			
ENT-CRS-FIBER	P4	N/A	Modify
RTRV-CRS-FIBER	P1	N/A	View
DLT-CRS-FIBER	P4	N/A	Modify
SET-CRS-NAME	P4	N/A	Modify
SET-CRS-LOCK	P4	N/A	Modify
SET-CFG-CMAP	P4	N/A	Modify
ENT-CRS-CMAP	P4	N/A	Modify
RTRV-CFG-CMAP	P1	N/A	View
DLT-CFG-CMAP	P4	N/A	Modify
RTRV-CMAPINFO	P1	N/A	View
Port Configuration			
RTRV-PLIST	P1	N/A	View

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TL1 Command	TL1 Privilege	System Privilege	Port Privilege
SET-CFG-PORTGROUP	A5	Manage	N/A
RTRV-CFG-PORTGROUP	A1	View	N/A
DLT-CFG-PORTGROUP	A5	Manage	N/A
SET-CFG-FIBER	P4	N/A	Modify
RTRV-CFG-FIBER	P1	N/A	View
SET-NAME-FIBER	P4	N/A	Modify
RTRV-NAME-FIBER	P1	N/A	View
DLT-NAME-FIBER	P4	N/A	Modify
SET-VOA-FIBER	P4	N/A	Modify
RTRV-VOA-FIBER	P1	N/A	View
RTRV-VOA-CFG	P1	N/A	View
RTRV-POWER-FIBER	P1	N/A	View
SET-SIGBAND-FIBER	P4	N/A	Modify
RTRV-SIGBAND-FIBER	P1	N/A	View
SET-SIGTHRESH-FIBER	P4	N/A	Modify
RTRV-SIGTHRESH-FIBER	P1	N/A	View
Signal Threshold Configuration			
SET-CFG-SIGTHRESH	P4	Modify	N/A
RTRV-CFG-SIGTHRESH	P1	View	N/A
DLT-CFG-SIGTHRESH	P4	Modify	N/A
Protection Rule Configuration			
SET-CFG-PROTECTION	P4	N/A	Manage
RTRV-CFG-PROTECTION	P1	N/A	View
DLT-CFG-PROTECTION	P4	N/A	Manage

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TL1 Command	TL1 Privilege	System Privilege	Port Privilege
Alarms, Logs, Notifications			
SET-SYSLOG-SERVER	A5	Manage	N/A
RTRV-SYSLOG-SERVER	A1	View	N/A
DLT-SYSLOG-SERVER	A5	Manage	N/A
SET-GGNMSG-SERVER	A5	Manage	N/A
RTRV-GGNMSG-SERVER	A1	View	N/A
DLT-GGNMSG-SERVER	A5	Manage	N/A
INIT-LOG	A5	Manage	N/A
RTRV-LOG	M1	View	N/A
SET-ATTR-LOG	A5	Manage	N/A
RTRV-ATTR-LOG	A5	Manage	N/A
RTRV-GGNMSG-LOG (AUTO and ALARM Logs)	A1	View	N/A
RTRV-GGNMSG-LOG (SECU Log)	A1	Manage	N/A
RTRV-ACT-ALARM (System Alarms)	M1	View	N/A
RTRV-ACT-ALARM (Optical Alarms)	M1	N/A	View
ACK-ACT-ALARM (System Alarms)	M4	Modify	N/A
ACK-ACT-ALARM (Optical Alarms)	M4	N/A	Modify
ALW-MSG-ALL	M5	Manage	N/A
INH-MSG-ALL	M1	View	N/A
ALW-MSG-ALM	M5	Manage	N/A
INH-MSG-ALM	M1	View	N/A
ALW-MSG-EVT	M5	Manage	N/A

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TL1 Command	TL1 Privilege	System Privilege	Port Privilege
INH-MSG-EVT	M1	View	N/A
System Maintenance			
INIT-SYS	M5	Manage	N/A
APPLY-CFG	M5	Manage	N/A
COPY-CFG	M5	Manage	N/A
DLT-CFG	M5	Manage	N/A
RTRV-CFG	M5	View	N/A
APPLY-UPGRADE	M5	Manage	N/A
DLT-UPGRADE	M5	Manage	N/A
RTRV-UPGRADE	M5	Manage	N/A
APPLY-ROLLBACK	M5	Manage	N/A
RTRV-ROLLBACK	M5	Manage	N/A
COPY-RFILE	M5	Manage	N/A
RTRV-RFILE	M5	Manage	N/A
CANC-RFILE	A5	Manage	N/A

The commands in the table below are used to modify and retrieve the TL1 privilege level required for executing a TL1 command on the system. The syntax for command entry and the format of command responses for these commands are described in the section ”Access and Security Management” on page 87.

TL1 Command	Description	Page
ED-CMD-SECU	Modifies the access privilege associated with a specified command or commands.	141
RTRV-CMD-SECU	Retrieves the access privilege level required to execute the specified TL1 command(s).	143

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User Account Administration

The following commands allow the admin user to add and maintain user accounts. User accounts may be created through either the TL1 or ClickFlow interface. The default system-level privilege for a user is “Modify”. The default port-level privilege is also “Modify”. The default port privilege applies to all ports in the system. The table below shows the commands for adding, modifying, viewing, and deleting user accounts. Administrators may use the ED-USER-SECU command to change or reset another user’s password or account state. The INH and ALW commands may also be used to toggle the state of a user's account between in-service and out-of-service.

The syntax for command entry and the format of command responses for these commands are described in the section ”Access and Security Management” on page 87.

TL1 Command	Description	Page
ENT-USER-SECU	Creates a new user account on the system	107
ED-USER-SECU	Modifies the user account parameters associated with the specified user.	112
RTRV-USER-SECU	Retrieves user account parameters associated with the specified user(s).	118
ALW-USER-SECU	Places one or more user accounts into an IS (In-Service) state.	123
INH-USER-SECU	Places one or more user accounts into an OOS (Out-Of-Service) state.	125
DLT-USER-SECU	Deletes the user accounts of the specified user(s).	127

Password Security Policies

The following commands support configuration of system policies governing password complexity and password change for TL1, ClickFlow, and Maintenance Console user accounts. These commands are fully described in ”Access and Security Management” on page 87.

TL1 Command	Description	Page
SET-DLFT-SECU	Configure the password complexity, password change, and user account policy parameters for the system.	99
RTRV-DFLT-SECU	Retrieve the parameter settings for the password complexity/change and user account policies.	103

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The parameters for the password complexity, password change, and account security policies are listed in the following sections:

- “Password Complexity Policy Parameters” (below)
- “Password Change Policy Parameters” on page 42

Password Complexity Policy Parameters

The parameters shown in the table below may be used to customize the rules for new password entry. These rules will apply when the user changes his/her own password or when an administrative user assigns a new password for the user. The password complexity policy applies to all users in the system.

Table 10 Password Complexity Parameters

Parameter	Description
PMINLENG	Minimum password length required for a new password. • Factory default = 8 characters, configurable between 5 and 20 characters
PMINPUNC	Minimum number of punctuation characters required in a new password. • Factory default = 1 punctuation character required
PMINNUMR	Minimum number of numeric characters required in a new password. • Factory default = 1 numeric character required
PMINLWRC	Minimum number of lowercase characters required in a new password. • Factory default = 1 lowercase character required
PMINUPRC	Minimum number of uppercase characters required in a new password. • Factory default = 0 (no uppercase characters are required)
PMAXSAME	Maximum number of times a character may be used in a new password. • Factory default = 0 (no restrictions on reuse of same character in new password)
PUSRNAME	Allow or block the embedding of the user name in a new password. • Factory default = 1 (cannot embed username in password)

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NOTES:
- The PUSRNAME parameter is case insensitive and checks for the user-name being entered in the password backwards as well as forwards.
- When resetting the password for the system default accounts, the pass-word complexity check is not enforced. The default password for the default system accounts is "password".
- Modifications to the password complexity policy do not affect the validity of passwords currently in use. The new rules are applied upon the next pass-word change.

Password Change Policy Parameters

The parameters shown in the table below may be used to establish a default password change policy for the system as well as to place additional constraints on users when changing their own password. The password change policy applies to all users in the system.

Table 11 Password Change Parameters

Parameter	Description
PAGE	Password Aging Interval—Establishes the number of days between the last password change until the pass-word is considered to be "expired". When a password expires, the user's account state is set to "IS-EXP" (In-Service Expired) and the PCND parameter described below now controls the user's login access.
PCND	Password Change Interval—Establishes the number of days that a user is given to change their "expired" pass-word. This is a grace period during which the user is provided with warnings to change their password. If the user does not change their password before the end of this period, their account state is set to "OOS" (Out-Of-Service). A system administrator must be contacted to restore the user's access to the system.
PINT	Password Minimum Interval—Establishes a period in days during which the user cannot change his/her password after a successful password change. This parameter is used to inhibit user's from circumventing the password change requirement by performing repeated password changes to restore a previous password.
PMAXCONC	Maximum consecutive characters allowed from prior password. • Factory default = 0 (no check for similarity between new and current password).
PMAXHIST	Maximum previous passwords to disallow for reuse as new password. • Factory default = 0 (no check on previously used passwords).

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NOTES:
- User Account configuration commands allow the settings for PAGE and PCND to be customized on a user-by-user basis. The PINT, PMAXCONC, and PMAXHIST parameters cannot be customized on a per-user basis - these settings apply to all users.
- The PMAXCONC and PMAXHIST parameters place additional restrictions on password entry. Unlike the Password Complexity checks, these restrictions only apply when users change their own password. These are not checked when an administrator assigns a password to the user (as the current password is unknown to this user).
- The PMAXCONC check is a similarity check which may be used to prevent users from changing only 1 or 2 characters from the current password to create a new password.
- The PMAXHIST check may be used to ensure users to not reuse passwords frequently. Up to 24 previously used passwords may be blocked from reuse.
- Modifications to the password change policy do not affect the validity of passwords currently in use.

Account Policy Parameter

The parameter shown in the table below may be used to establish an automatic policy for placing unused user accounts out-of-service.

Table 12 Account Policy Parameter

Parameter	Description
UOUT	Account Aging Interval—Establishes the maximum number of days an account can be idle. If no login occurs before the end of this interval, the user account will be placed OOS by the system.

Session Security Policies

The following commands allow administrators to create system-wide security policies governing user session activity. The syntax for command entry and the format of command responses for these commands are described in the section ”Access and Security Management” on page 87.

TL1 Command	Description	Page
RTRV-STATUS	Displays all active sessions in the switch (ClickFlow and TL1).	97

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TL1 Command	Description	Page
RTRV-DFLT-SECU	Retrieve the security settings for the session.	103
CANC-USER-SECU	Terminates active sessions for the specified users (ClickFlow and TL1).	121
RTRV-CID	Retrieves the security parameters in use for the current session.	132
ED-CID-SECU	Modifies the security parameters (policy) for the switch.	134
RTRV-CID-SECU	Retrieves the security parameters (policy) for the switch.	137
CANC-CID-SECU	Terminates all active user sessions in the switch.	140

The security parameters for user session security policies are listed below.

- MXINV—Maximum Invalid Login Attempts
  An integer number establishing the threshold for bad logins by a user prior to issuing an intrusion alert and starting the lockout duration established by the DURAL parameter below.
- DURAL—Lockout Duration
  The time duration for an account lockout. When locked out, all login attempts by the user (valid password or invalid password) will be ignored. After the duration expires, a login attempt with a valid password will be allowed and a clear intrusion alert will be issued. If the login attempt is invalid, the lockout period will be restarted for the user.
- TMOUT—No Activity Timeout
  The setting for a no activity timeout. After a successful login, the user's session will automatically be logged out if no commands are received during the time frame specified by this parameter.

For invalid login attempts from an invalid user account, the system will report an intrusion attempt but will not lockout the channel. In other TL1 implementations, this command is used to lockout ALL access to the system on this channel. Glimmerglass does not take this action as this would effectively cause a denial of service for all users. An event reporting the clearing of the intrusion attempt along with the total number of failed login attempts will be issued upon the next successful login to the system by a user.

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Admin Account Password Recovery

If the admin user password is forgotten, the password may be reset to the factory default password from the system's Maintenance Console. Please refer to Chapter 10, page 104 of the *Glimmerglass System Installation and Maintenance Manual* for details on this procedure.

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System Configuration

The System Configuration commands provide access and configuration options for the general system and database parameters, such as system time, target identifier, reboot behavior, system initialization, and remote upgrade configuration.

Basic System Configuration

The following Basic System Configuration commands are described in the System Configuration chapter:

TL1 Command	Description	Page
RTRV-HDR	Elicits a normal completed (COMPLD) response from the system	157
RTRV-SYSTEM-INFO	Retrieves the system's hardware configuration and software licenses.	158
SET-SID	Sets the system identifier (SID).	163
ED-DAT	Changes the time and date of the system clock.	165
RTRV-TOD	Retrieves the time of day information as set on the system.	167
SET-NTP-SERVER	Enables or disables the NTP (Network Time Protocol) service and configures NTP server IP addresses.	169
RTRV-NTP-SERVER	Retrieves the NTP (Network Time Protocol) configuration and clock synchronization status.	171
RTRV-BUILDINFO	Retrieves the release number of the software build that the system is running.	173
RTRV-VERSIONINFO	Retrieves the version number of the software on the system.	175
RTRV-EQPT	Retrieves information about the system hardware.	177
ED-NE-GEN	Sets the name, IP address, and gateway parameters for the system.	179
RTRV-NE-GEN	Retrieves the logical name, IP address, gateway address, and host name settings for the system.	181

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Configuration File Management

All system configuration changes executed by the user may be saved to persistent (FLASH) memory on the system.

If the Autosave parameters are configured as “on” (see “ED-PARAM” on page 186), then user changes are saved automatically to persist memory. If the Autosave parameters are set “off”, the user may explicitly save changes to persist memory.

The following Configuration File Management command is described in the System Configuration chapter:

TL1 Command	Description	Page
WRT-DB	Saves the system’s current configuration to the persistent configuration file.	183

NOTE: The system configuration may be backed up to an XML file and restored from an XML file, see ”System Maintenance” on page 83.

Automatic Restoration

When a system is power-cycled, all connections will be dropped. The Automatic Restoration feature allows the user to determine if the pre-power cycle connections should be automatically restored when the system initializes after power is restored.

The Automatic Restoration functionality is configured using the ED-PARAM command (see page 186). This command is used to specify whether connections should be reset or restored as defined below.

Table 13 Automatic Restoration Options

Mode	Startup Behavior
Reset	Do not restore topology. On startup, the system will be reset to have no connections.
Restore	Restore topology (including the owner and locked state for each connection). See ”Connection Locking” on page 51 for information on locking connections.

The following commands configure and retrieve Automatic Restoration settings and are described in the System Configuration chapter:

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TL1 Command	Description	Page
ED-PARAM	Configures the Topology Restoration and Power Monitoring features on the system.	186
RTRV-PARAM	Retrieves the settings for the Topology Restoration and Power Monitoring features on the system	190

Power Monitoring

The Power Monitoring feature is an optional software feature that is configured using the PowerMonitoringPeriod value in the ED-PARAM command (page 186). The PowerMonitoringPeriod parameter controls how often the system monitors power for signal threshold-crossing events. The lower the PowerMonitoringPeriod value, the faster the system will respond to signal threshold-crossing events. A value of 0 (zero), however, turns off power monitoring altogether. The factory-configured value for PowerMonitoringPeriod is 50 msec.

NOTE: Setting PowerMonitoringPeriod below 10 msec may have an adverse effect on system performance as the CPU may not be able to keep up with the desired rate and still perform other tasks, such as handling TL1 commands, in a timely fashion.

The following commands configure and retrieve Power Monitoring settings and are described in the System Configuration chapter:

TL1 Command	Description	Page
ED-PARAM	Configures the Topology Restoration and Power Monitoring features on the system.	186
RTRV-PARAM	Retrieves the settings for the Topology Restoration and Power Monitoring features on the system	190

SNMP Agent

The SNMP Agent feature may be configured to send SNMP traps directly to up to three SNMP target addresses (SNMP managers and/or SNMP trap forwarders). The SNMP target address table in the system may be configured via TL1 using the commands below.

Please refer to the *Glimmerglass SNMP User Manual* for a full description of the SNMP Agent feature and configuration requirements.

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The following SNMP Agent commands are described in the System Configuration chapter:

TL1 Command	Description	Page
SET-SNMP-COMMUNITY	Change or restore the SNMP community names in the snmpCommunityTable rows.	193
RTRV-SNMP-COMMUNITY	Retrieve the SNMP community names from the snmpCommunityTable rows.	195
DLT-SNMP-COMMUNITY	Delete SNMP community name(s) from the snmpCommunityTable rows.	197
SET-SNMP-SERVER	Inserts an SNMP target address in snmpTargetAddrTable.	199
RTRV-SNMP-SERVER	Retrieves the SNMP target addresses in snmpTargetAddrTable.	202
DLT-SNMP-SERVER	Deletes an SNMP target address from snmpTargetAddrTable.	204

Connection Configuration

The Connection Configuration commands access and configure the cross connections between the input and output ports on the system.

Basic Connection Configuration

The following Basic Connection Configuration commands create new connections, access existing connections, and delete connections on the system and are described in the Connection Configuration chapter:

TL1 Command	Description	Page
ENT-CRS-FIBER	Creates a cross connection between the specified input port(s) and the specified output port(s).	208
SET-CRS-NAME	Assigns or edits a connection name for an existing connection or a range of existing connections.	213
RTRV-CRS-FIBER	Retrieves the cross-connect details for each specified port.	216

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TL1 Command	Description	Page
DLT-CRS-FIBER	Disconnects each of the specified ports from its connected port.	220

Control Modes

The TL1 commands ENT-CRS-FIBER and ENT-CRS-CMAP have a CM parameter that sets the control mode of the command to either Normal Servo (**servo**), Simple Static (**simplestatic**), or Timed Static (**timedstatic**).

> **NOTE:** Simple Static and Timed Static are optional, licensed features and are not supported on unlicensed systems.

The three modes are described below:

- **servo** (DEFAULT): This is the typical and default control mode. Feedback control together with a dither signal is used to optimize the connection continuously.
- **simplestatic**: This mode disables feedback control. Eliminating control reduces the time-domain ripple imposed on the optical signal and allows low-light operation.
- **timedstatic**: This mode is similar to Simple Static, but is more restrictive. A Normal Servo connection must be established, and the static mode will be automatically exited after a factory-configured length of time. The Timed Static control mode may be requested only on an existing connection running in Normal Servo mode (the default). Only after that connection is fully established in Normal Servo mode can it be switched into Timed Static mode. This ensures that the connection is fully optimized before feedback control is disabled. After a software reboot or power cycle, connections in Timed Static mode will be restored in Normal Servo mode, not in Timed Static mode.

The control mode can be set using the CM parameter in the following commands:

TL1 Command	Description	Page
ENT-CRS-FIBER	Creates a cross connection between the specified input port(s) and the specified output port(s).	208
ENT-CRS-CMAP	Applies the specified connection map to the system.	238

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Connection Locking

Connections may be locked by users. Once locked, only the connection owner (the user who locked the connection) or a user with override privileges may break the connection.

Overriding another users connection lock requires the user to have Manage level port privileges for one of the ports and at least the Modify privilege level on the other port.

The Connection Lock attributes (lock status/owner) are persisted and are restored with connections after a power cycle (if connections are configured to be restored).

A connection can be locked in the following ways:

- At the time the connection is created, it can be locked by setting the CONNLOCK parameter of the ENT-CRS-FIBER command to “true” or “1”.
- After the connection is created, it can be locked by setting the CONNLOCK parameter of the SET-CRS-LOCK command to “true” or “1”. Locking or unlocking an existing connection only changes the owner and lock status, it does not affect the connection itself.

Once a connection is locked by a user, that user can later unlock it via the SET-CRS-LOCK command (page 224), allowing other users to delete the connection.

The lock status of a connection can be determined via the RTRV-CRS-FIBER command. If a connection is locked, RTRV-CRS-FIBER will return a “1” value in the CONNLOCK= field and a non-empty string in the CONNLOCKUSER= field containing the name of the user who has locked the connection.

The following Connection Locking commands are described in the Connection Configuration chapter:

TL1 Command	Description	Page
SET-CRS-LOCK	Locks or unlocks the connection on the specified port(s).	224
ENT-CRS-FIBER	Creates a cross connection between the specified input port(s) and the specified output port(s).	208
RTRV-CRS-FIBER	Retrieves the cross-connect details for each specified port.	216

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Connection Maps

A connection map is an ordered set of input-output port connections defined by a user via the SET-CFG-CMAP command. Connection maps provide a convenient method of creating connection topologies that can be applied to the system all at once, as opposed to connecting each input-output pair one by one, using the ENT-CRS-FIBER command many times.

Once a connection map is created, the user can apply the connection map to the system using the ENT-CRS-CMAP command. The system uses the connection map to enter and delete the cross-connects listed in the connection map.

The following Connection Maps commands are described in the Connection Configuration chapter:

TL1 Command	Description	Page
RTRV-CMAPINFO	Retrieves the general information about connection maps on the system.	228
SET-CFG-CMAP	Creates a connection map on the system.	230
RTRV-CFG-CMAP	Retrieves the specified connection map saved in the system software.	233
DLT-CFG-CMAP	Delete the specified connection map from the system.	236
ENT-CRS-CMAP	Applies the specified connection map to the system.	238

Synchronous and Asynchronous Commands

Several of the TL1 port connection commands have an OPMODE parameter that sets the operation mode of the command to either Synchronous (**sync**) or Asynchronous (**async**):

- **sync** (DEFAULT): Synchronous commands delay TL1 response confirmation until the hardware confirmation request is complete. The hardware setup is considered complete when the connection state reaches either the STEADY or FAULT state for connection requests, or the SINGLE state for disconnection requests.
- **async**. Asynchronous commands update the goal state of the system, and do not wait for the underlying hardware to change. The asynchronous commands are generally preferred by fast, low-latency software managers that connect and disconnect many connections in parallel. With asynchronous commands, the system sends a TL1 response message immediately, without waiting for the requested operation to complete.

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NOTES: If a connection command is issued in sync mode, then the system waits for an expected state before returning a TL1 response. If the expected state has not been reached, the TL1 server waits 150 milliseconds before rechecking the state. There is an upper limit on the number of times the state is rechecked (around 50 times in the current release). Therefore the maximum delay for a sync command is 7.5 seconds.

If connection commands are issued in sync mode when there are concurrent users, then the system may behave unexpectedly. For example, if a user issues a sync command to connect port 10001 to 20002, and another user simultaneously issues a conflicting command to connect port 10001 to 20005, depending on the order in which the system processes the conflicting commands, the second command may overwrite the first one. In this case, the first user's sync command will not reach its expected state of port 10001 connected to port 20002, so it will block for the maximum delay.

Port Configuration

The Port Configuration commands are used to view and configure the attributes governing port operation in the system. The following sub-sections describe the different types of Port Configuration commands:

- “Port Parameters and Attributes” (below)
- ”Retrieving Port Configuration” on page 56
- ”Port Group Commands” on page 56
- ”Port Signal Threshold Commands” on page 57
- ”Port Name and Port Comment Commands” on page 58
- ”Port Lists” on page 59
- ”Port Power Configuration” on page 64

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Port Parameters and Attributes

This section describes the parameters and attributes which may be configured or viewed using the port commands described in the following sections. Parameters are simply attributes which may be modified by the user. Port attributes fall into three categories: static, configurable, and dynamic.

- Static Attributes (see section below)
- Dynamic (Runtime) Attributes (see page 55)
- Configurable Attributes (see page 55)

Static Attributes

Static attributes are set at the factory and specify items such as port number, direction, and license status. The port licensing may be changed via upgrade. All other attributes can only be changed at the factory.

Static port attributes are described in the table below.

Table 14 Static Port Attributes

Port Attribute	Description
PORTID	Port Identifier - each port is assigned a unique number • Valid input port number range = 10001 to 19999 • Valid output port number range = 20001 to 29999 By convention, PORTIDs are assigned starting at the first valid number in the range (e.g., 10001) consecutively. Therefore, a 192x192 port system will have input ports from 10001 through 10192 and output ports from 20001 through 20192. When reference ports are used (e.g,. Photonic Multicast or Switched VOA), the PORTIDs are assigned starting after the end of the normal port range. This convention is used to ensure the normal ports (ports fibered to the patch panel) appear consecutively and the PORTIDs match the patch panel label-ing. Unlicensed ports equate to “upgradeable” ports. These are ports which were requested to be equipped at the time of purchase for activation (licensing) via software upgrade at some future date.
PORTCAT	Port Category - indicates the usage of the port • nor = normal port, can connect external fiber directly to this port • ref = reference port, used for internal connections

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Dynamic (Runtime) Attributes

Dynamic (runtime) attributes reflect the status from the optical power monitoring subsystem for the ports. These attributes are used to present optical power (real time), port health, and the threshold state (comparison of current optical power with the configured threshold levels).

Dynamic port attributes are described in the table below.

Table 15 Dynamic Port Attributes

Port Attribute	Description
PORTPOWER	Port Power - the optical power (dBm) measured at this port. The optical power measurement at each port is continuously monitored. The current value can be retrieved and displayed. Refer to “Port Power Configuration” on page 64 for discussion of port power configuration. • Floating point value (-60.000 dBm if no power monitor present)
PORTHEALTH	Port Health - indicates the operational status of the port. • good = Operational • bad = Failed, not operational

Configurable Attributes

Configurable attributes (parameters) support customizing port operation. The configurable items described in the table below.

Table 16 Configurable Port Attributes

Port Attribute	Description
PORTNAME	Enter a unique name to identify the port other than by the static PORTID (port number) attribute
PORTCOMMENT	Enter a description allowing more information to be recorded for the port.
PORTGROUP	Ports may be assigned to different Port Groups to partition the system. See ”Port Group Commands” on page 56 for more information on Port Groups. (Only available on systems licensed for Port Grouping.)
SIGBAND	Enter the waveband (e.g., 1310 or 1550) of the signal connected at the input port.
SIGTHRESH	Assign a signal threshold to the port. The signal threshold contains the minimum and maximum optical power thresholds representing alarm conditions.

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Port Attribute	Description
STMINSEV	Configure the alarm severity to be used when reporting the optical power dropping below the signal threshold minimum criteria for the port.
STMAXSEV	Configure the alarm severity to be used when reporting the optical power rising above the signal threshold maximum criteria for the port.
CSFLTSEV	Configure the alarm severity to be used when reporting a connection failure at the output port (loss of optimization).
VOAMODE	Set the mode of operation for the VOA. Only available on systems purchased with VOA.
VOAVAL	Set the attenuation or loss value (depending on VOAMODE) for the VOA.

Retrieving Port Configuration

The following commands retrieve the configuration of the ports in the system:

TL1 Command	Description	Page
RTRV-CFG-FIBER	Retrieves the configuration for the specified port(s).	252
RTRV-NAME-FIBER	Retrieves the port name for the specified port(s).	252
RTRV-SIGBAND-FIBER	Retrieves the signal band for the specified port(s).	258
RTRV-SIGTHRESH-FIBER	Retrieves the name of the Signal Threshold used by the specified port(s).	290
RTRV-POWER-FIBER	Retrieves the port power for the specified port(s).	281
RTRV-VOA-CFG	Retrieves the VOA configuration for all ports with VOA elements in the system.	279
RTRV-VOA-FIBER	Retrieves the VOA configuration for the specified port(s).	277

Port Group Commands

When the Port Grouping license is enabled, port groups may be configured and ports may be assigned among these port groups. By default, all ports are initially assigned to the system default group named “OpenGroup.” If the license is disabled, all ports have a fixed assignment to OpenGroup.

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Grouping ports allows the administrator to explicitly allow or inhibit connections between ports. Connections between user configured groups are only permitted if the administrator allows connections between the groups. OpenGroup is an exception: connections are always permitted between user defined groups and OpenGroup. Note that all ports can be assigned out of OpenGroup to fully restrict connections among ports in the system.

A total of 48 groups are permitted (including OpenGroup). Each group may allow connections from 8 other user defined groups.

The following commands are used to configure port groups and to assign ports among the groups. These commands are described in the Port Configuration chapter:

TL1 Command	Description	Page
SET-CFG-PORTGROUP	Add a port group and configure/edit the list of other port groups allowed to connect to this group.	263
SET-CFG-FIBER	Assign ports to existing port groups.	247
RTRV-CFG-PORTGROUP	Retrieve the configuration for the specified port group(s).	266
DLT-CFG-PORTGROUP	Delete a port group. **NOTE**: All ports in the deleted group will revert to the port group “OpenGroup”.	269
RTRV-CFG-FIBER	Retrieve the mapping of ports to port groups.	252

Port Signal Threshold Commands

The following commands access and configure the signal thresholds associated with the input ports on the system and are described in the Port Configuration chapter:

TL1 Command	Description	Page
SET-SIGTHRESH-FIBER	Assigns the specified signal threshold to the specified input port(s).	287
RTRV-SIGTHRESH-FIBER	Retrieves the name of the signal threshold in use by the specified port(s).	290

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Port Name and Port Comment Commands

A port can be identified in a TL1 command by its port identifier (port number), or by its port name. The port name is an alphanumeric string with no more than 32 characters that is assigned to the port by the user. Port names are case sensitive and must be unique— no two ports can have the same name, and the port name cannot be the port number. The values “all”, “input”, and “output” may not be used as port names. Case variations of these words, such as “inPut”, “OUTput”, or “ALL”, may not be used as port names.

A port can also be assigned a port comment. Port comments may be up to 32 characters in length and are not required to be unique. Unlike port names, port comments cannot be used in a TL1 command as a port identifier—a port identifier must be unique.

Default Port Names

Ports used with the Photonic Multicasting™, Dedicated VOA, and Shared VOA features have default port names shown in the table below. These names will display as the port names if the user does not assign a new name.

If the user defines a name for these ports, this port name will be displayed. The default port name is not deleted—it can still be used to form connections or retrieve port information. If the user defined port name is ever deleted, the default port name will again be displayed.

The following table shows the default names for system with a 1x2 PMU, a 1x4 PMU and 2 Dedicated and 2 Switched VOA ports. For more information on port names, please refer to the *Glimmerglass ClickFlow GUI Manual*. For more information on the Photonic Multicasting, Dedicated VOA, and Switched VOA features, please refer to the *Glimmerglass System Installation and Maintenance Guide*.

Table 17 Default Port Names

Port	Default Port Name	ClickFlow Port ID
First PMU (1x2), Input	MC-1	A
First PMU (1x2), Output 1	MC-1-1	A1
First PMU (1x2), Output 2	MC-1-2	A2
Second PMU (1x4), Input	MC-2	B
Second PMU (1x4), Output 1	MC-2-1	B1
Second PMU (1x4), Output 2	MC-2-2	B2
Second PMU (1x4), Output 3	MC-2-3	B3
Second PMU (1x4), Output 4	MC-2-4	B4

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Port	Default Port Name	ClickFlow Port ID
First Dedicated VOA Port	VO-1	Port # is used
Second Dedicated VOA Port	VO-2	Port # is used
First Switched VOA Input Port	V-1-IN	V1
First Switched VOA Output Port	V-1-OUT	V1
Second Switched VOA Input Port	V-2-IN	V2
Second Switched VOA Output Port	V-2-OUT	V2

The user can narrow the target ports further by supplying port filters and port list offsets to a port list. See ”Port Filters” on page 61 and ”Port List Offset” on page 62 for further information on these parameters.

The following Port Configuration commands are described in the Port Configuration chapter:

TL1 Command	Description	Page
SET-NAME-FIBER	Assigns a port name to the specified port(s).	255
RTRV-NAME-FIBER	Retrieves the port name assigned to the specified port(s).	258
DLT-NAME-FIBER	Deletes the names associated with the specified port(s).	260
SET-CFG-FIBER	Use to assign or edit the port comment for a port or range of ports.	247
RTRV-CFG-FIBER	Retrieves the configuration for the specified port(s).	252

Port Lists

All commands related to configuring or viewing ports require entry of a port list in the AID field of the command. A port list is one or many port identifiers for the command to parse and operate on. The port list may consist of usable port numbers and/or assigned port names.

The RTRV-PLIST (retrieve port list) command is used to determine the list of usable port numbers:

- If the port list contains an illegal value (e.g., a value that is not a 5 digit number starting with “1” or “2”), the command will be denied.
- If the port list contains only non-usable (e.g., the physical port does not exist) port IDs, the command will be denied.

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- If the port list includes usable and non-usable port iDS, the non-usable numbers will be ignored and the usable numbers will be processed normally.

TL1 Command	Description	Page
RTRV-PLIST	Returns a fully enumerated list of port numbers available to the user.	245

There are three list types of port lists: PLIST, IPLIST, or OPLIST. These are all entered according to the guidelines described below. The difference is that some commands accept lists that include both input and output ports (PLIST) while other commands require a list of only input ports (IPLIST) or only output ports (OPLIST).

For all list types, a port list containing more than one port is constructed using the ampersand character (&) for enumerating and double ampersand (&&) for ranging. The examples below illustrate this usage using the PLIST type.

List with input ports 10001 and 10010 and output ports 20011 and 20010 enumerated using “&”:

```
<PLIST>= 10001&10010&20011&20020
```

List with input port range from 10001 - 10010 using “&&” to specify the port range:

```
<PLIST>= 10001&&10010
```

List with two port ranges from 10001 - 10010 and 20011 - 20020 where each range is defined with “&&” and the two ranges are enumerated with the “&”:

```
<PLIST>= 10001&&10010&20011&&20020
```

Port Names could be used for the above as well. TL1 translates the names to numbers to establish the range. Using the last example above, if the port name for port number 10010 is “InPort10” and the port name for port number 20011 is “OutPort11” then the PLIST could be entered as:

The following keywords are provided for use as the port list AID. These keywords are case insensitive. When a keyword is used, the system operates on all ports available to the user.

- **all** — Includes all input and output ports available to the user (i.e., the ports retrieved with the command RTRV-PLIST::ALL:1;).
  If ALL is used where the command AID is either IPLIST or OPLIST, then the response returns all inputs or outputs available to the user, respectively.
- **input** — all input ports available to the user (i.e., the ports retrieved with the command RTRV-PLIST::INPUT:1;)

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- **output** — all output ports available to the user (i.e., the ports retrieved with the command RTRV-PLIST::output:1;)

During command processing of the port list, a check is performed to ensure the user has the required port privilege to execute the command on the specific port:

- If the user only has view privilege for some or all ports, the command will be partially completed (PRTL) indicating the operation was not completed for all ports in the list. For each port which failed the privilege check, the command response will present a line indicating the port information and cause.
- If the user has the required privilege on all ports, the command will be fully completed (COMPLD). The command response will not enumerate the individual ports on which the command was operated.

Port Filters

Several of the port, connection, and signal configuration commands support the use of filters to narrow down the list of ports to be affected by the command. The possible filters are:

- PCAT - port category (e.g., type of port (normal or reference))
- PPRIV - port privilege (e.g., user privilege for port)
- PGROUP - port group membership

When used, these filters are applied to the ports included in the port list specified in the AID field of the command and only those ports in the port list which match the filter criteria are used in the final execution of the command. As an example, if the user wishes to see which ports belong to a Port Group named “GroupA”, the RTRV-PLIST command could be used as follows:

```
RTRV-PLIST::all:1:::PGROUP=GroupA;
```

The command response will only include ports that are assigned to GroupA.

NOTE: Before using the PCAT and PPRIV port filters in a configuration command, it is recommended that the user first tests the results of these filters by using the RTRV-PLIST command (page 245) and then verify that the port list returned is the desired list.

The PCAT port filter can be set to one of the following values:

- **all** (default): Apply the command to all ports, do not filter

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- **nor**: Apply the command to only normal ports. Normal ports are available for use as standard input/output ports, subject to proper licensing.
- **ref**: Apply the command to only reference ports. Reference ports are reserved for specialty purposes, such as multicast ports.

The PPRIV port filter can be set to one of the following values:

- **all** (default): Apply the command to all ports for which the user has the required port-level privilege
- **view**: This filter will return all ports for which the user has View, Modify, or Manage port privileges.
- **modify**: This filter will return all ports for which the user has Modify or Manage port privileges.
- **manage**: This filter will return all ports for which the user has Manage port privileges.

NOTE: The port privilege filter does not permit the user to defeat their port privilege setting. For retrieve commands (list commands), information returned for ports will be governed by the actual privilege. For enter, set, and delete commands, the requested action (e.g., establish connection) will be governed by the users port privilege - the user will not be able to connect ports where they do not have at least the port-level privilege of Modify.

The PGROUP port filter can be set to one of the following values:

- **all** (default): Apply the command to all ports, do not filter
- **<groupname>**: Apply the command to the ports in the specified port group

Port List Offset

Several of the port, connection, and signal configuration commands allow specification of a port list offset (POFFSET) parameter that allows the user to rotate the target port list by a specified number of positions in the specified direction. After any specified port filters are applied to the port list (see ”Port Filters” on page 61), the system applies the port offset value to the remaining set of ports and then uses the resulting set of ports in the execution of the port command.

NOTE: Before using the POFFSET parameter in a configuration command, it is recommended that the user first tests the results of the offset by entering the POFFSET value in the RTRV-PLIST command (page 245) to retrieve the resultant list of ports.

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The port offset parameter syntax is:

```
POFFSET=[(i|o)[(+|-)]]<offset>
```

The offset can be applied to either the input ports (**i**) or the output ports (**o**), and the list can be offset in either the positive (**+**) or negative (**-**) direction. The <offset> variable specifies the number of positions the list is to be rotated. The possible range for the <offset> variable is 0 – 65535 (0xFFFF).

- When the rotate direction is not specified or is set to '**+**', the target port list is reordered by moving the first <offset> number of ports to the end of the list.
- When the rotate direction is set to '**-**', the target port list is reordered by moving the last <offset> number of ports to the beginning of the list.
- When applied to a command requiring two port-list AIDs and the port direction ('i' or 'o') is not specified, 'o' is used.
- When applied to a command requiring a single port-list AID, the port direction ('i' or 'o') is ignored.

The following table shows a port list and how the original list is altered by various POFFSET values.

Table 18 Effect of POFFSET on a Port List

POFFSET Vales	Resultant Port List
[Original List]	• Inputs: 10001, 10002, 10003, 10004, 10005 • Outputs: 20010, 20011, 20034, 20001, 20080
POFFSET=i+1	Offsets the input-port list in the positive direction by one position: • Inputs: 10002, 10003, 10004, 10005, 10001 • Outputs: 20010, 20011, 20034, 20001, 20080
POFFSET=i-3	Offsets the input-port list in the negative direction by three positions: • Inputs: 10003, 10004, 10005, 10001, 10002 • Outputs: 20010, 20011, 20034, 20001, 20080
POFFSET=4	Offsets the output-port list in the positive direction by four positions: • Inputs: 10001, 10002, 10003, 10004, 10005 • Outputs: 20080, 20010, 20011, 20034, 20001

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Port Power Configuration

The following port power commands are described in the Port Configuration chapter:

TL1 Command	Description	Page
RTRV-POWER-FIBER	Retrieves the port power for the specified input port(s).	279

NOTE: To minimize switching time for systems without input detection, a user should configure expected minimum and maximum power values.

This range may be increased for some applications. Contact Glimmerglass Support to determine if an increased range is appropriate.

Signal Band Assignment

The signal band is used to specify the transmission waveband of the signal on the fiber connected to an input port. In the switch, the power monitors are calibrated using 1310nm and 1550nm sources. In addition, connection optimization references the signal band. Assign the correct signal band to achieve the best switch times and output power stability as well as for the most accurate optical power readings.

Two signal band options, 1310 and 1550, are provided to assign to the input ports. When a connection is made, the input signal band is automatically applied to the connected-to output port. The table below shows the correct signal band to assign to the input port based upon the wavelength transmission band on the fiber connected to the port.

Table 19 Signal Band Assignments for each Wavelength Transmission Bands

Transmission Band	Description	Wavelength Range	Signal Band To Assign
O-band	Original Band	1270nm - 1360nm	1310
E-band	Extended Band	1360nm - 1460nm	1310
S-band	Short Band	1460nm - 1530nm	1550
C-band	Conventional Band	1530nm - 1565nm	1550
L-band	Long Band	1565nm - 1625nm	1550

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The following commands may be used for signal band assignment/viewing. These commands are described in the Port Configuration chapter:

TL1 Command	Description	Page
SET-SIGBAND-FIBER	Assign a signal band to the specified input port(s).	281
RTRV-SIGBAND-FIBER	Retrieve the signal band assigned to the specified input port(s).	284
SET-CFG-FIBER	Configures the specified port(s).	247
RTRV-CFG-FIBER	Retrieves the configuration for the specified port(s).	252

Signal Threshold Configuration

The optical power at ports in the system is continuously monitored to ensure proper operation and to support the following:

- Presentation of real time power values
- Providing visual indications of port/connection status in the ClickFlow GUI.
- Providing the user with the capability to establish power threshold for reporting alarms when the incoming power changes (power observed at an input port and a connected output port).

The latter two items are derived from Signal Threshold settings. There are four signal thresholds in the system: Sysmin, Sysmax, STMIN, and STMAX.

A signal threshold is a combination of a power value and a hysteresis value.

Alarms are raised (or cleared, depending on the threshold definition) when the power observed falls below the “<power value> - <hysteresis value>” or rises above the “<power value> + <hysteresis value>”.

Sysmin and Sysmax are factory set. Sysmin is set at -40 dBm with a hysteresis of ±0.5 dB. This represents the low end of the range for accurate power monitor reporting (15 dB below the supported power range for standard systems). Sysmax is set at 20 dBm with a hysteresis of ±0.5 dB. This represents the maximum end of the power range for standard systems (-25 dBm to 20 dBm).

STMIN and STMAX are configured by the user and are stored in Signal Threshold records. These records are assigned a name by the user. The signal threshold may then be assigned to ports by the user by assigning the signal threshold name to the port.

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STMIN (signal threshold minimum) is used for reporting/clearing alarms when the power falls below (alarm) the threshold or rises above the threshold (clear).

STMIN, therefore, is used to detect conditions where the power is drops too low to be useful for the connected receiver. The default power level and hysteresis are -20 dBm and 1.0 dB respectively (alarm @ -21 dBm, clear @ -19 dBm).

STMAX (signal threshold maximum) is used for reporting/clearing alarms when the power rises above (alarm) the threshold or falls below the threshold (clear).

STMAX, therefore, is used to detect conditions where the power increases to a point where damage to the connected receiver may occur (saturation). The default power level and hysteresis are 5 dBm and 1.0 dB respectively (alarm @ 6 dBm, clear at 4 dBm).

The table below shows the commands to configure signal thresholds. These commands are described in the Signal Threshold Configuration chapter.

TL1 Command	Description	Page
SET-CFG-SIGTHRESH	Creates a new signal threshold or modifies an existing signal threshold.	294
RTRV-CFG-SIGTHRESH	Retrieves the configuration of the specified signal threshold(s).	297
DLT-CFG-SIGTHRESH	Deletes the configuration of the specified signal threshold(s).	299

The table below shows the commands to assign a signal threshold to ports as well as to view the signal thresholds assigned to ports. These commands are described in the Port Configuration chapter.

TL1 Command	Description	Page
SET-SIGTHRESH-FIBER	Assign a signal threshold to the specified port(s)	287
RTRV-SIGTHRESH-FIBER	Retrieve the name of the signal threshold assigned to the specified port(s).	290
SET-CFG-FIBER	Configures the specified port(s).	247
RTRV-CFG-FIBER	Retrieves the configuration for the specified port(s).	252

Optical Alarm Severity Assignment

Glimmerglass allows the user to specify the severity used when reporting alarms for the following optical alarms.

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- STMIN (Signal Threshold Minimum)
- STMAX (Signal Threshold Minimum)
- CSFLT (Connection State Fault - loss of optimization)

The first two alarms are signal threshold alarms for optical power changes described in the previous section. The CSFLT alarm condition occurs when the optical power at the output port of a connection is insufficient to allow the switch to optimize the output power (therefore, insertion loss). Typically, this occurs when the input power (therefore output power) are already well below the end of the operating range for standard systems (-25 dBm). The connection optimization software with continue to operate to hold the connection even as the power drops. Therefore, use the STMIN threshold on the output port as the primary indication of a potential circuit problem. The CSFLT alarm will present if the power continues to drop (e.g., Loss of Light).

The table below shows the port configuration commands used to configure alarm severities. These commands are described in the Port Configuration chapter.

TL1 Command	Description	Page
SET-CFG-FIBER	Configures the specified port(s). Alarm severity (STMINSEV, STMAXSEV, and CSFLTSEV) assignment is supported as one of these attributes.	247
RTRV-CFG-FIBER	Retrieves the configuration for the specified port(s). The assigned alarm severities are included in these attributes.	252

The table below shows the port configuration commands used to configure alarm severities. These commands are described in the Alarms, Logs, and Notifications chapter.

TL1 Command	Description	Page
SET-CFG-ALARM	Customize an alarm severity for a port	313
RTRV-CFG-ALARM	Retrieve list of customized alarm severities.	316

Variable Optical Attenuation (VOA)

A Variable Optical Attenuation device (VOA) is a factory-installed hardware option. Each VOA device contains eight individually controllable VOA elements that allow variable attenuation of the optical power level of a signal connected through the element. Each system can support as many as four VOA devices (32 VOA elements).

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The following Variable Optical Attenuation (VOA) commands are described in the Port Configuration chapter:

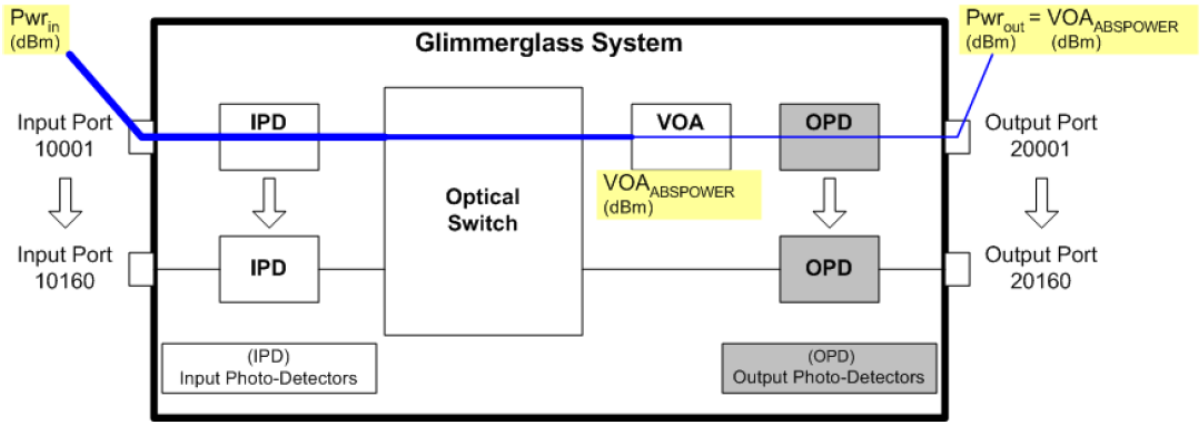
TL1 Command	Description	Page
SET-VOA-FIBER	Configures the Variable Optical Attenuation (VOA) settings for the specified port(s).	271
RTRV-VOA-FIBER	Retrieves the VOA settings for the specified port(s).	274
RTRV-VOA-CFG	Retrieves the VOA settings for all ports configured with VOA hardware in the system (both Dedicated VOA and Switched VOA).	277

There are two possible hardware implementation options for VOA, Dedicated VOA and Switched VOA, which are described in the following two sections of this chapter. Both implementations may be ordered on the same system, but the two different implementations cannot share a single eight-port VOA device.

Dedicated VOA

With Dedicated VOA, the eight elements of the VOA device are placed in-line on standard output ports that are specified by the user when the system is ordered. This means that in order to control the input power level for receivers and test equipment, the equipment must be connected to the output ports that house VOA elements. Figure 2 shows a functional representation of the implementation of Dedicated VOA in the system switch fabric.

Figure 2 Dedicated VOA Implementation



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As can be seen in Figure 2, the output power of the signal corresponds to user-specified output power level configured for the VOA element. Because of this, Dedicated VOA supports only the Set Power mode of operation (see “Modes of Operation for VOA” on page 70). Once the power level is specified by the user, the VOA element will automatically attenuate the switched signal to maintain the proscribed dBm level at the output port.

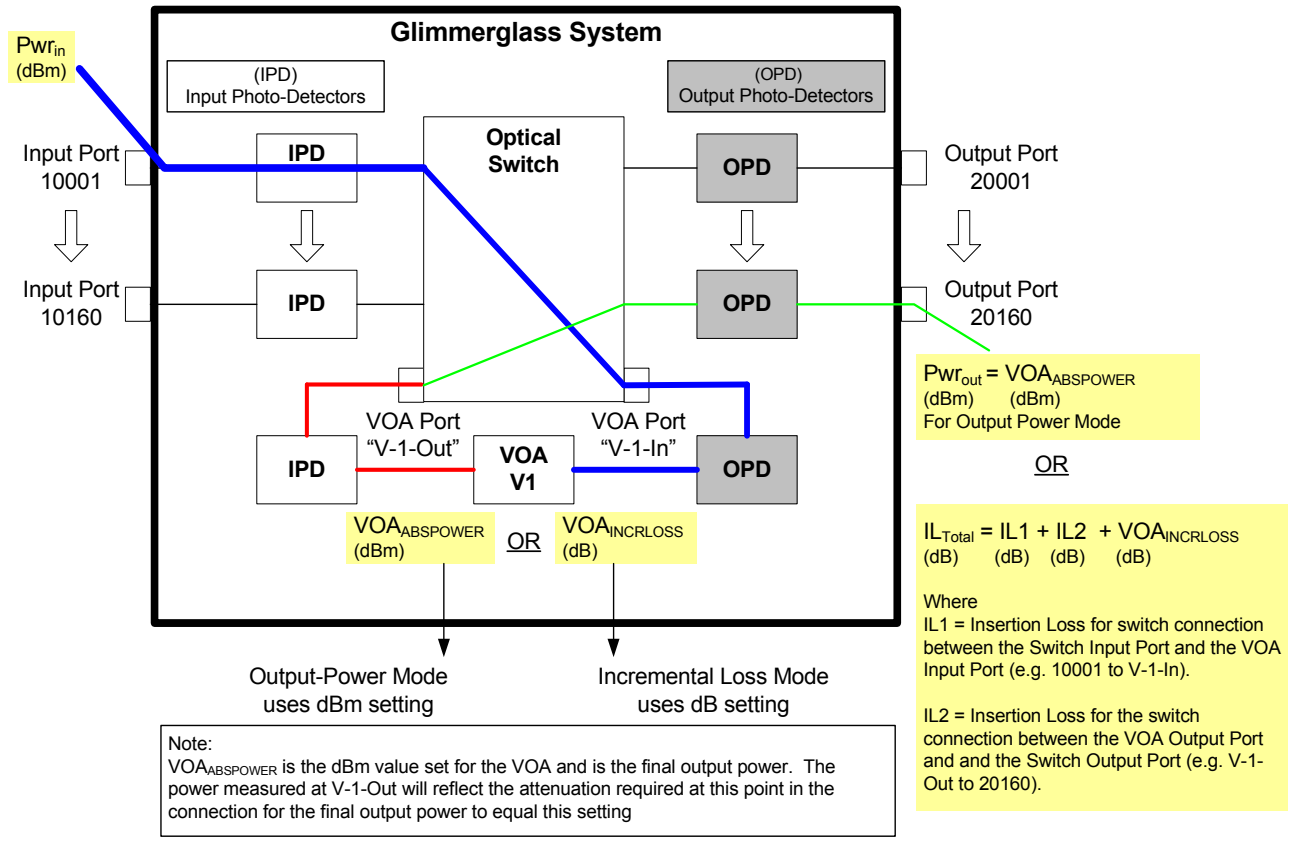
Switched VOA

With Switched VOA, the elements of the VOA are connected internally between the input and output ports on the optical switch, so that they can be used for connections between any input port and any output port.

> **NOTE:** The Switched VOA implementation is available only on systems that have the Input Detection feature.

Figure 3 shows a functional representation of the implementation of Switched VOA in the system switch fabric.

Figure 3 Switched VOA Implementation



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As can be seen in Figure 3, Switched VOA elements are not dedicated to output ports. The VOA elements are a shared resource and any user input port can connect to any user output port through the Switch VOA element. The input of the VOA element is connected to the output side of the switch. Similarly, the output of the VOA element is connected to the input side of the switch.

For example, Figure 3 shows a connection between Input Port 1 (“10001”) and output port 160 (“20160”) through the VOA. Notice that this end-to-end connection is formed by making two separate connections. The first leg of the connection is from input user port 1 to the input side of the VOA, “V1 In”. The second leg of the connection is from the output side of the VOA, “V1 Out”, to user output port 160. The signal passes from the output side of the optical switch through the VOA and back to the input side of the optical switch.

Switched VOA supports both the Set Power mode of operation and the Attenuate Power mode of operation (see the next section, “Modes of Operation for VOA”).

Modes of Operation for VOA

VOA element settings are controlled by a user either through the ClickFlow GUI (see the Glimmerglass *ClickFlow™ Graphical User Interface Manual*), or through the TL1 interface using the SET-VOA-FIBER command (see page 271). The Glimmerglass system can attenuate optical power in two modes:

- Set Power mode (VOAMODE=ABSPOWER)—Sets the output power for the signal to a fixed optical power level value (in dBm). This output power level will be maintained by the system as long as the input signal optical power level is higher than the specified output power signal level by the inherent insertion loss of the connection (e.g., PWR_{in} - $IL_{connection}$ > PWR_{out}). The Set Power mode is supported by both Dedicated VOA and Switched VOA implementations.
- Attenuate Power mode (VOAMODE=INCRLOSS)—Sets the loss value (in dB) through the element. The user-configured loss value setting will be applied to any connection made through this element. The overall loss of connection using the VOA element will be the sum of the inherent connection loss and the VOA loss value. The Attenuate Power mode is supported only on systems with the Switched VOA hardware implementation.

See ”Guidelines and Usage Considerations for VOA” on page 71 for information on implementing VOA on the Glimmerglass system.

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Performance Specifications for VOA

Table 20 shows the typical and maximum VOA insertion loss values for Glimmerglass systems for each type of VOA when the VOA element is set to its minimum attenuation value (OFF).

NOTE: The insertion loss values in Table 20 apply for LC/UPC connectors at 25°C for systems with the Input Detection feature.

Table 20 Insertion Loss at Minimum Attenuation VOA Setting

VOA Type	Typical (dB)	Max (dB)
Standard (no VOA)	2.2	3.7
Dedicated VOA	2.6	4.5
Switched VOA	4.8	8.2

Table 21 contains the operational parameters specific to each VOA element.

Table 21 VOA Operational Parameters

Parameter	Value	Description
Response Time	10ms	Time required for VOA configuration settings to take effect.
Resolution	0.1	Granularity for VOA dBm (Output-Power) or dB (Incremental Loss) settings.
Output Power Value	>= -39 dBm	Minimum VOA power setting. Note that loss settings indicate the minimum output power value in dBm.

Guidelines and Usage Considerations for VOA

When configuring VOA on the system, note the following configuration guidelines and VOA behaviors:

- The lowest output attenuation setting will be in the range specified for the corresponding system in Table 20. The actual value is ascertained by measuring the connection with the VOA set to OFF.
- The VOA element cannot have negative loss. If the requested output power is greater than the reported output power dBm reading, the VOA element will be set to its minimum attenuation (OFF) setting.

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- If the reported output power drops below the set value (resulting in a negative loss condition), the VOA element will revert to its OFF setting.
- The VOA element setting is a property of the VOA output port, not the connection. A previously configured power setting is preserved when different input ports are connected to the VOA output port.
- The VOA responds to dynamic changes of the input power within 10ms to maintain the prescribed output-level dBm value (for Set Power mode) or the configured dB value (for Attenuate Power mode).
- The user-configured VOA settings will be saved automatically to the permanent configuration file if the Autosave feature is enabled. The Autosave feature is accessed only from the ClickFlow GUI (see the *ClickFlow™ Graphical User Interface Manual* for details).
- VOA behavior after a power cycle:
    - If the VOA configuration settings for a VOA connection are not saved to the permanent configuration file, the configuration settings will be lost after a power cycle. If Connection Restoration is set to “Restore” in the ED-PARAM command (page 186), VOA connections restored after the power-cycle will NOT be attenuated.
    - If the VOA configuration settings for a VOA connection have been saved to the permanent configuration file, the connection will be automatically restored after a power cycle.

In additional to the above considerations, the following sections describe the special guidelines and usage considerations for the different VOA hardware configurations (Dedicated VOA and Switched VOA), and the special considerations for the Attenuate Power mode of operation:

- “Guidelines and Usage Considerations for Dedicated VOA” (next section)
- ”Guidelines and Usage Considerations for Switched VOA” on page 73
- ”Guidelines for Attenuate Power Mode” on page 73

Guidelines and Usage Considerations for Dedicated VOA

For the Dedicated VOA implementation, note the following:

- When establishing a connection to a VOA output port, the VOA element is set to minimum attenuation until the connection reaches the "Steady" state and then the attenuation configured for the VOA element is applied. This means that receivers connected to the output port may receive the connected signal without attenuation for a period up to 10ms.

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- If the VOA configuration settings for a VOA connection have been saved to the permanent configuration file, the connection will be automatically restored after a power cycle. However, the VOA connection will not be attenuated until the newly reestablished connection reaches the "Steady" state. The connected signal may not be attenuated for a period of up to 10ms.

Guidelines and Usage Considerations for Switched VOA

For the Switched VOA implementation, note the following:

- During connection set-up, the VOA will NOT be set to the minimum attenuation setting as is done with Dedicated VOA. The connection will be made with the VOA set.
- The maximum attenuation setting resulting in a Steady connection is governed by the Optical Power Minimum setting of the Signal Type used for the user input port. The user input port Signal Type will be applied to both legs of the Switched VOA connection.
- The VOA setting is a property of the VOA, not the connection. The previously configured VOA setting is preserved when different input ports are connected through the VOA element to an output port.

Guidelines for Attenuate Power Mode

In addition to the considerations for Switched VOA (see the previous section), note the following before using the Attenuate Power mode of operation:

- The maximum incremental insertion loss setting resulting in a "Steady" connection is constrained by the Optical Power Minimum value configured for the Named Signal Type set on the user input port. The resulting output power level must be greater than or equal to the Optical Power Minimum setting.

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Protection

Protection is an optional, licensed feature that allows the user to assign Working and Protect relationships between input ports on the system. This enables automatic failover protection switching at the physical layer.

If Protection is enabled on the system, a protection rule can be established between any two input ports. One of the ports is designated the “Working” input and the other is designated the “Protect” input. Traffic is routed through the Working port unless the protection rule is invoked (triggered). Once triggered, the following will occur:

- For Simplex protection, a new connection is made between the Protect port and the same output port previously connected to the Working port.
- For Duplex protection, a new Duplex Connection is made between the Protect port and its associated output port and the input/output port pair previously connected to the Working port (and its associated output port).

NOTE: A **Duplex Connection** defines a specific connection involving 4 ports, two input ports and two output ports. By definition, the input of one port is connected to the output of the second port and vice versa.

A **Duplex Protection Rule**, by definition, is between two input ports with the purpose of protecting one side of a Duplex Connection. A Duplex Connection, therefore, can be protected on one side only or on both sides.

See ”Protection Types: Simplex vs. Duplex” on page 75 for more information on Duplex and Simplex protection types.

The protection rule has additional configuration parameters for controlling how and when a protection switch occurs. The rule is divided into a Working configuration and a Protect configuration. The Working configuration controls how and when a protection switch from the Working input to the Protect input can occur. The Protect configuration provides the same functionality in reverse. Normally, the Working and Protect configurations are the same. This type of rule is called a symmetric rule. For systems without input detection, however, asymmetric configurations may be required, depending on the desired recovery behavior.

Protection rules are triggered based upon a qualification time for loss of valid light. Loss of valid light is determined by the Signal Threshold for the output port (STMIN). The qualification time is determined by the Trigger time configured for the rule. Finally, in order to trigger, a protection rule must first be “Armed”.

The following Protection commands are described in the Protection chapter:

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TL1 Command	Description	Page
SET-CFG-PROTECTION	Adds a protection rule to the system.	302
RTRV-CFG-PROTECTION	Retrieves the configuration for all protection rules loaded into the system.	306
DLT-CFG-PROTECTION	Deletes a protection rule from the system.	309

NOTE: There is no command for modifying an existing protection rule. The rule must be deleted first and then added with the new configuration.

Protection Types: Simplex vs. Duplex

A Simplex protection rule establishes an association between two input ports and a single output port. If a protection rule is triggered on the Working input port, then the system will switch to the Protect input port, still using the same output port. So the protection association has a single output port, regardless of whether the Protect or Working input port is in use.

A Duplex protection rule establishes and provides a second input/output port pair to protect one side of a duplex connection. Using letters instead of numbers, a duplex connection requires Input Port A to be connected to Output Port B and Input Port B to be connected to Output Port A. With Duplex protection, a third Input and Output port pair is used. Again, using letters, Input Port C can be placed in a Duplex protection rule with Input Port A. Since a duplex connection requires and input and an output port, Output Port C is also reserved by the rule. This would result in Input Port A being considered the “Working” input and Input Port C being considered the “Protect” input. If this Duplex protection rule is triggered, the resulting NEW duplex connection would be between Input Port C and Output Port B as well as Input Port B and Output Port C.

Note that in the above example, the other Input Port of the original duplex connection (Input Port B) was not protected. This is an instance of one side of a duplex connection being protected. This configuration requires six total ports (four for the original duplex connection and two additional ports for the Duplex protection rule).

To protect both sides (both the original duplex connection inputs) of a duplex connection, a second Duplex protection rule would be required. Using the above example, Input Port B would become a “Working” input and an Input Port D would be assigned as the “Protect” port. This requires a total of eight ports (four for the original duplex connection and four additional for the two Duplex protection rules).

The protection type of a protection rule indicates whether the protection rule is Simplex or Duplex. The table below describes these two types of protection.

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Table 22 Behavior of Simplex and Duplex Protection

Type	Description
SIMPLEX	Protects Half-Duplex (i.e., Simplex) connections by allowing a Working connection through the system to automatically switch to the Protect connection (and vice versa) in the presence of a triggering event (qualified loss of light).
DUPLEX	Protects one side of a Duplex Connection by allowing a Working Duplex connection through the system to automatically switch to a Protect Duplex connection (and vice versa) in the presence of a triggering event (qualified loss of light).

Protection Rule State

The state of a protection rule indicates the current status of the protected connection. There are five possible states for each pair of protected inputs.

Table 23 Protection Rule States

State	Description
INACTIVE	Neither input of the port pair is connected to an output, or no protection rule is provisioned.
ACTIVATING	A connection exists from one of the rule's inputs to an output port, and the arming condition has not been satisfied yet. The rule is monitoring for the arming condition and will transition to the WORKING or PROTECT (active) state when met.
WORKING or PROTECT (active)	A connection exists from one of the rule's inputs to an output port, and the arming condition has been satisfied. The rule is monitoring for the trigger condition, and causes a protection switch when met.
FAILED	A connection exists from one of the rule's inputs to an output port, but neither input has a valid signal. **NOTE:** The failed state will only occur when neither the working nor the protect input ports has valid signal power. When equipped with input detection from the Input Detection feature, the system will check for valid input power prior to executing a protection switch. If there is not valid input power, then the system reports a FAILED condition and does not execute the switch.

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Arming Modes

The arming mode indicates whether the protection rule mode is set to **THRESHOLD** or to **TIMED**. These modes are described in the following table:

Table 24 Arming Modes

Condition	Description
THRESHOLD	Threshold-based arming ensures the validity of a connection before arming a protection rule. The Threshold Arming Mode requires that: • The active connection has successfully reached the STEADY connection state. • The input power also must be greater than the signal threshold minimum expected power. **NOTE**: Only use the Threshold Arming Mode on systems equipped with Input Detection. For systems without Input Detection, use the Timed Arming Mode.
TIMED	Time-based arming indicates that the connection will be armed a certain period of time (specified in milliseconds) after the connection is first established. This condition requires that: • The active connection has successfully reached the STEADY connection state. • The specified arming delay time elapses from when the connection was first established. • If the system is equipped with Input Detection, the input power also must be greater than the signal threshold minimum expected power. **NOTE**: This is the recommended arming condition for systems that are NOT configured with Input Detection.

Newly established connections are not armed. A connection must be armed before it can be triggered.

Triggering Conditions

Once an active connection has been armed successfully, an automatic protection switch event is triggered, as long as both of the following trigger conditions are met:

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Condition 1: Signal Threshold Expected Power Minimum & Hysteresis Gap Threshold

To satisfy this trigger condition, the optical power of the connection output must fall below the threshold determined by the signal threshold minimum expected power and hysteresis gap values configured for the ports involved in the Active connection.

Example:
If the Active input is configured with the default Signal Threshold values (i.e., Expected Power Min = -20dBm, Hysteresis Gap = +/- 1dB), then the relevant trigger threshold is -21dBm (-20 - 1).

Condition 2: Trigger Delay

This condition delays the triggering of a protection switch event for a specified period of time (specified in milliseconds) after Condition 1 has been met. To satisfy Condition 2, the connection output power must be below the Condition 1 threshold at the end of the specified delay period.

NOTE:	If the output power rises above the threshold determined by the expected power minimum value and the hysteresis gap value, then the trigger is reset and no protection switch takes place.

Example:
If the active input port is configured with the default Signal Threshold values (Expected Power Min = -20dBm, Hysteresis Gap = +/- 1dB) and the Trigger Delay is set to 200ms, then a protection switch will be triggered if the connection output power drops below -21dBm (-20 - 1) and is still below -19dBm (-20 + 1) 200 ms later. If the output power rises above -19dBm (-20 + 1) during the delay period, then the trigger is reset.

Since triggering always operates in Threshold mode, the **Trigger** field of the Protection Rules screen only displays the current **Trigger Delay** value configured for each input port.

Threshold-Based Arming and Triggering Guidelines

Use the following guidelines to configure threshold-based arming and triggering:

- Include the signal threshold hysteresis gap in the trigger threshold calculation.
- Since the trigger threshold is measured at the Active connection output, be sure to account for the insertion loss of the connection when determining threshold values.
- Only consider threshold-based arming for systems equipped with input detection via the Input Detection feature. Systems without input detection should use the TIMED arming condition.

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NOTE: Using threshold-based arming without input detection can result in unexpected behavior. Consider a condition that triggers a switch to a protect connection that does not have valid input power. This prevents the threshold-based rule from arming. Even when valid power returns to the working input, the protection rule will not trigger a return to the working connection, because it is not armed.

Protection Rule Default Configuration Settings

All protection rules are configured initially with the following default settings:

Table 25 Protection Rule Default Settings

Protection Rule	Default Setting
TRIGGER Delay	50 ms
ARM Mode	THRESHOLD
SYMMETRIC	YES (same settings apply to both input ports)
Protection Type	SIMPLEX

Alarms, Logs, and Notifications

This section provides an overview of the alarm conditions reported by the system and the TL1 commands used for configuring alarm severities, acknowledging alarms, and viewing log files.

Alarm Conditions and Severities

The table below shows the alarms that are supported by the Glimmerglass switch:

- Alarm Condition indicates the condition which causes the alarm to be detected.
- Alarm Type indicates the code used to designate the alarm condition.
- Alarm Object indicates the resource for which the alarm is detected.
- Alarm Severity indicates the severity assigned to the alarm for logging/reporting: Critical, Major, Minor, Notice, and Disable.

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- The severity of “Notice” means the alarm will be logged but no external notification for the alarm will be sent.
- The severity of “Disable” means that the alarm condition will be ignored - no alarm will be logged and no notification will be issued.

Table 26 Supported Alarms for Glimmerglass Systems

Alarm Condition	Alarm Type	Alarmed Object	Alarm Severity
Hardware Alarms			
No DC Input Power	48VFLT	A-FEED | B-FEED	Major (MJ)
No DC Fuse	FUSEFLT	A-FEED | B-FEED	Major (MJ)
Single Fan Failure	FANFLT	<Fan Name>	Minor (MI)
Multiple Fan Failure	FANFLT	MULTIPLE-FANS	Major (MJ)
Engine Temperature	TEMPHI	ENGINE	Critical (CR)
MPS – Vbb too low	VBBLO	MPS	Critical (CR)
MPS – Vbb too high	VBBHI	MPS	Critical (CR)
MPS – Vfb too low	VFBLO	MPS	Critical (CR)
MPS – Vfb too high	VFBHI	MPS	Critical (CR)
Software Alarms			
Intrusion Detected	INTRUSION	USER | CHANNEL	Minor (MI)
NTP Sync. Loss	NTPFLT	CLOCK	Critical (CR)
Optical Alarms			
Min. Power Threshold	STMIN	<Port #>	<User Defined>
Max. Power Threshold	STMAX	<Port #>	<User Defined>
Connection Fault	CSFLT	<Output Port#>	<User Defined>
Reverse Light	LGTRVRS	<Output Port#>	Critical (CR)
Max. System Power	PWRFLT	<Port #>	Major (MJ)

Note that the alarm severity is configurable by the user for the first three optical alarms (STMIN, STMAX, and CSFLT). This may be done on a per-port basis. Therefore, an STMIN may be considered critical for one port and could be minor for another port.

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While the alarm condition is active, a record for the alarm will be present in the active alarm table. When the alarm condition is cleared, the alarm will be removed from the active alarm table. In general, alarms cannot be cleared without fixing the alarm condition. An exception is made for the user-configurable optical alarms. Setting the alarm severity to “Disable” will log a clear event for the alarm and remove the alarm from the active alarm table.

The alarm log may be used to view alarm history (1000 most recent events are stored on the system).

Alarm Severity Configuration

The tables below show the commands used to set the severities for the user-configurable optical alarms.

Below are the port configuration commands used to configure alarm severities. These commands are described in the Port Configuration chapter.

TL1 Command	Description	Page
SET-CFG-FIBER	Configures the specified port(s). Alarm severity (STMINSEV, STMAXSEV, and CSFLTSEV) assignment is supported as one of these attributes.	247
RTRV-CFG-FIBER	Retrieves the configuration for the specified port(s). The assigned alarm severities are included in these attributes.	252

Below are the alarm configuration commands used to configure alarm severities. These commands are described in the Alarms, Logs, and Notifications chapter. It is recommended to use the commands in the previous table (allowing changes to a range of ports is simpler).

TL1 Command	Description	Page
SET-CFG-ALARM	Assign a severity to the specified resource type, operation, and object.	313
RTRV-CFG-ALARM	Retrieve the alarm severity for specified resources, operations, or object.	316

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Viewing and Acknowledging Active Alarms

The table below shows the commands described in the Alarms, Logs, and Notifications chapter that are used to view the active alarm table and to acknowledge active alarms.

TL1 Command	Description	Page
RTRV-ACT-ALARM	Retrieves the Active Alarm table.	322
ACK-ACT-ALARM	Acknowledge alarm(s) in the Active Alarm table.	325

Acknowledging an alarm updates the alarm record in the active alarm table (user id, date-time) and causes the visual indicators to reset to reflect the severity of any remaining unacknowledged alarms. The alarm log is also updated with a record of the acknowledge event.

Log File Operations and Autonomous Message Operations

The table below shows the commands used to view and manage the system log files as well as to configure notification types and targets. These commands are described in the Alarms, Logs, and Notifications chapter.

NOTES:
- All configuration, alarm, and system-initiated events are captured and logged in the switch in a custom format called the GGNMSG. This format is described in Appendix B, “GGNMSG Structure and Contents”.
- Currently, CyberSweep™ Path Manager 2 is the only server software supporting receipt of GGNMSG notifications.
- Notifications to GGNMSG servers are sent via UDP. The GGNMSG payload may be encrypted when the GGNMSG server is a CyberSweep™ Path Manager server.

TL1 Command	Description	Page
RTRV-LOG	Retrieve the contents of the specified log (autonomous message format).	329
RTRV-GGNMSG-LOG	Retrieve the contents of the specified log (GGNMSG format).	332
SET-ATTR-LOG	Configure the log file attributes for the specified log.	336
RTRV-ATTR-LOG	Retrieve log file attributes for the specified log.	338
INIT-LOG	Initialize the specified log without changing the log file attributes	340

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TL1 Command	Description	Page
SET-SYSLOG-SERVER	Configure system to issue logging activity to a Syslog server.	342
RTRV-SYSLOG-SERVER	Retrieve the Syslog server configuration.	345
DLT-SYSLOG-SERVER	Delete a Syslog server from the configuration.	347
SET-GGNMSG-SERVER	Configure the system to issue notifications to a CyberSweep™ Path Manager server or server capable of receiving/processing GGNMSGs.	349
RTRV-GGNMSG-SERVER	Retrieve the GGNMSG server configuration.	351
DLT-GGNMSG-SERVER	Remove a GGNMSG target server from the system configuration.	353
ALW-MSG-ALL	Enable autonomous message notifications for alarms and system events on the current TL1 session.	355
INH-MSG-ALL	Inhibit autonomous message notifications for alarms and system events on the current TL1 session. (default setting for sessions)	357
ALW-MSG-ALM	Enable autonomous message notifications for alarms on the current TL1 session.	358
INH-MSG-ALM	Inhibit autonomous message notifications for alarms on the current TL1 session.	360
ALW-MSG-EVT	Enable autonomous message notifications for system events on the current TL1 session.	361
INH-MSG-EVT	Inhibit autonomous message notifications for system events on the current TL1 session.	363

System Maintenance

The System Maintenance commands support system shutdown/reboot/reset, system configuration backup and restore, and system software upgrade and rollback.

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System Shutdown, Reboot, and Reset

System shutdown and reboot, and resetting the system configuration to the factory defaults are described in the System Maintenance chapter:

TL1 Command	Description	Page
INIT-SYS	Shut down or reboot the system, or reset the system configuration.	366

System Configuration Backup and Restore

The system configuration may be backed up to an encrypted XML file and restored this file via the ClickFlow, SNMP, TL1, and Maintenance Console interfaces. HTTPS (ClickFlow), FTP (the COPY-RFILE command in TL1), and SCP/SFTP may be used to copy the system configuration file to/from a Linux server or a Windows PC.

The system configuration backup/restore commands are described in the System Maintenance chapter:

TL1 Command	Description	Page
APPLY-CFG	Applies (restore) the system configuration from a system configuration XML (backup) file.	369
COPY-CFG	Copies (backs up) the system configuration to a system configuration XML file.	371
DLT-CFG	Deletes the system configuration XML (backup) file.	373
RTRV-CFG	Retrieves summary information from the system configuration XML (backup) file.	375
COPY-RFILE	Copies a system file from/to an external FTP server.	388
RTRV-RFILE	Retrieves the status of the COPY-RFILE command.	393
CANC-RFILE	Cancels a system file FTP transfer (see COPY-RFILE).	395

System Software Upgrade and Rollback

The system contains two non-volatile Flash RAM partitions (0 and 1), both containing the system software (Linux OS and Intelligent Optical Switch application) and the system configuration data:

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- Boot Partition—Contains the current system software release; on a power-cycle or user-initiated reboot the system will boot from the Boot Partition.
- Rollback Partition—Contains the previous software release; if software rollback is initiated the roles of the two partitions are reversed and the system is booted from the former rollback partition.

On a software upgrade the rollback partition is upgraded to the new software, then the roles of the two partitions are reversed, and the system is booted from the former rollback partition.

The system software upgrade process consists of three phases:

Table 27 Phases of Software Upgrade Process

Upgrade Phase	Description
1: Upload	Upload the software upgrade file to the system's volatile /dnld directory. The upgrade file size is approximately 17MB. The duration of this upgrade phase is a function of the network speed and the latency between the server/PC containing the upgrade file and the system being upgraded.
2: Upgrade	Verify the upgrade file and then upgrade the non-volatile inactive/rollback partition with the new kernel and application files. System availability is unaffected by this upgrade phase; the system continues to operate under the current release. The duration of this upgrade phase is 3 - 7 minutes as a function of the system model.
3: Reboot	Reboot to activate the upgraded partition. If the upgraded partition is booted successfully, then the roles of the boot and rollback partitions are reversed, otherwise the original boot partition is rebooted. The system is unavailable during this reboot phase. The duration of this final upgrade phase is 2 - 3 minutes.

The three software upgrade phases are supported by each of the user interfaces (ClickFlow, TL1, SNMP, and Maintenance Console) as follows:

Table 28 Software Upgrade Phases for Each User Interface

Interface	Phase	Description
ClickFlow	Upload	Upgrade System Software window - Upgrade phase 1: Upload …
	Upgrade	Upgrade System Software window - Upgrade phase 2: Upgrade …
	Reboot	Upgrade System Software window - Upgrade phase 3: Reboot …
TL1	Upload	COPY-RFILE:::<ctag>:::SRC=<src>,DEST=<dest>;
	Upgrade	APPLY-UPGRADE:::<ctag>;
	Reboot	INIT-SYS:::<ctag>::SOFTREBOOT;

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Interface	Phase	Description
SNMP	Upload	Not supported; upload via SCP/SFTP, ClickFlow (HTTPS), TL1 (FTP), or Maintenance Console (FTP)
	Upgrade	sysProvisionTable.prCommand sysUpgrade
	Reboot	sysProvisionTable.prCommand sysReboot
Maintenance Console	Upload	Main Menu selection “Transfer File to System using FTP”
	Upgrade	Main Menu selection “Upgrade software”, optionally includes reboot
	Reboot	Main Menu selection “Reboot”
SCP/SFTP	Upload	Push upgrade file via SCP/SFTP from a Linux server or Windows PC

The three software upgrade phases do not have to be directly contiguous. For example, a Linux server with TL1 automation scripts could perform the non-disruptive upload and upgrade phases during the normal system high availability hours and then be scheduled to reboot all of the systems at midnight or during a scheduled maintenance period.

NOTE: Rebooting a system after a system software upgrade phase failure will simply reboot the current release.

In addition, the three software upgrade phases do not have to be performed by the same interface. For example, for the upload phase a Linux server script could push the upgrade files to each system via SCP/SFTP, and then complete the remaining phases by TL1 or SNMP.

The TL1 software upgrade/rollback commands are described in the System Maintenance chapter:

TL1 Command	Description	Page
APPLY-UPGRADE	System software upgrade - Upgrades the non-volatile inactive/rollback partition from the system software upgrade file in the system's /dnld directory	378
DLT-UPGRADE	Cancels a partially applied system software upgrade	380
RTRV-UPGRADE	Retrieves the system software upgrade status	382
APPLY-ROLLBACK	System software rollback - Rolls back the system software release to the prior release (the release in the rollback partition)	384
RTRV-ROLLBACK	Retrieves the system software rollback status	386
COPY-RFILE	Copies a system file from/to an external FTP server.	388
RTRV-RFILE	Retrieves the status of the COPY-RFILE command.	393
CANC-RFILE	Cancels a system file FTP transfer (see COPY-RFILE).	395

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Access and Security Management

3

This chapter describes the Access and Security Management commands listed in the table below. For a description of the Access and Security Management software features, see Access and Security Management on page 31.

TL1 Command	Description	Page
ACT-USER	Opens a TL1 session between the specified user and the system	89
RTRV-USER	Retrieves the user account parameters associated with the current user.	92
CANC-USER	Terminates the TL1 session of the current user.	95
RTRV-STATUS	Displays all active sessions in the switch (ClickFlow and TL1).	97
SET-DLFT-SECU	Configures the password complexity, password change, and user account policy parameters for the system.	99
RTRV-DFLT-SECU	Retrieve the parameter settings for the password complexity/change and user account policies.	103
ENT-USER-SECU	Creates a new user account on the system	107
ED-USER-SECU	Modifies the user account parameters associated with the specified user.	112
RTRV-USER-SECU	Retrieves user account parameters associated with the specified user(s).	118
CANC-USER-SECU	Terminates active sessions for the specified users (ClickFlow and TL1).	121
ALW-USER-SECU	Places one or more user accounts into an IS (In-Service) state.	123
INH-USER-SECU	Places one or more user accounts into an OOS (Out-Of-Service) state.	125
DLT-USER-SECU	Deletes the user accounts of the specified user(s).	127

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TL1 Command	Description	Page
ED-PID	Changes the password for the current user's account.	129
RTRV-CID	Retrieves the security parameters in use for the current session.	132
ED-CID-SECU	Modifies the security parameters (policy) for the switch.	134
RTRV-CID-SECU	Retrieves the security parameters (policy) for the switch.	137
CANC-CID-SECU	Terminate all user sessions on the specified channel.	140
ED-CMD-SECU	Modifies the access privilege associated with a specified command or commands.	141
RTRV-CMD-SECU	Retrieves the access privilege level required to execute the specified TL1 command(s).	143
SET-PRIV-FIBER	Sets the port privileges governing the specified users' access to ports for which this user has Manage level port privileges.	146
RTRV-PRIV-FIBER	Lists port-level privilege assignments for themselves and other users.	148
SET-PRIV-SYSTEM	Allows a user with the system-level privilege of Manage to set the system-level privilege levels for other users.	151
RTRV-PRIV-SYSTEM	Allows a user with the system-level privilege of Manage to retrieve the system-level privilege levels for other users.	153

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ACT-USER
Activate User

Description

This command is used to log into the TL1 user interface and open a TL1 session between the user and the TL1 server.

The command response includes the following:

- Date and time of last successful login
- A count of invalid login attempts since the last successful login
- A field indicating the password status (current or expired)
- If the password has expired, a field indicating the date/time (System Time = UTC) that the account will be placed out of service (OOS) if not changed

A REPT DBCHG SECU event will be logged for successful and invalid login attempts. No entry will be logged for the user if the user account is locked out due to intrusion detection.

See the section ”Access and Security Management” on page 31 for more information on user accounts.

Related Commands

RTRV-USER
CANC-USER
ED-PID

Reference

TR-NWT-835, Issue 3, January 1993

Input Format

```
ACT-USER:[<tid>]:<uid>:<ctag>::<pid>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<uid>	User ID (user account name). • Values: An existing user account name

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Parameter	Description
<pid>	Password ID - user account password. • Values: User account password

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^<aid>:<lastLoginDate>,<lastLoginTime>,<badlogins>,
<pageExpired>,[<pcndExpireDate>,<pcndExpireTime>]
[^^^/*optional_free_format_text*/] cr lf
;
```

Response Parameters

NOTE: Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
<aid>	Access Identifier. The user id for this command. • Values: <uid> from command entry
<lastLoginDate>	Date of last successful login in <yyyy-mm-dd> format.
<lastLoginTime>	Time of last successful login in <hh-mm-ss> format.
<badlogins>	Number of bad login attempts since last successful login for this user. • Values: Integer, count of failed login attempts
<pageExpired>	Password age status. • Values: NO (password not expired) YES (password expired)
<pcndExpireDate>, <pcndExpireTime>	These two fields represent the date-time at which the user's account will be placed OOS if the user has not changed the account password. These fields are only displayed when the pageExpired field value = YES. • Values: YYYY-MM-DD,HH-MM-SS Where the date time shown is UTC.

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Errors

No command errors. Failed login attempts result in a DENY response (e.g., invalid user ID, invalid password, account out of service, bad login threshold exceeded).

Examples

Successful login after 1 bad login attempt, password not expired.

```
<act-user::admin:1::********;

   BD0009 09-01-29 17:53:56
M  1 COMPLD
   "admin:2009-01-29,16-36-48,1,NO,"
   /* WARNING: AUTHORIZED USE ONLY. VIOLATIONS WILL BE
PROSECUTED! */
;
```

Successful login, no bad login attempts, password expired with 1 days left in the grace period determined by the password change interval.

```
<act-user::JFW:1::********;

   BD0009 09-02-01 18:35:20
M  1 COMPLD
   "JFW:2009-01-30,17-01-51,0,YES,2009-02-07,15-30-05"
   /* WARNING: AUTHORIZED USE ONLY. VIOLATIONS WILL BE
PROSECUTED! */
;
```

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RTRV-USER
Retrieve User Information (Logged-in Session)

Description

This command allows a user to view their user account configuration settings. This command may not be used to view settings for other users.

See the section ”Access and Security Management” on page 31 for more information on user accounts.

Related Commands

RTRV-USER-SECU

Reference

TR-NWT-835, Issue 3, January 1993

Input Format

```
RTRV-USER:[<tid>]:[<uid>]:<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<uid>	User ID (current user only) • Values: The current user account ID

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^"<uid>:<cid>,<uap>:PAGE=<page>,PCND=<pcnd>,
UOUT=<uout>,SYSPRIV=<sysPriv>,PORTPRIV=<portPriv>:<st>"
cr lf
;
```

Response Parameters

Command-specific response parameters are listed below. See ”Common Parameters” on page 14 for a description of parameters common to all TL1 command responses.

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Parameter	Description
<uid>	User ID for current user.
<cid>	Channel ID. • Values: ALL
<uap>	User Access Privilege (0=lowest - no access, 5=highest - full access). See “TL1 Privilege Levels” on page 16 for more information. • Values: Ax&Px&Mx&Tx, where x=0-5
PAGE=	Password aging interval • Values: integer: [0]-999, (0=off)
PCND=	Mandatory Password change interval • Values: integer: [0]-999, (0=off)
UOUT=	User ID aging interval • Values: integer: [0]-999, (0=off)
SYSPRIV=	System level privilege • Values: manage | [modify] | view | none
PORTPRIV=	Port level privilege (applies to all ports in system) • Values: manage | [modify] | view | none | mixed The value “mixed” indicates that the user has been assigned customized privileges by port range. To view port level privileges for these ranges, use the RTRV-PRIV-FIBER command.
<st>	Service state of account • Values: IS | IS-EXP | OOS IS: In Service IS_EXP: In-Service-Expired Password has expired, password change interval has not been exceeded OOS: Out of Service Password change interval expired or user marked OOS by administrator

Errors

IIAC – if <uid> is present and does not match the current user ID or is illegally formed.

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Example

Found unattended TL1 terminal, typed in command to see who is logged in:

```
<rtrv-user:::1;

   BD0009 09-06-19 19:19:41
M  1 COMPLD
   "Forgetful:ALL,A5&P5&M5&T5:PAGE=1,PCND=2,UOUT=
5,SYSPRIV=manage,PORTPRIV=manage:IS"
;
```


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CANC-USER
Cancel User

Description

This command terminates (logs off) the current TL1 session.

CANC-USER commands are recorded in the SECU log.

See the section ”Access and Security Management” on page 31 for more information on user accounts.

Related Commands

ACT-USER

Reference

TR-NWT-835, Issue 3, January 1993

Input Format

```
CANC-USER:[<tid>]:[<uid>]:<ctag>;
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
<uid>	User ID (user account name). • Values: User ID • Default: (no entry) = Current user ID

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

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Errors

IDNV – if the <uid> is present, but does not match the <uid> of the current user.

Examples

Valid logout for TL1 session by user:

```
<CANC-USER:::1;

   BD0009 09-01-29 20:30:10
M  1 COMPLD
;
```

Invalid logout attempt by user for a different user:

```
<CANC-USER::JFW:1;

   BD0009 09-01-30 15:35:38
M  1 DENY
   IDNV
   "NE-COM:UID=JFW"
   /* Input, Data not Valid  */
;
```


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RTRV-STATUS
Retrieve Status

Description

This command displays all active ClickFlow and TL1 sessions in the system.

Minimum command privilege: This command requires View system-level privilege.

See the section ”Access and Security Management” on page 31 for more information on user accounts.

Related Commands

RTRV-USER
RTRV-CID

Input Format

```
RTRV-STATUS:[<tid>]::<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Response Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
^^^"GGN:USERID=<userID>,USERIP=<ipAddr>,USERIF=<iosApp>"
cr lf +
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear in all TL1 commands.

Parameter	Description
<uid>	User ID (user account name). • Values: User ID • Default: (no entry) = Current user ID
USERID=	User ID (user account name) • Values: alphanumeric, 3 - 20 characters

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Parameter	Description
USERIP=	User's IP address • Values: xxx.xxx.xxx.xxx IPv4 IP address in dotted decimal notation
USERIF=	Switch User interface accessed • Values: TL1 | WEB

Errors

Parse errors: See Table 33 on page 425.

Example

Retrieve all logged in TL1 users:

```
<RTRV-STATUS:::1;

   LN0001 13-05-20 13:32:37
M  1 COMPLD
   "GGN:USERID=madmin,USERIP=192.168.1.114,USERIF=TL1"
   "GGN:USERID=admin,USERIP=192.168.1.103,USERIF=WEB"
;
```


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SET-DLFT-SECU
Set Security Default

Description

This command is used to configure parameters governing the password security policies and account security policy for the system. Password and account security policies are described in “Password Security Policies” on page 40.

Related Commands

RTRV-DFLT-SECU
ENT-USER-SECU
ED-USER-SECU

Reference

TR-NWT-835, Issue 3, January 1993

Input Format

```
SET-DFLT-SECU:[<tid>]::<ctag>:::[PAGE=<page>][,PCND=
<pcnd>][,PINT=<pint>][,UOUT=<uout>][,PMAXCONC=
<pmaxconc>][,PMAXHIST=<pmaxhist>][,PMINLENG=<pminleng>]
[,PMINPUNC=<pminpunc>][,PMINNUMR=<pminnumr>][,PMINLWRC=
<pminlwrc>][,PMINUPRC=<pminuprc>][,PMAXSAME=<pmaxsame>]
[PUSRNAME=<pusrname>][,CLPH=<cplh>];
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
PAGE=	Password aging interval. The number of days after a password is changed before the password will expire. After expiration, the user account state will be set to "In Service Expired" and a grace period to change the password (Password Change Interval) will start. • Values: Integer: 0 - 999 (0 = off, password never expires) • Default: 0
PCND=	Mandatory password change interval. The grace period during which the user is notified to change an expired password. If the password is not changed prior to the end of this period, the account state will be set to "Out Of Service". • Values: Integer: 0 - 999 (0 = off, no change interval) • Default: 0

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Parameter	Description
PINT=	Password minimum interval. Number of days required between password changes. Users will receive an error message if they attempt to change the password within this time frame after the last password change. PINT is a system-wide parameter and, unlike PAGE, PCND, and UOUT, this value cannot be changed in the user account record via ED-USER-SECU or ENT-USER-SECU. • Values: Integer: 0 - 999 (0 = off, no minimum interval) • Default: 0
UOUT=	Account Aging Interval. Places a user account "Out Of Service" if the user does not log into the account within the number of days specified. • Values: Integer: 0 - 999 (0 = off, no account time out) • Default: 0
PMAXCONC=	Maximum consecutive characters allowed from prior password. Restricts new password from being too similar to current password. • Values: Integer, 0 - 20 (0 = off, no similarity check) • Default: 0
PMAXHIST=	Maximum previous passwords to disallow for reuse as new password. • Values: Integer, 0 - 24 (0 = off, no history check) • Default: 0
PMINLENG=	Minimum password length required for a new password. • Values: Integer, 5 - 20 • Default: 8
PMINPUNC=	Minimum number of punctuation characters required in a new password. • Values: Integer, 0 - 20 (0 = off, punctuation character not required) • Default: 1

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Parameter	Description
PMINNUMR=	Minimum number of numeric characters required in a new password. • Values: Integer, 0 - 20 (0 = off, numeric character not required) • Default: 1
PMINLWRC=	Minimum number of lowercase characters required in a new password. • Values: Integer, 0 - 20 (0 = off, lowercase character not required) • Default: 1
PMINUPRC=	Minimum number of uppercase characters required in a new password. • Values: Integer, 0 - 20 (0 = off, uppercase character not required) • Default: 0
PMAXSAME=	Maximum number of times a character may be used in a new password. • Values: Integer, 0 - 20 • Default: 0 (no limit on same character reuse)
PUSRNAME=	Allow or block the embedding of the user name in a new password. • Values: Integer, 0 (allow) | 1 (block) • Default: 1 (user name not allowed in password)
CLPH	Clear password history for all users. • Values: Integer, 0 (don't clear) | 1 (clear) • Default: 0 (do not clear password history)

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

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Response Parameters

NOTE: No command-specific parameters are generated for successful (COMPLD) commands. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

See Appendix A, “Error Codes” on page 421 for details on error code responses. Common parsing error codes are shown in Table 33 on page 425.

Example

The command below modifies the existing policies as follows:

- Password Change Policy modified to require:
  - 25 day password aging period
  - 5 days grace period to change after aging period is reached
  - 10 or more days between password changes
  - 3 or fewer consecutive characters from the previous password may be used in the current password
  - A new password is to be rejected if a match is found with any of the 12 passwords used prior to the current password
- Password Complexity Policy modified as follows:
  - Remove the requirement to include lowercase characters in the new password
  - Set a requirement for at least 1 uppercase character in the new password

Note that parameters not specified in the command retain their current values.

```
<set-dflt-secu:::1:::PAGE=25,PCND=5,PINT=10,PMAXCONC=3,
PMAXHIST=12,PMINLWRC=0,PMINUPRC=1;

   LN0001 12-05-30 20:19:48
M  1 COMPLD
;
```


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RTRV-DFLT-SECU
Retrieve Default Security

Description

This command is used to view the parameter settings for the password security policies and the account security policy for the system. Password and account security policies are described in “Password Security Policies” on page 40.

Related Commands

ED-USER-SECU
ENT-USER-SECU
SET-DLFT-SECU

Input Format

```
RTRV-DFLT-SECU:[<tid>]::<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^"GGN:<param>=<value>" cr lf +
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
PAGE=	Password aging interval. The number of days after a password is changed before the password will expire. After expiration, the user account state will be set to "In Service Expired" and a grace period to change the password (Password Change Interval) will start. • Values: Integer, 0 - 999 (0 = off, password never expires) • Default: 0

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Parameter	Description
PAGE=	Password aging interval. The number of days after a password is changed before the password will expire. After expiration, the user account state will be set to "In Service Expired" and a grace period to change the password (Password Change Interval) will start. • Values: Integer: 0 - 999 (0 = off, password never expires) • Default: 0
PCND=	Mandatory password change interval. The grace period during which the user is notified to change an expired password. If the password is not changed prior to the end of this period, the account state will be set to "Out Of Service". • Values: Integer: 0 - 999 (0 = off, no change interval) • Default: 0
PINT=	Password minimum interval. Number of days required between password changes. Users will receive an error message if they attempt to change the password within this time frame after the last password change. PINT is a system-wide parameter and, unlike PAGE, PCND, and UOUT, this value cannot be changed in the user account record via ED-USER-SECU or ENT-USER-SECU. • Values: Integer: 0 - 999 (0 = off, no minimum interval) • Default: 0
UOUT=	Account Aging Interval. Places a user account "Out Of Service" if the user does not log into the account within the number of days specified. • Values: Integer: 0 - 999 (0 = off, no account time out) • Default: 0
SYSPRIV=	Default System privilege used when creating new user accounts. • Values: modify **NOTE**: The default value is not configurable. This value may be overridden for the user when accounts are created or modified.

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Parameter	Description
PORTPRIV=	Default All Port privilege used when creating new user accounts (applies to all ports in system). • Values: modify **NOTE**: The default value is not configurable. This value may be overridden for the user when accounts are created or modified.
PMAXCONC=	Maximum consecutive characters allowed from prior password. Restricts new password from being too similar to current password. • Values: Integer, 0 - 20 (0 = off, no similarity check) • Default: 0
PMAXHIST=	Maximum previous passwords to disallow for reuse as new password. • Values: Integer, 0 - 24 (0 = off, no history check) • Default: 0
PMINLENG=	Minimum password length required for a new password. • Values: Integer, 5 - 20 • Default: 8
PMINPUNC=	Minimum number of punctuation characters required in a new password. • Values: Integer, 0 - 20 (0 = off, punctuation character not required) • Default: 1
PMINNUMR=	Minimum number of numeric characters required in a new password. • Values: Integer, 0 - 20 (0 = off, numeric character not required) • Default: 1
PMINLWRC=	Minimum number of lowercase characters required in a new password. • Values: Integer, 0 - 20 (0 = off, lowercase character not required) • Default: 1

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Parameter	Description
PMINUPRC=	Minimum number of uppercase characters required in a new password. • Values: Integer, 0 - 20 (0 = off, uppercase character not required) • Default: 0
PMAXSAME=	Maximum number of times a character may be used in a new password. • Values: Integer, 0 - 20 • Default: 0 (no limit on same character reuse)
PUSRNAME=	Allow or block the embedding of the user name in a new password. • Values: Integer, 0 (allow) | 1 (block) • Default: 1 (user name not allowed in password)

Errors

See Appendix A, “Error Codes” on page 421 for details on error code responses. Common parsing error codes are shown in Table 33 on page 425.

Example

The command output shown below reflects the factory default settings. The command returns all password and account policy values and also shows the default System (SYSPRIV) and Port (PORTPRIV) values for reference.

```
<rtrv-dflt-secu:::1;

   LN0001 12-05-30 21:00:23
M  1 COMPLD
   "GGN:PAGE=0"
   "GGN:PCND=0"
   "GGN:PINT=0"
   "GGN:UOUT=0"
   "GGN:SYSPRIV=modify"
   "GGN:PORTPRIV=modify"
   "GGN:PMINLENG=8"
   "GGN:PMAXCONC=0"
   "GGN:PMINPUNC=1"
   "GGN:PMINNUMR=1"
   "GGN:PMINLWRC=1"
   "GGN:PMINUPRC=0"
   "GGN:PMAXSAME=0"
   "GGN:PUSRNAME=1"
   "GGN:PMAXHIST=0"
;
```


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ENT-USER-SECU
Enter User Security (Add User)

Description

This command is used to create user accounts and supports overriding the system default policies for the periodicity for password change, account aging as well as the user's System level privileges and All Port privileges. The only required fields are the user name (<uid>), password (<pid>) and the correlation tag (<tid>). If only these three values are specified in the command, the system policy defaults for password change/account aging and user privileges will be applied to the user account.

See the section ”Access and Security Management” on page 31 for more information on user accounts; see ”TL1 Privilege Levels” on page 16 for more information on TL1 command privileges.

Related Commands

INH-USER-SECU
ED-USER-SECU
DLT-USER-SECU
RTRV-DFLT-SECU
RTRV-USER-SECU
SET-DLFT-SECU

Reference

TR-NWT-835, Issue 3, January 1993

Input Format

```
ENT-USER-SECU:[<tid>]:<uid>:<ctag>::<pid>,[<cid>],
[<uap>]:[PAGE=<page>][,PCND=<pcnd>][,UOUT=<uout>]
[,SYSPRIV=<sysPriv>][,PORTPRIV=<portPriv]:[<pst>];
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<uid>	User ID (user account name). • Values: alphanumeric, 3-20 characters

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Parameter	Description
<pid>	Password for the user account. The password entered must pass the Password Complexity policy configured for the system (see “Password Complexity Policy Parameters” on page 41). The RTRV-DFLT-SECU command may be used to view the current Password Complexity policy settings. The factory default policy is: • Minimum 8 Characters required in password • Password must contain 1 each punctuation, numeric and lowercase characters • The password may not contain the user name In addition to the above, the following rules governing password content are enforced (hard-coded, cannot be turned off) • The new password cannot be the same as the current password • The following special characters may not be used: Space, comma (,), question mark (?), colon (:), semicolon (;), apostrophe ('), double quote ("), and backslash (\)
<cid>	Channel ID. • Values: OSI
<uap>	User Access Privilege (0=lowest - no access, 5=highest - full access). Derived from the system privilege and all port privilege settings. • Values: Ax&Px&Mx&Tx where x=0-5 • Default: A4&P4&M4&T4 **NOTE**: Glimmerglass system- and port-level privilege assignments override these settings. See ”TL1 Privilege Levels” on page 16 for more information on TL1 command privileges.

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Parameter	Description
PAGE=	Password aging interval. The number of days after a password is changed before the password will expire. After expiration, the user account state will be set to "In Service Expired" and a grace period to change the password (Password Change Interval) will start. • Values: Integer: 0 - 999 (0 = off, password never expires) • Default: 0 **NOTE**: The default setting for this parameters is taken from the value configured in the Password Change and Account Policies. Refer to ”Access and Security Management” on page 31 for further information concerning the operation of these parameters.
PCND=	Mandatory password change interval. The grace period during which the user is notified to change an expired password. If the password is not changed prior to the end of this period, the account state will be set to "Out Of Service". • Values: Integer: 0 - 999 (0 = off, no change interval) • Default: 0 **NOTE**: The default setting for this parameters is taken from the value configured in the Password Change and Account Policies. Refer to ”Access and Security Management” on page 31 for further information concerning the operation of these parameters.
UOUT=	Account Aging Interval. Places a user account "Out Of Service" if the user does not log into the account within the number of days specified. • Values: Integer: 0 - 999 (0 = off, no account time out) • Default: 0 **NOTE**: The default setting for this parameters is taken from the value configured in the Password Change and Account Policies. Refer to ”Access and Security Management” on page 31 for further information concerning the operation of these parameters.

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Parameter	Description
SYSPRIV=	System Level Privilege • Values: manage | modify | view | none • Default: modify
PORTPRIV=	Port Level Privilege (applies to all ports in system) • Values: manage | modify | view | none • Default: modify
<pst>	Service state of account • Values: [IS] | IS-EXP | OOS IS: In Service IS_EXP: In Service-Expired OOS: Out of Service • Default: IS

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: No command-specific parameters are generated for successful (COMPLD) commands. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

See Appendix A, “Error Codes” on page 421 for details on error code responses. Common parsing error codes are shown in Table 33 on page 425.

Examples

Create user account using defaults for all policies and settings governing password change periodicity, account aging, system and port level privileges and service state.

```
<ent-user-secu::JFW:1::********;

   LN0001 12-05-31 00:01:18
M  1 COMPLD
;
```


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Create user account and assign user system privilege of "none", all other policies and settings derived from the default policies.

```
<ent-user-secu::CTW:1::********:SYSPRIV=none;

   LN0001 12-05-31 00:02:59
M  1 COMPLD
;
```

Create user account with customized password change parameters requiring the user to change his/her password on a schedule different than the default Password Change policy. All other settings to be taken from the defaults.

```
<ent-user-secu::RAW:1::********:PAGE=85,PCND=5;

   LN0001 12-05-31 00:05:56
M  1 COMPLD
;
```

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ED-USER-SECU
Edit User Security

Description

This command is used to modify user account configuration. In addition, this command supports clearing the password history for a user.

The command supports the same optional parameters as the ENT-USER-SECU command. The saved values for these parameters are preserved if a new value is not entered in the command line. For example, using the command to assign a new password to a user only changes the password value for the user and does not affect the other parameter settings.

In addition to assigning a new password to a user, an administrator may change the password change schedule for the user, the user's system and port level privileges, impose constraints TL1 commands available to the user, and set the user account service state (e.g., restore account to In-Service status or disable user access by marking account out-of-service).

See the section ”Access and Security Management” on page 31 for more information on user accounts.

Related Commands

ALW-USER-SECU
DLT-USER-SECU
ENT-USER-SECU
RTRV-USER-SECU
INH-USER-SECU
RTRV-USER

Reference

TR-NWT-835, Issue 3, January 1993

Input Format

```
ED-USER-SECU:[<tid>]:<uid>:<ctag>::[<new_uid>]
[,<new_pid>],[<cid>],[<uap>]:[PAGE=<page>][,PCND=<pcnd>]
[,UOUT=<uout>][,SYSPRIV=<sysPriv>][,PORTPRIV=<portPriv]
[,CLPH=<clph>]:[<pst>];
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

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Parameter	Description
<uid>	User ID (user account name). **NOTE**: This field is not supported. Account user names cannot be edited.
<new_pid>	Password for the user account. The password entered must pass the Password Complexity policy configured for the system (see “Password Complexity Policy Parameters” on page 41). The RTRV-DFLT-SECU command may be used to view the current Password Complexity policy settings. The factory default policy is: • Minimum 8 Characters required in password • Password must contain 1 each punctuation, numeric and lowercase characters • The password may not contain the user name In addition to the above, the following rules governing password content are enforced (hard-coded, cannot be turned off) • The new password cannot be the same as the current password • The following special characters may not be used: Space, comma (,), question mark (?), colon (:), semi-colon (;), apostrophe ('), double quote ("), and backslash (\)
<cid>	Channel ID. • Values: OSI

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Parameter	Description
<uap>	User access privilege (TL1 privilege). This command may be used to restrict the user's access to configure or provision the system via the TL1 user interface. See ”TL1 Privilege Levels” on page 16 for more information on TL1 command privileges. • Values: A[x]&P[x]&M[x]&T[x], where [x] is between 0 and 5 • Default: A4&P4&M4&T4 [x] = The TL1 privilege level which are mapped as shown below with the switch-level privileges (none, view, modify, manage). • 0 = none • 1 = view • 2 = (not used, equivalent to 1) • 3 = (not used, equivalent to 1) • 4 = modify • 5 = manage
PAGE=	Password aging interval. The number of days after a password is changed before the password will expire. After expiration, the user account state will be set to "In Service Expired" and a grace period to change the password (Password Change Interval) will start. • Values: Integer: 0 - 999 (0 = off, password never expires) • Default: 0
PCND=	Mandatory password change interval. The grace period during which the user is notified to change an expired password. If the password is not changed prior to the end of this period, the account state will be set to "Out Of Service". • Values: Integer: 0 - 999 (0 = off, no change interval) • Default: 0

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Parameter	Description
UOUT=	Account Aging Interval. Places a user account "Out Of Service" if the user does not log into the account within the number of days specified. • Values: Integer: 0 - 999 (0 = off, no account time out) • Default: 0
SYSPRIV=	System Level Privilege • Values: manage | modify | view | none • Default: modify
PORTPRIV=	Port Level Privilege (applies to all ports in system) • Values: manage | modify | view | none • Default: modify
CLPH=	Clear password history for the user account. • Values: Integer, 0 (don't clear) | 1 (clear) • Default: 0 (do not clear password history)
<pst>	Service state of account • Values: IS | IS-EXP | OOS IS: In Service IS_EXP: In Service-Expired OOS: Out of Service • Default: IS

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: No command-specific parameters are generated for successful (COMPLD) commands. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

See Appendix A, “Error Codes” on page 421 for details on error code responses. Common parsing error codes are shown in Table 33 on page 425.

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Examples

Assign a new password to a user account.

```
<ed-user-secu::JFW:1::,********;

   LN0001 12-05-31 00:01:18
M  1 COMPLD
;
```

Failure response when new password assigned fails the Password Complexity checks

```
<ed-user-secu::JFW:1::,********;

   LN0001 12-06-04 14:10:34
M  1 DENY
   IDNV
   "ed-user-secu::JFW:1::,********"
  /* Input, Data not Valid - New Password Has Insufficient
Numeric Characters, Minimum 1 Required */
;
```

The reason for the DENY is provided in the comment area in the command response. In the above, the cause was the absence of numeric character in the assigned password (at least 1 was required).

Modify the All Ports privilege level for a user account.

```
<ed-user-secu::CTW:1:::PORTPRIV=view;

   LN0001 12-05-31 00:02:59
M  1 COMPLD
;
```

Prevent user from using TL1 commands to configure or provision. This user will only be allowed to configure/provision through ClickFlow (based upon their assigned privileges).

```
<ed-user-secu::RAW:1::,,,A0&P0&M0&T0;

   LN0001 12-05-31 17:52:56
M  1 COMPLD
;
```


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Set a user account out-of-service

```
<ed-user-secu::JFW:1::::OOS;

   LN0001 12-05-31 17:55:40
M  1 COMPLD
;
```

Clear the password history for a user account

```
<ed-user-secu::CTW:1:::CLPH=1;

   LN0001 12-05-31 17:56:58
M  1 COMPLD
;
```

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RTRV-USER-SECU
Retrieve User Security

Description

This command retrieves user account parameters associated with the specified user(s). Passwords cannot be retrieved.

See the section ”Access and Security Management” on page 31 for more information on user accounts.

Related Commands

ED-USER-SECU
ENT-USER-SECU

Reference

TR-NWT-835, Issue 3, January 1993

Input Format

```
RTRV-USER-SECU:[<tid>]:[<uid>]:<ctag>;
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
<uid>	User ID (user account name). • Values: User ID or list of user IDs • Default: All users A list of user IDs may be given, separated by ‘&’. If no <uid> is entered (default), then all user accounts are displayed.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^"<uid>:<cid>,<uap>:PAGE=<page>,PCND=<pcnd>,
UOUT=<uout>,SYSPRIV=<sysPriv>,PORTPRIV=<portPriv>:<st>"
cr lf +
;
```


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Response Parameters

NOTE: Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
<cid>	Channel ID • Values: ALL
<uap>	User Access Privilege (0=lowest - no access, 5=highest - full access). • Values: Ax&Px&Mx&Tx where x=0-5 [A4&P4&M4&T4] **NOTE**: Glimmerglass system- and port-level privilege assignments override these settings. Currently, these settings only determine access to the command via TL1.
PAGE=	Password aging interval • Values: integer: [0]-999, (0=off)
PCND=	Mandatory Password change interval • Values: integer: [0]-999
UOUT=	User ID aging interval • Values: integer: [0]-999, (0=off)
SYSPRIV=	System level privilege • Values: manage | [modify] | view | none
PORTPRIV=	Port level privilege (applies to all ports in system) • Values: manage | [modify] | view | none | mixed The value “mixed” indicates that the user has been assigned customized privileges by port range. To view port level privileges for these ranges, use the RTRV-PRIV-FIBER command (page 148).
<st>	Service state of account • Values: IS | IS-EXP | OOS IS: In Service IS_EXP: In Service-Expired OOS: Out of Service

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Errors **IDNV** – uid value is not valid.

Examples Retrieve information for all user accounts:

```
<RTRV-USER-SECU:::1;
   BD0009 09-01-30 16:43:28
M  1 COMPLD
   "admin:ALL,A5&P5&M5&T5:PAGE=0,PCND=0,UOUT=0,SYSPRIV=
manage,PORTPRIV=manage:IS"
   "JFW:ALL,A4&P4&M4&T4:PAGE=1,PCND=2,UOUT=5,SYSPRIV=
manage,PORTPRIV=mixed:IS"
;
```

Error condition - user ID list contains an invalid user ID:

```
<RTRV-USER-SECU::JWF&admin:1;
   BD0009 09-01-30 16:42:19
M  1 PRTL
   "admin:ALL,A5&P5&M5&T5:PAGE=0,PCND=0,UOUT=0,SYSPRIV=
manage,PORTPRIV=manage:IS"
   /* BAD UID'S -- JWF */;
```

Error condition - user ID is invalid:

```
<RTRV-USER-SECU::JWF:1;

   BD0009 09-01-30 16:42:01
M  1 DENY
   IDNV
   "RTRV-USER-SECU::JWF:1"
   /* Input, Data not Valid  */
;
```


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CANC-USER-SECU
Cancel User Security

Description

This command is used to disconnect all active sessions for a user. Thus, if the same user is logged in multiple times on both ClickFlow and TL1, all instances will be logged out.

Minimum Command Privilege: Manage system level privilege is required.

See the section ”Access and Security Management” on page 31 for more information on user accounts.

Related Commands

RTRV-STATUS
CANC-CID-SECU

Input Format

```
CANC-USER-SECU:[<tid>]:<uid>:<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<uid>	User ID (user account name). • Values: User ID

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear in all TL1 responses.

Errors

Parse errors: See Table 33 on page 425.

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Example

Log out the madmin user:

```
<CANC-USER-SECU::madmin:1;

   LN0001 13-05-20 14:21:28
M  1 COMPLD
;
```


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ALW-USER-SECU
Allow User Security

Description

This command places one or more user accounts into an IS (In-Service) state. An account can be placed OOS (Out-Of-Service) explicitly by a system administrator user (such as the admin user) via the INH-USER-SECU command, or automatically after a specified period of account inactivity.

Upon successful completion, the password and account aging parameters are reset to their initial values.

See the section ”Access and Security Management” on page 31 for more information on user accounts.

Related Commands

INH-USER-SECU

Reference

TR-NWT-835, Issue 3, January 1993

Input Format

```
ALW-USER-SECU:[<tid>]::<ctag>::<uid>;
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
<uid>	User ID (user account name). • Values: User ID or list of user IDs A list of <uid>s may be given, separated by ‘&’. A value must be entered for <uid>.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

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Response Parameters

NOTE: Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

SLEM – if list exceeds maximum,

IDNV – if <uid> can’t be found or is illegal,

SAAL –if <uid> is already In Service.

Example

Place the out-of-service (OOS) “TempUser” user account back in service (IS):

```
<ALW-USER-SECU:::1::TempUser;

   BD0009 09-01-30 17:07:10
M  1 COMPLD
```


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INH-USER-SECU
Inhibit User Security

Description

This command places one or more user accounts into an OOS (Out-Of-Service) state.

See the section ”Access and Security Management” on page 31 for more information on user accounts.

Related Commands

ALW-USER-SECU

Reference

TR-NWT-835, Issue 3, January 1993

Input Format

```
INH-USER-SECU:[<tid>]::<ctag>::<uid>;
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
<uid>	User ID (user account name). • Values: User ID or list of user IDs • Default: All users, excluding the default administrative users A list of <uid>s may be given, separated by ‘&’.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

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Errors

IDNV – if the user id is invalid, can't be found, or belongs to the special account that can not be disabled.

SAIN – if the account is already OOS.

Example

Place the TempUser account out of service (OOS):

```
<INH-USER-SECU:::1::TempUser;

   BD0009 09-01-30 17:04:30
M  1 COMPLD
;
```


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DLT-USER-SECU
Delete User Security

Description

This command is used by a system administrator user (such as the admin user) to delete the user accounts of the specified user or users. If the user account to be deleted is currently logged on, the DLT-USER-SECU action also will terminate the user session.

NOTE: The default administrative user accounts cannot be deleted, nor can the account of the user issuing the command.

See the section ”Access and Security Management” on page 31 for more information on user accounts.

Related Commands

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

Reference

TR-NWT-835, Issue 3, January 1993

Input Format

```
DLT-USER-SECU:[<tid>]:<uid>:<ctag>;
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
<uid>	User ID (user account name). • Values: User ID or list of user IDs A list of <uid>s may be given, separated by ‘&’.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

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Response Parameters

NOTE: Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

SLEM – if the list is too long.

IDNV – if any <uid> is illegal or not found or specifies the protected account.

Example

Delete the TempUser user account.

```
<DLT-USER-SECU::TempUser:1;

   BD0009 09-01-30 17:09:23
M  1 COMPLD
;
```


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ED-PID
Edit Password

Description

This command allows the current user to change her or his password. The new password entered must pass the password complexity and password change policy settings to be accepted. The settings for these policies may be reviewed using the RTRV-DFLT-SECU command. In addition to those settings, the following rules are enforced.

- The new password can never match the current password
- The new password cannot contain white space (space character) or any of the following special characters: comma (,), question mark (?), colon (:), single quote ('), double quote ("), and backslash (\).

A password change attempt may be inhibited by the setting for the Password Maximum Interval (PINT) default security parameter. This parameter, set to a value in days, may be used in the system to prevent successive password changes with the intent to flip passwords back to a previously used password.

Refer to the section, ”Access and Security Management” on page 31 for more information on user accounts and password policies.

Related Commands

ED-USER-SECU
RTRV-USER-SECU
DLT-USER-SECU
SET-DLFT-SECU
RTRV-DFLT-SECU

Input Format

```
ED-PID:[<tid>]:[<uid>]:<ctag>::<old_pid>,<new_pid>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

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Parameter	Description
<uid>	User ID (user account name). This field defaults to the current user. This command cannot be used to change another user's password. • Values: current user name • Default: current user name
<old_pid>	Current password for user account.
<new_pid>	New password for user account. The password entered must pass the Password Complexity and Change policies configured for the system (see “Password Complexity Policy Parameters” on page 41). The RTRV-DFLT-SECU command may be used to view the current Password Complexity policy settings.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: No command-specific parameters are generated for successful (COMPLD) commands. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

See Appendix A, “Error Codes” on page 421 for details on error code responses. Common parsing error codes are shown in Table 33 on page 425.

Examples

Successful password change by the user.

```
<ed-pid:::1::********,********;

   LN0001 12-06-04 18:20:46
M  1 COMPLD
;
```

Failed password change example. The password entered was found to match a previously used password. The failure comments will reflect the problem

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encountered when validating the password against both the password change and password complexity policies.

```
<ed-pid:::1::********,********;

   LN0001 12-06-04 18:21:32
M  1 DENY
   IDNV
   "ed-pid:::1::********,********"
   /* Input, Data not Valid - New Password Matches Entry
In Password History, Within Past 12 Values */
;
```

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RTRV-CID
Retrieve Channel ID

Description

This command retrieves the security parameters in use for the current session. System administrator users (such as the admin user) can use RTRV-CID-SECU to retrieve all CID parameters.

Related Commands

RTRV-CID-SECU
ED-CID-SECU
CANC-CID-SECU

Reference

TR-NWT-835, Issue 3, January 1993

Input Format

```
RTRV-CID:[<tid>]:[<cid>]:<ctag>;
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
<cid>	Channel ID (null=current CID) • Values: OSI

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^"<cid>:<chap>:MXINV=<mxinv>,DURAL=<dural>,
TMOUT=<tmout>:<pst>" cr lf +
;
```

Response Parameters

NOTE: Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

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Parameter	Description
<chap>	Channel access privilege. Default is A0&P0&M0&T0. • Values: Ax&Px&Mx&Tx See the section ”TL1 Privilege Levels” on page 16 for more information on TL1 channels.
MXINV=	Max number of invalid session setup attempts • Values: integer: 0-9 [3] 0: Off
DURAL=	Duration of alert condition lockout in HH-MM-SS (DURAL defaults to 1 minute) Maxi mum values 99:59:59. • Values: HH-MM-SS [00-01-00]
TMOUT=	Timeout interval in minutes. • Values: integer:0-9 [10] (0 = Off)
<pst>	Service state of the channel. • Values: IS | OOS IS: In Service OOS: Out of Service

Errors **IIAC** – if <cid> is not a legal value.

Example Retrieve current channel ID information:

```
<RTRV-CID:::1;

   BD0009 09-01-30 17:23:04
M  1 COMPLD
   "OSI:A0&P0&M0&T0:MXINV=3,DURAL=00-01-00,TMOUT=10:IS"
;
```

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ED-CID-SECU
Edit Channel ID Security

Description

This command is used to set system-wide session security policies for users, not for channels. These polices govern intrusion detection (or failed login limit) and no-activity timeout.

This command is used to set the following user session security related parameters.

- Maximum Invalid Login Attempts (MXINV)
- Lockout Duration (DURAL)
- No Activity Timeout (TMOUT)

See the section ”Access and Security Management” on page 31 for more information on user accounts.

Related Commands

RTRV-CID-SECU
CANC-CID-SECU
RTRV-CID

Reference

TR-NWT-835, Issue 3, January 1993

Input Format

```
ED-CID-SECU:[<tid>]:[<cid>]:<ctag>::[<chap>]:
[MXINV=<mxinv>][,DURAL=<dural>][,TMOUT=<tmout>]:<pst>;
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
<cid>	Channel to be accessed. • Values: OSI | [ALL]

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Parameter	Description
<chap>	Channel access privilege. • Values: Ax&Px&Mx&Tx • Default: A0&P0&M0&T0 See the section ”TL1 Privilege Levels” on page 16 for more information on TL1 channels.
MXINV=	Limit for consecutive invalid login attempts by a user. After reached, the lockout duration will start. • Values: integer: [0] - 9 (min - max) Feature is disabled when set to 0 (no intrusion detection, no lockout)
DURAL=	Duration of the lockout period during which all login attempts by this user will fail. • Values: integer: 0 - 60 minutes (min - max) • Default: 1
TMOUT=	The number of minutes after which an idle session will be logged off. Feature is disabled when set to 0 (idle sessions will not timeout). • Values: integer: 0 - 99 minutes (min - max) • Default: 10
<pst>	Service state of the channel • Values: N/A **NOTE**: This field is not implemented. Administrators may not take the channel out-of-service.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: No command-specific parameters are generated for successful (COMPLD) commands. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

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Errors

IIAC – Invalid <cid> entered

IDNV – Parameter value is out of range

IPNV – Parameter incorrectly entered

PICC – User does not have required system privilege level to view

Example

Turn off the No Activity Timeout for user sessions:

```
<ed-cid-secu:::1:::TMOUT=0;

   BD0236 09-02-24 20:13:37
M  1 COMPLD
;
```


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RTRV-CID-SECU
Retrieve Channel ID Security

Description

This command retrieves the security parameters associated with session security policies set for all users. As described in the ED-CID-SECU command (page 134), Glimmerglass applies these security parameters at the user level, not the channel ID level.

See the section ”Access and Security Management” on page 31 for more information on user accounts.

Related Commands

ED-CID-SECU
RTRV-CID
CANC-CID-SECU

Reference

TR-NWT-835, Issue 3, January 1993

Input Format

```
RTRV-CID-SECU:[<tid>]:<cid>:<ctag>;
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
<cid>	Channel ID to be accessed (Glimmerglass only uses OSI). • Values: OSI | [ALL]

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^"<cid>:<chap>:MXINV=<mxinv>,DURAL=<dural>,
TMOUT=<tmout>:<pst>" cr lf +
;
```

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Response Parameters

NOTE: Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
<cid>	Channel ID to be accessed (Glimmerglass only uses OSI). • Values: OSI
<chap>	Channel access privilege. Default is A0&P0&M0&T0 • Values: Ax&Px&Mx&Tx Where "x" is an integer between 0 and 5 See ”TL1 Privilege Levels” on page 16 for more information.
MXINV=	Limit for consecutive invalid login attempts by a user. After reached, the lockout duration will start. • Values: integer: [0] - 9 (min - max) Feature is disabled when set to 0 (no intrusion detection, no lockout)
DURAL=	Duration of the lockout period during which all login attempts by this user will fail. • Values: Integer: 0 - 60 minutes (min - max) • Default: 1
TMOUT=	The number of minutes after which an idle session will be logged off. Feature is disabled when set to 0 (idle sessions will not timeout). • Values: integer: 0 - 99 minutes (min - max) • Default: 10
<pst>	Service state of the channel • Values: IS **NOTE**: Administrators may not take the channel out-of-service.

Errors

IIAC – The <cid> specified is not legal.

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PICC – User does not have required system privilege level to view.

Example

```
<rtrv-cid-secu::OSI:1;

   BD0236 09-02-24 20:19:38
M  1 COMPLD
   "OSI:A0&P0&M0&T0:MXINV=9,DURAL=00-01-00,TMOUT=60:IS"
;
```

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CANC-CID-SECU
Cancel Channel ID Security

Description

This command is used to disconnect all active sessions in the switch (including the session from which the command is invoked).

Minimum Command Privilege: Manage system level privilege is required.

Related Commands

RTRV-STATUS
CANC-USER-SECU

Input Format

```
CANC-CID-SECU:[<tid>]::<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear in all TL1 responses.

Errors

Parse errors: See Table 33 on page 425.

Example

The following command will log off all users on the switch:

```
<CANC-CID-SECU:::1;

   LN0001 13-05-20 14:21:28
M  1 COMPLD
;
```


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ED-CMD-SECU
Edit Command Security

Description

This command modifies the access privilege associated with a specified command or commands.

See the section ”Access and Security Management” on page 31 for more information on user accounts.

Related Commands

RTRV-CMD-SECU

NOTE: Commands are permanent entities so ENT/DLT-CMD-SECU, which create and delete commands, are not supported.

Reference

TR-NWT-835, Issue 3, January 1993

Input Format

```
ED-CMD-SECU:[<tid>]:<cmd-name>:<ctag>::<cap>;
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
<cmd-name>	Command to be edited • Values: <cmd-name> A list of commands may be given, separated by ‘&’.
<cap>	Command Access Privilege (0=lowest - no access, 5= high est - full access). • Values: <cap> is ONE of the following, where x=0-5: • Ax (Administrative) • Px (Provisioning) • Mx (Maintenance) • Tx (Test)

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Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

SLEM – if the list of commands is too long to process,

IIAC – if a command name is illegal,

IBMS – if the command name is missing,

IDNV – if the <cap> is illegal.

Example

```
<ED-CMD-SECU::ALW-MSG-ALL:1::A1;

   BD0009 09-01-30 14:22:55
M  1 COMPLD
;
```


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RTRV-CMD-SECU
Retrieve Command Security

Description

This command retrieves a list of commands that can be executed at a specified command access privilege (CAP). When executed with no <command> field and no <cap> field, this command returns all commands that can be performed on the system.

The <command> field can be a single command, a partial command, or a list of single or partial commands. Command completion will be performed on partial commands to produce a list of zero or more commands matching the candidate command.

The returned values represent the intersection of the set of commands matching the name and the set of commands whose privilege matches the <cap>. If this set is empty, the command will complete successfully with no commands shown in the response.

See the section ”Access and Security Management” on page 31 for more information on user accounts.

Related Commands

ED-CMD-SECU

Reference

TR-NWT-835, Issue 3, January 1993

Input Format

```
RTRV-CMD-SECU:[<tid>]:[<command>]:<ctag>[::<cap>];
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

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Parameter	Description
<command>	Command whose security parameters will be retrieved. (defaults to ALL) • Values: alpha-num string. A list of commands may be specified, separated by '&'. Partial command names may be specified, for example RTRV.
<cap>	Command Access Privilege (0=lowest - no access, 5= highest - full access). If absent, all privilege levels will be used. • Values: <cap> is one of the following, where x=0-5: • Ax (Administrative) • Px (Provisioning) • Mx (Maintenance) • Tx (Test)

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^"<command-verb>:<cap>" cr lf +
;
```

Response Parameters

NOTE: Parameters that match input parameters are not repeated here. See "Common Parameters" on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

IDNV – if command specifier is illegally formed.

Examples

Retrieve a single command and its required security access privilege level:

```
<RTRV-CMD-SECU::CANC-USER:1;

   BD0009 09-01-01 14:22:55
M  1 COMPLD
   "CANC-USER:A1"
;
```


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Retrieve all commands starting with “SET”:

```
<RTRV-CMD-SECU::SET:1::;

   BD0009 09-01-30 14:23:10
M  1 COMPLD
   "SET-ATTR-COM:M1"
   "SET-ATTR-LOG:M3"
   "SET-ATTR-SECUALM:A5"
   "SET-SID:P1"
;
```

Retrieve a list of commands, separated by “&”:

```
<RTRV-CMD-SECU::RTRV-HDR&ED-DAT:1::;

   BD0009 09-01-30 14:23:40
M  1 COMPLD
   "RTRV-HDR:A0"
   "ED-DAT:P1"
;
```

Retrieve all commands starting with “RTRV” that have a security access privilege of “A5”:

```
<RTRV-CMD-SECU::RTRV:1::A5;

   BD0009 09-01-30 14:24:10
M  1 COMPLD
   "RTRV-ALM-SECU:A5"
   "RTRV-CID-SECU:A5"
   "RTRV-CMD-SECU:A5"
   "RTRV-USER-SECU:A5"
;
```

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SET-PRIV-FIBER
Set Fiber Port-level Privilege

Description

This command allows the administrator to set the port privileges governing the specified users' access to ports. Note, the administrator must have Manage level privileges to the ports being assigned to the user.

The Virtual Private Switch (VPS) feature is required to create multiple port ranges with different port privileges. Without the VPS feature, the PLIST input parameter must be specified as ALL. If not, the command will be denied.

See the section ”System-level and Port-level Privileges” on page 33 for more information on port-level privileges.

Related Commands

RTRV-PRIV-FIBER
SET-PRIV-SYSTEM
RTRV-PRIV-SYSTEM

Reference

N/A

Input Format

```
SET-PRIV-FIBER:[<tid>]:<PLIST>:<ctag>:::[PORTPRIV=
<portPriv>][,NAME=<uid>][,PCAT=<pcat>][,PPRIV=<ppriv>]
[,PGROUP=<pgroup>];
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
<PLIST>	Port list - a list of port identifiers • Values: all | input | output | port identifier(s) See ”Port Lists” on page 59 for a description of possible values.
PORTPRIV=	Port privilege level • Values: none | view | **modify** (default) | manage See the section ”System-level and Port-level Privileges” on page 33 for more information on port-level privileges.

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Parameter	Description
NAME=	User ID (user account name) • Values: valid user ID **NOTE**: If the NAME field is not entered, the command will operate on the user issuing the command.
PCAT=	Filter for port category • Values: **all** (default) | nor | ref See ”Port Filters” on page 61 for a description of these values.
PPRIV=	Filter for port privilege level • Values: **all** (default) | none | view | modify | manage See ”Port Filters” on page 61 for a description of these values.
PGROUP=	Filter for port group • Values: **all** (default) | port group name See ”Port Filters” on page 61 for a description of these values.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^"<ggnid>:PORTID=<portid>,PORTPRIV=<portPriv>" cr lf +
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

Parse errors: See Table 33 on page 425.

Example

```
<set-priv-fiber::all:1:::NAME=JFW,PORTPRIV=modify;

   LN0001 12-01-30 23:08:38
M  1 COMPLD
;
```

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RTRV-PRIV-FIBER
Retrieve Fiber Port-level Privilege

Description

This command allows the user to list out port-level privilege assignments for themselves and for other users. The command output, however, will only include ports for which the user issuing the command has View (or higher) level privileges.

See the section ”System-level and Port-level Privileges” on page 33 for more information.

Related Commands

SET-PRIV-FIBER
SET-PRIV-SYSTEM
RTRV-PRIV-SYSTEM

Reference

N/A

Input Format

```
RTRV-PRIV-FIBER:[<tid>]:<PLIST>:<ctag>:::[NAME=<uid>]
[,PCAT=<pcat>][,PPRIV=<ppriv>][,PGROUP=<pgroup>];
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
<PLIST>	Port list - group of GGN port numbers • Values: all | input | output | integer See ”Port Lists” on page 59 for a description of possible values.
NAME=	User ID (user account name) • Values: valid user ID **NOTE**: An empty NAME parameter will return the port privileges for the user issuing the command.

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Parameter	Description
PCAT=	Filter for port category • Values: **all** (default) | nor | ref See ”Port Filters” on page 61 for a description of these values.
PPRIV=	Filter for port privilege level • Values: **all** (default) | none | view | modify | manage See ”Port Filters” on page 61 for a description of these values.
PGROUP=	Filter for port group • Values: **all** (default) | port group name See ”Port Filters” on page 61 for a description of these values.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^"<ggnid>:PORTID=<portid>,NAME=<uid>,PORTPRIV=
<portPriv>" cr lf +
;
```

Response Parameters

NOTE: Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
PORTID=	Port number • Values: integer, long port number
NAME=	User ID name. • Values: string of 20 or fewer characters

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Parameter	Description
PORTPRIV=	Privilege level for the port • Values: none | view | modify | manage See the section ”System-level and Port-level Privileges” on page 33 for more information. **NOTE**: Only system administrators will may view ports where the user's privilege assignment is none.

Errors Parse errors: See Table 33 on page 425.

Example

```
<rtrv-priv-fiber::10001:1:::NAME=JFW;

   LN0001 12-01-30 23:19:07
M  1 COMPLD
   "GGN:PORTID=10001,NAME=JFW,PORTPRIV=modify"
;
```


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SET-PRIV-SYSTEM
Set System-level Privilege

Description

This command allows a user with the system-level privilege of Manage to set the system-level privilege levels for other users.

See the section ”System-level and Port-level Privileges” on page 33 for more information.

Related Commands

RTRV-PRIV-SYSTEM
SET-PRIV-FIBER
RTRV-PRIV-FIBER

Reference

N/A

Input Format

```
SET-PRIV-SYSTEM:[<tid>]::<ctag>:::[SYSPRIV=<sysPriv>]
[,NAME=<uid>];
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
SYSPRIV=	System privilege level • Values: none | view | [modify] | manage See the section ”System-level and Port-level Privileges” on page 33 for more information. **NOTE**: Prior to Release 6 Patch 1, the parameter to specify SYSPRIV was called LEVEL. The LEVEL parameter is still supported as an alternative to SYSPRIV for backwards compatibility.
NAME=	User ID • Values: User names defined for this system **NOTE**: If the NAME field is not entered, the command will operate on the user issuing the command.

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Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

A user without Manage level system privilege will receive the following error when trying to set the system-level privilege for a user:

```
<set-priv-system:::1:::NAME=JFW,SYSPRIV=manage;

   BD0009 09-06-21 16:30:07
M  1 DENY
   PICC
   "set-priv-system:::1:::NAME=JFW,SYSPRIV=manage"
   /* Privilege, Invalid Command Code - Not allowed by
given user (insufficient privilege) */
;
```

Example

```
<set-priv-system:::1:::NAME=JFW,SYSPRIV=manage;

   BD0009 09-06-21 16:28:42
M  1 COMPLD
;
```


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RTRV-PRIV-SYSTEM
Retrieve System-level Privilege

Description

This command allows a user with the system-level privilege of Manage to retrieve the system-level privilege levels for other users.

See the section ”System-level and Port-level Privileges” on page 33 for more information.

Related Commands

SET-PRIV-SYSTEM
SET-PRIV-FIBER
RTRV-PRIV-FIBER

Reference

N/A

Input Format

```
RTRV-PRIV-SYSTEM:[<tid>]::<ctag>:::[NAME=<uid>];
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
NAME=	User ID • Values: User names defined for this system An empty NAME parameter will return the port privileges for the logged-in account.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^"<ggnid>:SYSPRIV=<system-level privilege>" cr lf +
;
```

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Response Parameters

NOTE: Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
SYSPRIV=	Privilege level for the system • Values: none | view | [modify] | manage See the section ”System-level and Port-level Privileges” on page 33 for more information.

Errors

A user without the manage system level privilege will receive the following error when trying to view the system level privilege of another user.

```
<rtrv-priv-system:::1:::NAME=JFW;

   BD0009 09-06-21 16:32:12
M  1 DENY
   PICC
   "rtrv-priv-system:::1:::NAME=JFW"
   /* Privilege, Invalid Command Code - Not allowed by
given user (insufficient privilege) */
;
```

Example

```
<rtrv-priv-system:::1:::NAME=JFW;

   BD0009 09-06-21 16:34:05
M  1 COMPLD
   "GGN:NAME=JFW,SYSPRIV=manage"
;
```


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System Configuration

4

This chapter describes the System Configuration commands listed in the table below. For a description of the System Configuration software features, see “System Configuration” on page 46.

TL1 Command	Description	Page
RTRV-HDR	Elicits a normal completed (COMPLD) response from the system.	157
RTRV-SYSTEM-INFO	Retrieves the system's hardware configuration and software licenses.	158
SET-SID	Sets the system identifier (SID).	163
ED-DAT	Changes the time and date of the system clock.	165
RTRV-TOD	Retrieves the time of day information as set on the system.	167
SET-NTP-SERVER	Enables or disables the NTP (Network Time Protocol) service and configures NTP server IP addresses.	169
RTRV-NTP-SERVER	Retrieves the NTP (Network Time Protocol) configuration and clock synchronization status.	171
RTRV-BUILDINFO	Retrieves the release number of the software build that the system is running.	173
RTRV-VERSIONINFO	Retrieves the version number of the software on the system.	175
RTRV-EQPT	Retrieves information about the system hardware.	177
ED-NE-GEN	Sets the name, IP address, and gateway parameters for the system.	179
RTRV-NE-GEN	Retrieves the name, IP address, and gateway settings from the system	181
WRT-DB	Saves the system’s current configuration to the persistent configuration file.	183

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TL1 Command	Description	Page
ED-PARAM	Configures the system-level parameters, including the restoration mode for the Topology Restoration feature.	186
RTRV-PARAM	Retrieves the settings for the Topology Restoration and Power Monitoring features on the system	190
SET-SNMP-COMMUNITY	Change or restore the SNMP community names in the snmpCommunityTable rows.	193
RTRV-SNMP-COMMUNITY	Retrieve the SNMP community names from the snmpCommunityTable rows.	195
DLT-SNMP-COMMUNITY	Delete SNMP community name(s) from the snmp-CommunityTable rows.	197
SET-SNMP-SERVER	Insert an SNMP target address in snmpTargetAddrTable.	199
RTRV-SNMP-SERVER	Retrieves the SNMP target addresses in snmpTargetAddrTable.	202
DLT-SNMP-SERVER	Delete an SNMP target address from snmpTargetAddrTable.	204

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RTRV-HDR
Retrieve Header

Description

This command elicits a normal completed (COMPLD) response from the system. Information of interest contained within that response are the date, time and TID.

Related Commands

SET-SID
ED-DAT
RTRV-TOD
RTRV-NE-GEN

Reference

GR-833, Issue 1, December 1994

Input Format

```
RTRV-HDR:[<tid>]::<ctag>;
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^COMPLD cr lf
;
```

Response Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

No command-specific errors.

Example

```
<RTRV-HDR:::1;

   TESTER 98-05-29 16:15:21
M  1 COMPLD
;
```

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RTRV-SYSTEM-INFO
Retrieve System Information

Description

This command is used to view system's hardware configuration and software licenses.

Related Commands

None

Input Format

```
RTRV-SYSTEM-INFO:[<tid>]::<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^COMPLD cr lf
^^^"GGN:<sysAttribute>=<value>" cr lf +
;
```

Response Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
SerialNumber=	System Serial Number. Unique serial number assigned to system. • Values: 12 characters
SystemType=	System Type. Numeric system designation used in product literature. • Values: 100 | 300 | 500 | 600

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Parameter	Description
ChassisType=	Chassis Type. Chassis type designation - used to distinguish revisions of internal electronics among systems of same type. • Values: System 600, 500, and 100 Chassis: GG514-A, -B, or -C (System 600 Chassis) GG528-A, -B, or -C (System 500 Chassis) GG112-A, -B, or -C (System 100 Chassis) • Values: Pre-2007 System Chassis: GG304-D (4U Single Engine Chassis) GG504-D (4U Dual Engine Chassis) GG308-C, or -D (8U Single Engine Chassis) GG508-C, or -D (8U Dual Engine Chassis) GG102-C, or -D (2U Single Engine Chassis) RFX64P-1A, -B, or -C (6U Chassis, 64 Ports) RFX32P-C (6U Chassis, 32 Ports)
MaximumSignalPower=	Maximum allowed optical power at system input. • Values: Optical Power (dBm), 20.0 (standard)
MinimumSignalPower=	Minimum optical power at input. • Values: Optical Power (dBm), -25.0 (standard)
InputConnectorType=	Optical connector used for input ports. • Values: LC/UPC | LC/APC | SC/UPC | SC/APC | FC/UPC | FC/APC | ST/UPC | MTP-12F | MTP-12M | MTP-8F |MTP-8M | Unknown | Mixed "Unknown" is displayed for systems shipped prior to implementation of connector type tracking in software. "Mixed" is displayed when more than one connector type for input ports is specified in the order.

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Parameter	Description
OutputConnectorType=	Optical connector used for output ports. • Values: LC/UPC | LC/APC | SC/UPC | SC/APC | FC/UPC | FC/APC | ST/UPC | MTP-12F | MTP-12-M | MTP-8F |MTP-8M | Mixed | Unknown "Unknown" is displayed for systems shipped prior to implementation of connector type tracking in software. "Mixed" is displayed when more than one connector type for output ports is specified in the order.
InputPowerDetection=	Input Power Monitoring Enabled? • Values: Yes | No
PhotonicMulticast=	Photonic Multicasting Enabled? • Values: Yes | No
LowPowerOperation=	Low Input Power Operation Enabled? • Values: Yes | No
DedicatedVOA=	Dedicated VOA Operation Enabled? • Values: Yes | No
SwitchedVOA=	Switch VOA Operation Enabled? • Values: Yes | No
DedicatedVOAPorts=	Number of Dedicated VOA ports installed. • Values: 0 | 8 | 16 | 24 | 32
SwitchedVOAPorts=	Number of Switched VOA ports installed. • Values: 0 | 8 | 16 | 24 | 32
UpgradeablePort Matrix=	Number of ports installed but not licensed for operation. • Values: NxM Where "NxM" indicates the ports available to be licensed upon purchase of port upgrade (N = inputs, M = Outputs).
LicensedPortMatrix=	Number of ports installed and licensed for operation. • Values: NxM Where N = input ports and M = output ports

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Parameter	Description
PhotonicMulticastMa-trix=	Listing of Photonic Multicast Units installed by PMU type. • Values: 0 | 1x2 | 1x4 | 1x8 Where the values are used/displayed as follows: • "0" indicates no PMUs are installed. • "2x1x2" indicates two 1:2 PMUs are installed. • "4x1x2,1x4,2x1x8" indicates four 1:2 PMUs, one 1:4 PMU, and two 1:8 PMUs are installed.
LicensedConnection Restore=	Licensed to allow Automatic Restoration of connections after a power cycle? • Values: Yes | No
LicensedPortProtection=	Licensed to allow protection switching configuration and operation? • Values: Yes | No
LicensedVirtualSwitch=	Licensed to allow restrictions to be placed on user access to the systems optical ports (Virtual Private Switch)? • Values: Yes | No
LicensedPortGrouping=	Licensed to allow configuration of Port Groups? • Values: Yes | No
LicensedSNMP=	Licensed to enable monitoring and provisioning of the system via SNMP? • Values: Yes | No

Errors

See Appendix A, “Error Codes” on page 421 for details on error code responses. Common parsing error codes are shown in Table 33 on page 425.

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Example

Example output for a System 500 licensed for 160x160 ports with an additional 8x8 upgradeable ports. If the upgradable ports are licensed, then the system would become a 168x168 port system.

```
<rtrv-system-info:::1;

   LN0001 12-06-10 17:31:07
M  1 COMPLD
   "GGN:SerialNumber=07LN7PA10001"
   "GGN:SystemType=500"
   "GGN:ChassisType=GG528-C"
   "GGN:MaximumSignalPower=20.0"
   "GGN:MinimumSignalPower=-25.0"
   "GGN:InputConnectorType=LC/UPC"
   "GGN:OutputConnectorType=LC/UPC"
   "GGN:InputPowerDetection=Yes"
   "GGN:PhotonicMulticast=Yes"
   "GGN:LowPowerOperation=No"
   "GGN:DedicatedVOA=yes"
   "GGN:SwitchedVOA=No"
   "GGN:DedicatedVOAPorts=8"
   "GGN:SwitchedVOAPorts=0"
   "GGN:UpgradeablePortMatrix=8x8"
   "GGN:LicensedPortMatrix=160x160"
   "GGN:PhotonicMulticastMatrix=1x2,1x4"
   "GGN:LicensedConnectionRestore=Yes"
   "GGN:LicensedPortProtection=No"
   "GGN:LicensedVirtualSwitch=Yes"
   "GGN:LicensedPortGrouping=No"
   "GGN:LicensedSNMP=Yes"
;
```


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SET-SID
Set System ID

Description

This sets the system identifier (SID). This is the string printed used in commands (and referred to as the target identifier, or <tid>), and responses (where it is referred to as the source identifier, or <sid>).

Related Commands

RTRV-NE-GEN
ED-NE-GEN

Reference

GR-199, Issue 1, December 1994

Input Format

```
SET-SID:[<tid>]::<ctag>::<sid>;
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
<sid>	System ID • Values: 1-20 characters; alphanumeric characters plus special characters (period, dash and underscore only).

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^COMPLD cr lf
;
```

Response Parameters

NOTE: Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

IDNV – if the id name is too long or not of legal form.

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Example

```
<SET-SID:::1::LN0001;

   LN0001 13-05-19 22:12:35
M  1 COMPLD
;
```


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ED-DAT
Edit Date and Time

Description

This command changes the time and date of the system clock. The time, date or both can be specified in the command. The system time zone is UTC and cannot be changed. This command will be denied with the SROF error if the NTP (Network Time Protocol) is enabled.

NOTE: This command can have side effects. Time based functionality such as performance monitoring and actions initiated by timers can produce anomalous behavior. Use this command with caution.

Related Commands

RTRV-HDR
RTRV-TOD

Reference

GR-199, Issue 1, December 1994

Input Format

```
ED-DAT:[<tid>]::<ctag>::[<yy-mm-dd>][,<hh-mm-ss>];
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
<yy-mm-dd>	Date in YY-MM-DD • Values: integer: YY-MM-DD
<hh-mm-ss>	Time (24-hr. format) • Values: integer: 00-00-00 to 23-59-59

Response Format

```
cr lf lf
^^^<sid>^YY-MM-DD^HH:MM:SS cr lf
M^^<ctag>^COMPLD cr lf
;
```

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Response Parameters

NOTE: Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

IDNV – if date or time is badly formed.

IDRG – if date or time is out of acceptable range (e.g., 02-29-97).

SROF – if the NTP (Network Time Protocol) is enabled.

SRPF – operating system fails to accept clock change.

Examples

```
<ed-dat:::1::09-06-21,16-39-30;

   BD0009 09-06-21 16:39:30
M  1 COMPLD
;
```

Example in which the time/date change is denied because NTP (Network Time Protocol) is enabled:

```
ed-dat:::1::10-10-29,19-15-50;
   BD0020 10-10-29 19:15:5
M  1 DENY
   SROF
   "ed-dat:::1::10-10-29,19-15-50"
   /* Status, Requested Operation Failed -
   System clock is managed by NTP Service. */
```


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RTRV-TOD
Retrieve Time of Day

Description

This command retrieves the time of day information as set on the system.

Related Commands

ED-DAT

Reference

GR-833, Issue 1, December 1994

Input Format

```
RTRV-TOD:[<tid>]::<ctag>;
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^COMPLD cr lf
^^^"<year>,<month>,<day>,<hour>,<minutes>,<seconds>,
<milliseconds>,,<tmsrc>,<st>" cr lf
;
```

Response Parameters

NOTE: Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
<year>	Four digit year
<month>	Two digit month
<day>	Two digit day
<hour>	Two digit hour - 24 hour format
<minutes>	Two digit minutes
<seconds>	Two digit seconds

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Parameter	Description
<milliseconds>	3 digit milliseconds
<tmsrc>	Clock source. • Values: INT, NTP INT - Internal Clock NTP - Network Time Protocol
<st>	Administrative state of the system. • Values: IS-NR IS-NR: In-Service, Normal

Errors No command-specific errors.

Example

```
<rtrv-tod:::1;

   BD0093 09-06-21 17:19:12
M  1 COMPLD
   "2009,06,21,17,19,12.150,,INT,IS-NR"
;
```


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SET-NTP-SERVER
Configure NTP (Network Time Protocol) Service

Description

Enables or disables the NTP (Network Time Protocol) service and configures the NTP server IP addresses.

When NTP is enabled, the internal system clock is automatically synchronized to one of the NTP servers. Up to three NTPv3/NTPv4 server addresses may be specified for server redundancy.

NOTE: NTP uses UDP port 123 for both client to server requests (every 64 seconds) and server to client responses.

Related Commands

RTRV-NTP-SERVER

Reference

N/A

Input Format

```
SET-NTP-SERVER:[<tid>]::<ctag>:::[SERVICE=<service>]
[,SERVERS=<servers>];
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
SERVICE=	NTP service state: • Values: ON|OFF • Default: OFF
SERVERS=	List of up to three NTP server IP addresses: • Values: IP addresses separated by "&" • Default: 0.0.0.0 - No servers NOTE: Use "SERVERS=0.0.0.0" to set no servers.

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Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

IPNV - Keyword or value is not valid

Example

Enable the NTP service with two local network NTP servers (192.168.1.8 and 192.168.1.24):

```
<set-ntp-server:::1:::SERVICE=ON,SERVERS=192.168.1.8&
192.168.1.24;

   BD0020 11-03-10 17:21:55
M  1 COMPLD
;
```


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RTRV-NTP-SERVER
Retrieve NTP (Network Time Protocol) Configuration

Description

Retrieves the NTP (Network Time Protocol) configuration and clock synchronization status:

- SYNC - Reported when the NTP service is enabled and the system clock is synchronized with one of the listed servers. Synchronization will normally be reported approximately 5 minutes after an NTP configuration change, presuming that one or more of the servers are reachable. SYNC is also reported when the NTP service is disabled (SERVICE=OFF).
- DRIFT - Reported when the NTP service is enabled and the system clock is not synchronized with any of the listed servers.

When NTP is enabled, the internal system clock is automatically synchronized to one of the NTP servers. Up to three NTPv3/NTPv4 server addresses may be specified for server redundancy.

An autonomous message event (REPT EVT SYS) is reported when the NTP clock synchronization status transitions from DRIFT to SYNC (success) or from SYNC to DRIFT (failure).

Related Commands

SET-NTP-SERVER

Reference

N/s

Input Format

```
RTRV-NTP-SERVER:[<tid>]::<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Response Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
^^^"GGN:STATUS=<status>,SERVICE=<service>,SERVERS=<serve
rs>"<cr><lf>
;
```

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Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
STATUS=	NTP synchronization status: • Values: SYNC|DRIFT (These values are described in the command description above.)
SERVICE=	NTP service state: • Values: ON|OFF • Default: OFF
SERVERS=	List of up to three NTP server IP addresses: • Values: IP addresses separated by "&" (An empty field indicates that no NTP servers are configured, which is the system default.)

Errors

Parse errors: See Table 33 on page 425.

Example

Retrieve the NTP server configuration for the system:

```
<RTRV-NTP-SERVER:::1;

   LN0001 13-05-19 22:15:21
M  1 COMPLD
   "GGN:STATUS=SYNC,SERVERS=192.168.1.8,SERVICE=OFF"
;
```


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RTRV-BUILDINFO
Retrieve System Build Information

Description

This command retrieves the release number of the software build that the system is running. The number reported by this command is the one that should be used in bug reports.

Related Commands

RTRV-VERSIONINFO

Reference

N/A

Input Format

```
RTRV-BUILDINFO:[<tid>]::<ctag>;
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^"<ggnid>:PRODUCTNAME=<productname>" cr lf
;
```

Response Parameters

NOTE: Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
PRODUCTNAME=	Name of GGN product

Errors

No command-specific errors.

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Example

```
<RTRV-BUILDINFO:::1;

   GGN_Hayward 08-07-15 19:34:39
M  1 COMPLD
   "GGN:PRODUCTNAME=RFX-pack-R05.00p004"
;
```


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RTRV-VERSIONINFO
Retrieve System Version Information

Description

This command retrieves the version of the system. Note that the retrieved version number is that of a specific item of software (the Engine Controller) running on the system. This version is distinct from the release version, which is retrieved by the RTRV-BUILDINFO command. The behavior of APIs and protocols are closely tied to the Engine Controller version, and less closely tied to the release version. Thus management software should use the Engine Controller version, and not the release version, for backward compatibility support. To facilitate this, the version information is returned as simple integers rather than as a string that would require parsing.

Related Commands

RTRV-BUILDINFO

Reference

N/A

Input Format

```
RTRV-VERSIONINFO:[<tid>]::<ctag>;
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^"<ggnid>:MAJOR=<major>,MINOR=<minor>,
PATCH=<patch>" cr lf
;
```

Response Parameters

NOTE: Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

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Parameter	Description
MAJOR=	Major version • Values: integer
MINOR=	Minor version • Values: integer
PATCH=	Patch version • Values: integer

Errors No command-specific errors.

Example

```
<RTRV-VERSIONINFO:::1;

   GGN_Hayward 08-07-15 19:33:08
M  1 COMPLD
   "GGN:MAJOR=5,MINOR=0,PATCH=4"
;
```


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RTRV-EQPT
Retrieve Equipment

Description

This command retrieves information about the system hardware.

Related Commands

RTRV-BUILDINFO
RTRV-VERSIONINFO

Reference

N/A

Input Format

```
RTRV-EQPT:[<tid>]::<ctag>;
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^"<ggnid>:PARTVENDOR=<partvendor>,
PARTNUMBER=<partnumber>, PARTREVISION=<partrevision>,
PARTNAME=<partname>,BUILDDATE=<builddate>,
SERIALNUMBER=<serialnumber>,CLEI=<clei>" cr lf
;
```

Response Parameters

NOTE: Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
PARTVENDOR=	System Vendor • Values: alpha-num
PARTNUMBER=	System number • Values: integer
PARTREVISION=	System revision • Values: integer

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Parameter	Description
PARTNAME=	System name • Values: alpha-num
BUILDDATE=	System build date • Values: alpha-num
SERIALNUMBER=	System serial number • Values: alpha-num
CLEI=	Common Language Equipment Identifier (CLEI) of the system. • Values: alpha-num

Errors No command-specific errors.

Example

```
<RTRV-EQPT:::1;

   GGN_Hayward 08-07-15 19:36:44
M  1 COMPLD
   "GGN:PARTVENDOR=GGN,PARTNUMBER=RFX64P,PARTREVISION=B,
PARTNAME=RFX,BUILDDATE=09/Sep/2003,SERIALNUMBER=
03BD9PB10009,CLEI="
;
```


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ED-NE-GEN
Edit Network Element Information

Description

This command may be used to set the shelf-level information for the system. The settings here include the host name for the shelf as well as the IP address, IP subnet mask, and gateway IP address for the primary Ethernet interface (labeled “Ethernet1”) and the local craft access interface (labeled "Ethernet 2"). The host name is the network name stored for the shelf. The ClickFlow and TL1 applications display a logical name, the switch name. The switch name is configured using the SET-SID command and is displayed along with the host name when using the RTRV-NE-GEN command.

NOTE: IPADDR and IPADDR2 must not be on the same subnet.

Related Commands

RTRV-NE-GEN
SET-SID

Reference

N/A

Input Format

```
ED-NE-GEN:[<tid>]::<ctag>:::[HOSTNAME=<hostname>]
[,IPADDR=<ipaddr>][,IPMASK=<ipmask>][,GATEWAY=<
gatewayaddr>][,IPADDR2=<ipaddr2>][,IPMASK2=<ipmask2>];
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
HOSTNAME=	Shelf host name • Values: Host name—Maximum of 63 alphanumeric characters and special character (hyphen only). No white spaces.
IPADDR=	Shelf IP address (Ethernet 1) • Values: xxx.xxx.xxx.xxx Dotted decimal notation

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Parameter	Description
IPMASK=	Shelf IP subnet mask (Ethernet 1) • Values: xxx.xxx.xxx.xxx Dotted decimal notation
GATEWAY=	Gateway IP address for subnet • Values: xxx.xxx.xxx.xxx Dotted decimal notation
IPADDR2=	Craft access IP address (Ethernet 2) • Values: xxx.xxx.xxx.xxx Dotted decimal notation
IPMASK2=	Craft access IP subnet mask (Ethernet 2) • Values: xxx.xxx.xxx.xxx Dotted decimal notation

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^/* System Reboot Required to Affect Changes */
;
```

Response Parameters

No command-specific parameters are generated for successful (COMPLD) commands. See ”Common Parameters” on page 14 for a description of the parameters common to all TL1 commands.

Errors

IPNV — invalid keyword entry

SROF — invalid parameter for keyword

Example

To configure all shelf parameters:

```
<ed-ne-gen:::1:::HOSTNAME=BD0236,IPADDR=192.168.2.41,
IPMASK=255.255.255.0,GATEWAY=192.168.2.201,IPADDR2=192.
168.3.200,IPMASK2=255.255.255.0;

   BD0236 09-01-23 15:29:17
M  1 COMPLD
   /* System Reboot Required To Affect Changes */
;
```


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RTRV-NE-GEN
Retrieve Network Element General Information

Description

This command retrieves the logical switch name and the shelf configuration (host name, IP address, subnet mask, and gateway IP) for the system. This is the same information that is set using ED-NE-GEN.

Related Commands

ED-NE-GEN
SET-SID

Reference

N/A

Input Format

```
RTRV-NE-GEN:[<tid>]::<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^"<ggnid>:NAME=<name>,IPADDR=<ipaddr>,IPMASK=<ipmask>,
GATEWAY=<gateway>,HOSTNAME=<hostname>,IPADDR2=<ipaddr2>,
IPMASK2=<ipmask2>" cr lf
;
```

Response Parameters

Command-specific response parameters are listed below. See ”Common Parameters” on page 14 for a description of parameters common to all TL1 command responses.

Parameter	Description
NAME=	Logical system name set using SET-SID • Values: alphanumeric string, 20 character max **NOTE**: The factory default for the logical system name and the host name are the same and are derived from the system serial number.

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Parameter	Description
IPADDR=	System IP address (Ethernet 1) entered in dotted decimal notation • Values: xxx.xxx.xxx.xxx
IPMASK=	IP subnet mask (Ethernet 1) in dotted decimal notation • Values: xxx.xxx.xxx.xxx
GATEWAY=	Subnet gateway server in dotted decimal notation • Values: xxx.xxx.xxx.xxx
HOSTNAME=	Shelf host name (configured via the Maintenance Console or ED-NE-GEN) • Values: alphanumeric string, 63 character max
IPADDR2=	Craft access IP address (Ethernet 2) • Values: xxx.xxx.xxx.xxx Dotted decimal notation
IPMASK2=	Craft access IP subnet mask (Ethernet 2) • Values: xxx.xxx.xxx.xxx Dotted decimal notation

Errors

Parse errors: See Table 33 on page 425.

Example

Retrieve the general information for the system.

```
<rtrv-ne-gen:::1;

   BD0267 11-04-12 22:44:43
M  1 COMPLD
   "GGN:NAME=BD0267,IPADDR=192.168.2.42,IPMASK=
255.255.255.0,GATEWAY=192.168.2.201,HOSTNAME=BD0267-host,
IPADDR2=192.168.3.200,IPMASK2=255.255.255.0"
;
```


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WRT-DB
Write Database

Description

The WRT-DB command explicitly saves the system's current configuration to the persistent configuration file. The system uses this persistent configuration file to restore saved configuration settings during a reboot. After a reboot, it is the last SAVED topology that is restored upon power-up. Because of this, the WRT-DB command should be executed whenever the topology, protection, or signal type configuration of the system has been changed.

NOTE: The system's persistent configuration file uses FLASH memory, which can be worn out if re-written an excessive number of times. To extend memory lifetime, the configuration file should be saved no more than once per day on average, and software scripts should not be programmed to automatically re-write the database more than once per day.

See "Configuration File Management" on page 47 for more information on the persistent configuration file.

Related Commands

INIT-SYS

Reference

N/A

Input Format

```
WRT-DB:::<ctag>:::<force=n>;
```

Input Parameters

See "Common Parameters" on page 14 for a description of the parameters that appear frequently in TL1 commands.

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Parameter	Description
<force>	Specifies whether the save operation should apply to all database tables, or only to database tables that have been modified since the last persisted version. • Values: **0** | 1 | **no** | yes **0** | **no** (default): save only the database tables that have been modified since the last save 1 | yes: save all database tables

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

No command-specific errors.

Examples

The help for this command can be displayed via "?":

```
<WRT-DB:::2:::?;
Keywords are:

  FORCE - Force save

<WRT-DB:::2:::force=?;
FORCE - Force save
  Legal Values: 0 1
<
```


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The following two examples above are equivalent and save only tables that have the dirty flag set.

```
<WRT-DB:::2;

   rfxemu 04-02-05 01:56:51
M  2 COMPLD
;

<WRT-DB:::3:::force=0;

   rfxemu 04-02-05 01:57:03
M  3 COMPLD
;
```

The following example saves all tables regardless of the state of the dirty flag because the force option is turned on.

```
<WRT-DB:::4:::force=1;

   rfxemu 04-02-05 01:57:48
M  4 COMPLD
;
```

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ED-PARAM
Edit Parameter Value

Description

This command edits the configured settings for parameters governing system level operation. The possible parameter types are:

- PowerMonitoringPeriod—This parameter determines the period at which the system will evaluate port power. The minimum setting is 10ms, the default value is 50ms. The significance of this parameter is realized for detecting and reporting power changes which may indicate a threshold crossing or protection switch trigger.
- RestoreConnections—This parameter governs the operation of the Automatic Restoration feature. Automatic Restoration provides two modes of operation. The 'Restore' mode results in all connections being saved to NVRAM. These connections may then be restored after a power-cycle or hard resets. The 'Reset' mode does not save connections. After a power-cycle or hard-reset, the switch will initialize with no connections.
- AutoSaveEnable and AutoSaveDelay—These parameters govern the automatic saving of configuration changes. When the AutoSaveEnable parameter is set to “On”, configuration changes (e.g., user configured such as names, comments, user accounts, signal types, system parameters) will be saved at intervals determined by the AutoSaveDelay parameter. “Saved” means the changes are written to database files in flash and are, therefore, persisted and will not need to be re-entered after a power-cycle of the system.
- EventReportingMode—This parameter determines the number of events logged and reported to the Glimmerglass Console for commands (ClickFlow or TL1) which act on multiple ports. The 'Summary' mode results in a single, summary event indicating the change (e.g., file import for topology). The 'Detail' mode results in a summary event plus an separate event for each port change (e.g., the file import event plus and event for each connection in the topology file).
- PerfSwitchThrottle—This parameter governs switch-time reporting in the Performance and Connection Reports. When set to 'On', switch-times will be collected for display for all con-

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nections. This mode may slow down a concurrent connection command as the system waits for this data. When set to 'Off', switch-time collection is not required and will not slow down concurrent connections.

- ClickFlowConnectConfirm—This parameter sets the confirmation mode for ClickFlow provisioning activity.
- ClickFlowConnectMode—This parameter sets the initial connection mode for ClickFlow users.

See ”Automatic Restoration” on page 47 for more information on the Topology Restoration feature.

See ”Power Monitoring” on page 48 for more information on the Power Monitoring feature.

See the *Glimmerglass ClickFlow Graphical User Interface Manual* for more information on the Confirm Required and Default Connection Mode runtime parameters.

Related Commands RTRV-PARAM

Reference N/A

Input Format

```
ED-PARAM:[<tid>]::<ctag>:::NAME=<param>,VAL=<value>;
```

Input Parameters The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
NAME=	Parameter or Sensor data to be retrieved • Values: PowerMonitoringPeriod | RestoreConnections | AutoSaveEnable | AutoSaveDelay | EventReportingMode | PerfSwitchThrottle | ClickFlowConnectConfirm | ClickFlowConnectMode

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Parameter	Description
VAL=	If NAME=PowerMonitoringPeriod: • Values: integer: 50ms (default), 10ms minimum value
	If NAME=RestoreConnections: • Values: **Restore** (default) | Reset
	If NAME=AutoSaveEnable: • Values: **On** (default) | Off
	If NAME=AutoSaveDelay: • Values: integer: value in seconds Default = **60**, Range = 10 to 86400 seconds
	If NAME=EventReportingMode: • Values: **Summary** (default) | Detail
	If NAME= PerfSwitchThrottle: • Values: **Off** (default) | On
	If NAME= ClickFlowConnectConfirm: • Values: **No** (default) | Yes
	If NAME= ClickFlowConnectMode: • Values: **Simplex** (default) | Duplex | Paired

NOTE: ClickFlowConnectDuplex is deprecated and superseded by ClickFlowConnectMode.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

No command-specific parameters are generated for successful (COMPLD) commands. See ”Common Parameters” on page 14 for a description of the parameters common to all TL1 commands.

Errors

IPNV - invalid keyword entry, invalid parameter value for NAME keyword.

IDNV - invalid value for VAL keyword.

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Examples

To configure the system to restore connections after a power-cycle:

```
<ed-param:::1:::NAME=RestoreConnections,VAL=Restore;

   BD0009 08-04-30 16:43:32
M  1 COMPLD
;
```

To configure the system to reset connections after a power-cycle:

```
<ed-param:::1:::NAME=RestoreConnections,VAL=Reset;

   BD0009 08-04-30 16:43:40
M  1 COMPLD
;
```

To configure the system autosave configurations changes every 60 seconds:

```
<ed-param:::1:::NAME=AutoSaveEnable,VAL=On;

   BD0009 08-04-30 16:45:09
M 1 COMPLD
;
<ed-param:::1:::NAME=AutoSaveDelay,VAL=60;

   BD0009 08-04-30 16:45:31
M 1 COMPLD
;
```

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RTRV-PARAM
Retrieve System Parameter Values

Description

This command retrieves the configured settings for parameters governing system level operation.

See the “ED-PARAM” on page 186 for a description of the parameters.

See ”Automatic Restoration” on page 47 for more information on the Topology Restoration feature.

See ”Power Monitoring” on page 48 for more information on the Power Monitoring feature.

See the *Glimmerglass ClickFlow Graphical User Interface Manual* for more information on the Confirm Required and Default Connection Mode runtime parameters.

Related Commands

ED-PARAM

Reference

N/A

Input Format

```
RTRV-PARAM:[<tid>]::<ctag>[:::NAME=<param>];
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
NAME=	Parameter or Sensor data to be retrieved • Values: PowerMonitoringPeriod | RestoreConnections | AutoSaveEnable | AutoSaveDelay | EventReportingMode | PerfSwitchThrottle | ClickFlowConnectConfirm | ClickFlowConnectMode

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NOTE: ClickFlowConnectDuplex is deprecated and superseded by ClickFlowConnectMode.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^"<ggnid>:<param>=<value>" cr lf +
;
```

Response Parameters

No command-specific parameters are generated for successful (COMPLD) commands. See "Common Parameters" on page 14 for a description of the parameters common to all TL1 commands.

Parameter	Description
PowerMonitoringPeriod=	Port Power Polling period. • Values: integer: 50ms (default), 10ms minimum value
RestoreConnections=	AutoRestoration feature configuration parameter. When set to 'Restore', the connection topology existing prior to a power cycle or hard reset will automatically be restored after system initialization completes. • Values: **Restore** (default) | Reset
AutoSaveEnable=	Enable or disable Autosave operation to persist system configuration. Changes are persisted at "AutoSaveDelay" intervals • Values: **On** (default) | Off
AutoSaveDelay=	Determine the period of time in seconds between Autosave executions. • Values: integer: value in seconds Default = 60, Maximum = 86400
EventReportingMode=	Determines the number of events generated for commands acting on multiple ports. In Summary mode, one summary event in generated. In Detail mode, events for all changes plus a summary event are generated. • Values: **Summary** (default) | Detail

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Parameter	Description
PerfSwitchThrottle=	Performance Switch Throttling setting, which enables or disables the requirement for the system to collect and evaluate switch-time data that is presented in the Performance Report available through the ClickFlow GUI. • Values: **Off** (default) | On
ClickFlowConnectConfirm=	Confirmation mode for ClickFlow users. • Values: **No** (default) | Yes
ClickFlowConnectMode=	Initial Connection mode for ClickFlow sessions. • Values: **Simplex** (default) | Duplex | Paired

Errors **IPNV** — invalid keyword entry, invalid parameter value for NAME keyword.

Example To retrieve the configured settings for parameters governing system level operation:

```
<rtrv-param:::1;

   LosAngeles 08-04-29 23:53:02
M 1 COMPLD
   "GGN:PowerMonitoringPeriod=50"
   "GGN:RestoreConnections=Restore"
   "GGN:AutoSaveEnable=On"
   "GGN:AutoSaveDelay=60"
   "GGN:EventReportingMode=Summary"
   "GGN:ClickFlowConnectConfirm=No"
   "GGN:ClickFlowConnectMode=Simplex"
   "GGN:PerfSwitchThrottle=Off"
;
```


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SET-SNMP-COMMUNITY
Change SNMP v1/v2 Community Name(s)

Description

Change or restore the read-only and/or read/write SNMP community names in the installation default snmpCommunityTable rows.

The TL1 SNMP community commands (SET-SNMP-COMMUNITY, RTRV-SNMP-COMMUNITY, and DLT-SNMP-COMMUNITY) are provided for management of SNMP v1/v2 installation default community names; they only operate on snmpCommunityTable rows with the following attributes:

Attribute	Value(s)
snmpCommunityIndex	• glimmerPublic • glimmerPrivate
snmpCommunitySecurityName	• glimmerPublic • glimmerPrivate

For management of v1/v2 snmpCommunityTable rows that do not meet the above criteria, use SNMP to create/delete/revise the snmpCommunityTable. See the *Glimmerglass Intelligent Optical System SNMP User Manual* for more information.

Related Commands

RTRV-SNMP-COMMUNITY
DLT-SNMP-COMMUNITY

Input Format

```
SET-SNMP-COMMUNITY:[<tid>]::<ctag>:::[READ=<read>]
[,WRITE=<write>];
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
<read>	The read-only community name for SNMP: • Values: 1-32 characters • Default: glimmerPublic

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Parameter	Description
<write>	The read/write community name for SNMP: • Values: 1-32 characters • Default: glimmerPrivate

Response Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

IPNV – Keyword or value is not valid.

Example

Change the community names from the installation default values to "public" and "private":

```
<set-snmp-community:::1:::READ=public,WRITE=private;
   BD0020 10-10-14 20:21:55
M  1 COMPLD
;
```


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RTRV-SNMP-COMMUNITY
Retrieve SNMP v1/v2 Community Name(s)

Description

Retrieve the read-only and read/write SNMP community names in the installation default snmpCommunityTable rows.

The TL1 SNMP community commands (SET-SNMP-COMMUNITY, RTRV-SNMP-COMMUNITY, and DLT-SNMP-COMMUNITY) are provided for management of SNMP v1/v2 installation default community names; they only operate on snmpCommunityTable rows with the following attributes:

Attribute	Value(s)
snmpCommunityIndex	• glimmerPublic • glimmerPrivate
snmpCommunitySecurityName	• glimmerPublic • glimmerPrivate

For management of v1/v2 snmpCommunityTable rows that do not meet the above criteria, use SNMP to create/delete/revise the snmpCommunityTable. See the *Glimmerglass Intelligent Optical System SNMP User Manual* for more information.

Related Commands

SET-SNMP-COMMUNITY
DLT-SNMP-COMMUNITY

Input Format

```
RTRV-SNMP-COMMUNITY:[<tid>]::<ctag>;
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Response Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
^^^"GGN:READ=<read>,WRITE=<write>"
;
```

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Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
<read>	The read-only community name for SNMP: • Values: 1-32 characters • Default: glimmerPublic
<write>	The read/write community name for SNMP: • Values: 1-32 characters • Default: glimmerPrivate

Errors

Parse errors: See Table 33 on page 425.

Example

Retrieve the SNMP community names:

```
<rtrv-snmp-community:::1;

   BD0020 10-10-14 20:21:22
M  1 COMPLD
   "GGN:READ=glimmerPublic,WRITE=glimmerPrivate"
;
```


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DLT-SNMP-COMMUNITY

Delete SNMP v/v2 Community Name(s)

Description

Delete the specified SNMP community name(s) from the snmpCommunity-Table rows.

The TL1 SNMP community commands (SET-SNMP-COMMUNITY, RTRV-SNMP-COMMUNITY, and DLT-SNMP-COMMUNITY) are provided for management of SNMP v1/v2 installation default community names; they only operate on snmpCommunityTable rows with the following attributes:

Attribute	Value(s)
snmpCommunityIndex	• glimmerPublic • glimmerPrivate
snmpCommunitySecurityName	• glimmerPublic • glimmerPrivate

For management of v1/v2 snmpCommunityTable rows that do not meet the above criteria, use SNMP to create/delete/revise the snmpCommunityTable. See the *Glimmerglass Intelligent Optical System SNMP User Manual* for more information.

Related Commands

SET-SNMP-COMMUNITY
RTRV-SNMP-COMMUNITY

Input Format

```
DLT-SNMP-COMMUNITY:[<tid>]::<ctag>:::[READ=<read>]
[,WRITE=<write>];
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

NOTE: While a community name value must be entered it does not have to match the community name being deleted.

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Parameter	Description
<read>	The read-only community name for SNMP: • Values: 1-32 characters • Default: glimmerPublic
<write>	The read/write community name for SNMP: • Values: 1-32 characters • Default: glimmerPrivate

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

IPNV – Keyword or value is not valid.

Example

Delete the installation default snmpCommunityTable read/write community name row:

```
<dlt-snmp-community:::1:::WRITE=anyname;

   BD0020 10-10-14 20:21:55
M  1 COMPLD
;
```

NOTE: If the only snmpCommunityTable rows are those created at installation and no rows have been added via SNMP, then the above TL1 command will disable SNMP v1/v2 write (set) access.

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SET-SNMP-SERVER
Set SNMP Server Address

Description

Inserts an SNMP trap destination address (target address) into the SNMP-TARGET-MIB snmpTargetAddrTable. The table supports a maximum of ten entries.

The TL1 SNMP server commands (SET-SNMP-SERVER, RTRV-SNMP-SERVER, and DLT-SNMP-SERVER) are provided for management of SNMP v2 trap target addresses; they only operate on snmpTargetAddrTable rows with the following attributes:

Attribute	Value
snmpTargetAddrName (row index)	<ipaddr>/<port> Example: 192.168.2.100/162
snmpTargetAddrTagList	ggV2NotifyProfile
snmpTargetAddrParams	ggV2TargetProfile

For management of v1/v3 trap targets, or v2 trap targets that do not meet the above criteria, use SNMP to create/delete/revise the snmpTargetAddrTable, snmpNotifyTable, and snmpTargetParamsTable. See the *Glimmerglass Intelligent Optical System SNMP User Manual* for more information.

Related Commands

RTRV-SNMP-SERVER
DLT-SNMP-SERVER

Reference

N/A

Input Format

```
SET-SNMP-SERVER:[<tid>]:<ipaddr>:<ctag>:::PORT=<port>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

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Parameter	Description
<ipaddr>	SNMP target IP address. The IP address to which SNMP traps will be sent. • Values: xxx.xxx.xxx.xxx Dotted decimal notation
PORT=	SNMP target port. The port number to which SNMP traps will be sent. • Values: Valid port number (for example: 162)

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

No command-specific parameters are generated for successful (COMPLD) commands. See ”Common Parameters” on page 14 for a description of the parameters common to all TL1 commands.

Errors

IDNV – illegally formed or missing <ipaddr> value.

IPNV – bad parameter keyword entry (e.g., not PORT).

SROF – the SNMP Trap Target Table is full.

NOTE: The SNMP Trap Target Address table supports a maximum of ten entries; these include v1, v2 and v3 entries. This command only operates on v2 entries, hence it may report full when there are less than ten v2 entries.

Examples

Inserts SNMP trap destination address “192.168.1.100” with target port number “162.”

```
<set-snmp-server::192.168.1.100:1:::PORT=162;

BD0236 09-01-08 17:18:15
M  1 COMPLD
;
```


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Example in which the insert fails because the table is already full:

```
<set-snmp-server::192.168.1.103:1:::PORT=162;

   BD0236 09-01-08 17:19:58
M  1 DENY
   SROF
   "set-snmp-server::192.168.1.103:1:::PORT=162"
   /* Status, Requested Operation Failed
   SNMP Trap Target Table is Full */
;
```

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RTRV-SNMP-SERVER
Retrieve SNMP Server Address

Description

Retrieves the SNMP trap destination (target) addresses from the SNMP-TARGET-MIB snmpTargetAddrTable. The command response lists entries added by either the SET-SNMP-SERVER TL1 command or by SNMP.

The TL1 SNMP server commands (SET-SNMP-SERVER, RTRV-SNMP-SERVER, and DLT-SNMP-SERVER) are provided for management of SNMP v2 trap target addresses; they only operate on snmpTargetAddrTable rows with the following attributes:

Attribute	Value
snmpTargetAddrName (row index)	<ipaddr>/<port> Example: 192.168.2.100/162
snmpTargetAddrTagList	ggV2NotifyProfile
snmpTargetAddrParams	ggV2TargetProfile

For management of v1/v3 trap targets, or v2 trap targets that do not meet the above criteria, use SNMP to create/delete/revise the snmpTargetAddrTable, snmpNotifyTable, and snmpTargetParamsTable. See the *Glimmerglass Intelligent Optical System SNMP User Manual* for more information.

Related Commands

SET-SNMP-SERVER
DLT-SNMP-SERVER

Reference

N/A

Input Format

```
RTRV-SNMP-SERVER:[<tid>]::<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

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Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^"GGN:SNMP_SERVER=<ipaddr>,PORT=<port>" cr lf +
;
```

Response Parameters

Command-specific response parameters are listed below. See ”Common Parameters” on page 14 for a description of parameters common to all TL1 command responses.

Parameter	Description
SERVER=	SNMP target IP address. The IP address to which SNMP traps will be sent. • Values: xxx.xxx.xxx.xxx Dotted decimal notation
PORT=	SNMP target port. The port number to which SNMP traps will be sent.

Errors

Parse errors: See Table 33 on page 425.

Example

Retrieve the SNMP trap destination addresses.

```
<rtrv-snmp-server:::1;

   BD0236 09-01-08 21:08:29
M 1 COMPLD
   "GGN:SNMP_SERVER=192.168.1.100,PORT=162"
   "GGN:SNMP_SERVER=192.168.1.101,PORT=162"
   "GGN:SNMP_SERVER=192.168.1.102,PORT=10162"
;
```

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DLT-SNMP-SERVER
Delete SNMP Server Address

Description

Deletes an SNMP trap destination address (target address) from the SNMP-TARGET-MIB snmpTargetAddrTable.

The TL1 SNMP server commands (SET-SNMP-SERVER, RTRV-SNMP-SERVER, and DLT-SNMP-SERVER) are provided for management of SNMP v2 trap target addresses; they only operate on snmpTargetAddrTable rows with the following attributes:

Attribute	Value
snmpTargetAddrName (row index)	<ipaddr>/<port> Example: 192.168.2.100/162
snmpTargetAddrTagList	ggV2NotifyProfile
snmpTargetAddrParams	ggV2TargetProfile

For management of v1/v3 trap targets, or v2 trap targets that do not meet the above criteria, use SNMP to create/delete/revise the snmpTargetAddrTable, snmpNotifyTable, and snmpTargetParamsTable. See the *Glimmerglass Intelligent Optical System SNMP User Manual* for more information.

Related Commands

SET-SNMP-SERVER
RTRV-SNMP-SERVER

Reference

N/A

Input Format

```
DLT-SNMP-SERVER:[<tid>]:<ipaddr>:<ctag>:::PORT=<port>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

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Parameter	Description
<ipaddr>	SNMP target IP address. The IP address to which SNMP traps will be sent. • Values: xxx.xxx.xxx.xxx Dotted decimal notation
PORT=	SNMP target port. The port number to which SNMP traps will be sent.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

No command-specific response parameters are generated for successful (COMPLD) commands. See ”Common Parameters” on page 14 for a description of parameters common to all TL1 command responses.

Errors

IDNV – illegally formed or missing <ipaddr> value.

IPNV – bad parameter keyword entry (e.g., not PORT).

SROF – the specified SNMP Trap Target entry is not found.

Examples

Deletes the SNMP trap destination address "192.168.1.100" with target port number "162."

```
<dlt-snmp-server::192.168.1.100:1:::PORT=162;

   BD0236 09-01-08 20:52:26
M 1 COMPLD
;
```

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Example in which the delete fails because the table does not contain the specified target address:

```
<dlt-snmp-server::192.168.1.103:1:::PORT=162;

   BD0236 09-01-08 20:53:33
M 1 DENY
  SROF
  "dlt-snmp-server::192.168.1.103:1:::PORT=162"
   /* Status, Requested Operation Failed */
;
```


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Connection Configuration

5

This chapter describes the Connection Configuration commands listed in the table below. For a description of the Connection Configuration software features, see “Connection Configuration” on page 49.

TL1 Command	Description	Page
ENT-CRS-FIBER	Creates a cross connection between the specified input port(s) and the specified output port(s).	208
SET-CRS-NAME	Assigns or replaces a connection name for an existing connection without affecting the connection.	213
RTRV-CRS-FIBER	Retrieves the cross-connect details for each specified port.	216
DLT-CRS-FIBER	Disconnects each of the specified ports from its connected port.	220
SET-CRS-LOCK	Locks or unlocks the connection on the specified port(s).	224
RTRV-CMAPINFO	Retrieves the general information about connection maps on the system.	228
SET-CFG-CMAP	Creates a connection map on the system.	230
RTRV-CFG-CMAP	Retrieves the specified connection map saved in the system software.	233
DLT-CFG-CMAP	Delete the specified connection map from the system.	236
ENT-CRS-CMAP	Applies the specified connection map to the system.	238

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ENT-CRS-FIBER
Enter Fiber Cross Connect

Description

This command creates a connection between specified input port(s) and specified output port(s). See “Connection Configuration” on page 49 for background information on the connection configuration items described below.

The command connects each input port in the <IPLIST> with the output port at the same offset in the <OPLIST>.

Connections may be:

- Locked by the user <CONNLOCK>
- Assigned a connection name <CONNNAME>
- Assigned a connection ID <CONNID>
- Assigned a connection mode <CM>
- Assigned an operation mode <OPMODE>

Applying multiple connection names or IDs to a range of connections cannot be done in a single ENT-CRS-FIBER command. However, applying the *same* connection name or ID to a range of connections is supported in a single command.

The command pairs each input port in <IPLIST> with the output port at the same offset in <OPLIST> into a cross-connect. Each cross-connect is set to connect mode <CM>.

If <OPMODE> is set to sync, then the response message is not sent until all cross-connects have reached the STEADY or FAULT state. If <OPMODE> is async, then the response message is sent immediately after entering the cross-connects. See ”Synchronous and Asynchronous Commands” on page 52 for more information.

NOTE: Before using the PCAT and PPRIV port filters in this command, it is recommended that the user first tests these filters by using the RTRV-PLIST command (page 245) to retrieve a list of the ports that results from these filters.
See ”Port Filters” on page 61 for more information.

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Related Commands

DLT-CRS-FIBER
SET-CRS-NAME
RTRV-CRS-FIBER
SET-CRS-LOCK

Reference

N/A

Input Format

```
ENT-CRS-FIBER:[<tid>]:<IPLIST>,<OPLIST>:<ctag>:::[PCAT=
<pcat>][,PPRIV=<ppriv>][,PGROUP=<pgroup>][,OPMODE=<opmode>]
[,POFFSET=<poffset>][,CONNID=<connid>][,CM=<cm>][,CONNLOCK=
<connlock>][,CONNNAME=<connname>];
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<IPLIST>	Input port list - list of GGN input port numbers • Values: all | input | input port number(s) See ”Port Lists” on page 59 for a description of possible values.
<OPLIST>	Output port list - group of GGN output port numbers • Values: all | output | output port number(s) See ”Port Lists” on page 59 for a description of possible values.
PCAT=	Filter for port category • Values: **all** (default) | nor | ref See ”Port Filters” on page 61 for a description of these values.
PPRIV=	Filter for port privilege level • Values: **all** (default) | none | view | modify | manage See ”Port Filters” on page 61 for a description of these values.

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Parameter	Description
PGROUP=	Filter for port group • Values: **all** (default) | port group name See ”Port Filters” on page 61 for a description of these values.
OPMODE=	Operation mode • Values: **sync** (default) | async See ”Synchronous and Asynchronous Commands” on page 52 for a description of these values.
POFFSET=	Port offset • Values: [(i | **o**)-]<offset> <offset> integer: **0** - 65535 (0xFFFF) See ”Port List Offset” on page 62 for more information.
CONNID=	Connect ID • Values: integer: **0** - 65535 (0xFFFF)
CM=	Control mode. • Values: **servo** (default) | simplestatic | timedstatic See ”Control Modes” on page 50 for a description of these values.
CONNLOCK=	Lock state of the connection. • Values: 0 | 1 | true | false **0 | false** (default): not locked 1 | true: locked See ”Connection Locking” on page 51 for more information on locking connections.
CONNNAME=	Connection naming • Values: string of 32 or fewer characters (enclose names including white space in double quotes)

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Response Format

Completed Response - user has required privilege for all ports in both lists and requested connections do not violate any port grouping rules.

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
;
```

Partial Command Response - the GGN lines enumerate the requested connection pairs that failed with the reason for the failure (e.g., privilege or port grouping issue). Invalid ports in the port list are skipped (e.g., the connection pair requested is skipped if either port ID is invalid).

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^PRTL<cr><lf>
^^^"GGN:IPORTID=<iportid>,OPORTID=<oportid>,
RESULT=<cause>" cr lf +
;
```

Response Parameters

NOTES: The parameters listed below are returned only when the Response Type is PRTL (partial). For each connection which could not be completed, a quoted line with the parameters listed below will be presented.

Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
IPORTID=	Input port number • Values: integer (long port number)
OPORTID=	GGN output port number • Values: integer (long port number)
RESULT=	Explanation of failure • Values: String indicating failure reason

Errors

Parse errors: See Table 33 on page 425.

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Examples

To create a fiber cross connection between input ports 10001 through 10004 and output ports 20041 through 20044, and between input port 10010 and output port 20048 with a completed response:

```
<ent-crs-fiber::10001&&10004&10010,20041&&20044&20048:1;

   LN0001 11-12-17 01:10:41
M  1 COMPLD
;
```

The ENT-CRS-FIBER commands returned partial responses:

```
<ent-crs-fiber::10001&10049,20048&20072:1;

   LN0001 11-12-17 01:11:58
M  1 PRTL
   "GGN:IPORTID=10049,OPORTID=20072,RESULT=failure -
Insufficient Port Privilege"
;

<ent-crs-fiber::10001&10048,20001&20036:1;

   LN0001 12-01-11 18:04:25
M  1 PRTL
   "GGN:IPORTID=10048,OPORTID=20036,RESULT=failure -
Connection Prohibited By Port Group Configuration"
;
```


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SET-CRS-NAME
Set Fiber Cross Connect Name

Description

This command may be used to assign or replace a connection name for an existing connection without affecting the connection.

Related Commands

ENT-CRS-FIBER
RTRV-CRS-FIBER

Reference

N/A

Input Format

```
SET-CRS-NAME:[<tid>]:<PLIST>:<ctag>:::[CONNNAME=<connname>]
[,PCAT=<pcat>][,PPRIV=<ppriv>][,PGROUP=<pgroup];
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<PLIST>	Port list - group of GGN port numbers • Values: all | input | output | port identifier(s) **NOTE**: Use either the input or output port identifier (port number or port name) from a connection, not both. See ”Port Lists” on page 59 for a description of possible values.
CONNNAME=	Connection name • Values: string of 32 or fewer characters (enclose names including white space in double quotes)
PCAT=	Filter for port category • Values: **all** (default) | nor | ref See ”Port Filters” on page 61 for a description of these values.

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Parameter	Description
PPRIV=	Filter for port privilege level • Values: **all** (default) | none | view | modify | manage See ”Port Filters” on page 61 for a description of these values.
PGROUP=	Filter for port group • Values: **all** (default) | port group name See ”Port Filters” on page 61 for a description of these values.

Response Format

Completed Response: User has required privilege for both ports in each connection found in the port list. Unconnected and invalid ports are ignored.

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
;
```

Partial Response: The “GGN” lines indicate the connections for which the user does not have the required privilege to change the connection name:

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^PRTL<cr><lf>
^^^"GGN:IPORTID=<iportid>,OPORTID=<oportid>,RESULT=<cause>"
cr lf +
;
```

Response Parameters

NOTES: The parameters listed below are returned only when the Response Type is PRTL (partial). For each connection which could not be named, a quoted line with the parameters listed below will be presented.

Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

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Parameter	Description
IPORTID=	GGN input port number • Values: integer (long port number)
OPORTID=	GGN output port number • Values: integer (long port number)
RESULT=	Explanation of failure • Values: String indicating failure reason

Errors

Parse errors: See Table 33 on page 425.

Examples

Assigning a connection name to the connection between input port 10001 and output port 20001. Note that the input port was used in the PLIST. The same result would have been obtained using port 20001 in the PLIST. It is not necessary to list both ports in the connection.

```
<set-crs-name::10001:1:::connname=Name_Single_Connection;

   LN0001 12-01-01 18:43:05
M  1 COMPLD
;
```

The following example shows a partial response:

```
<set-crs-name::10001&10096:1:::connname=
Same_Name_2_Connections;

   LN0001 12-01-01 18:45:22
M  1 PRTL
   "GGN:IPORTID=10096,OPORTID=20048,RESULT=failure -
Insufficient Privilege"
;
```

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RTRV-CRS-FIBER
Retrieve Fiber Connection

Description

This command retrieves the cross-connect details for each specified port.

See “Connection Configuration” on page 49 for more information on connections.

Related Commands

ENT-CRS-FIBER
DLT-CRS-FIBER

Reference

N/A

Input Format

```
RTRV-CRS-FIBER:[<tid>]:<PLIST>:<ctag>:::[PCAT=<pcat>]
[,PPRIV=<ppriv>][,PGROUP=<pgroup>];
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<PLIST>	Port list - group of GGN port numbers • Values: all | input | output | port identifier(s) **NOTE**: Use either the input or output port identifier (port number or port name) from a connection, not both. See ”Port Lists” on page 59 for a description of possible values.
PCAT=	Filter for port category • Values: **all** (default) | nor | ref See ”Port Filters” on page 61 for a description of these values.
PPRIV=	Filter for port privilege level • Values: **all** (default) | none | view | modify | manage See ”Port Filters” on page 61 for a description of these values.

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Parameter	Description
PGROUP=	Filter for port group • Values: **all** (default) | port group name See ”Port Filters” on page 61 for a description of these values.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^"GGN:IPORTID=<iportid>,IPORTGROUP=<portgroup>,IPORTNAME=
<iportname>,IPORTCOMMENT=<iportcomment>,INPWR=
<inpwr>,OPORTID= <oportid>,OPORTGROUP=
<portgroup>,OPORTNAME= <oportname>,OPORTCOMMENT=
<oportcomment>,OUTPWR=<outpwr>,SIGBAND=<sigband>,PWRLOSS=
<pwrloss>,CONNID=<connid>,CONNNAME= <connname>,CONNSTATE=
<connstate>,CONNCAUSE= <conncause>,CONNLOCK=
<connlock>,CONNLOCKUSER=<connlockuser>" cr lf + ;
```

Response Parameters

NOTE: Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
IPORTID=	GGN input port number • Values: integer (long port number)
IPORTGROUP=	Input port - Port Group Assignment • Values: alphanumeric string, 32 characters max
IPORTNAME=	Input port name • Values: alpha-num string: 32 characters max
IPORTCOMMENT=	Input port comment • Values: alphanumeric string, 32 characters max
OPORTID=	GGN output port number • Values: integer
OPORTGROUP=	Output port - Port Group Assignment • Values: alphanumeric string, 32 characters max

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Parameter	Description
OPORTNAME=	Output port name • Values: alpha-num string: 32 characters max
OPORTCOMMENT=	Output port comment • Values: alphanumeric string, 32 characters max
CONNNAME=	Connection name • Values: string of 32 or fewer characters (enclose names including white space in double quotes)
CONNID=	Connect ID • Values: integer: 0 - 65535 (0xFFFF)
CONNSTATE=	Connection state • Values: single | transition | steady | fault | disconnecting | invalid
CONNCAUSE=	Cause for fault connection state (when CONNSTATE= FAULT) • Values: none | general_error | transition_timeout | bad_conn_status | inital_connection_timer_expired | output_loss_of_light | input_loss_of_list | verify_fault | invalid
INPWR=	Input optical power - only valid if Input Detection is available • Values: float, 3 decimal places (dBm value)
OUTPWR=	Output optical power • Values: float, 3 decimal places (dBm value)
PWRLOSS=	Output power delta (loss). Applies only if Input Detection is enabled. • Values: float, 3 decimal places (dB value)
CONNLOCK=	Lock state of the connection • Values: 0 | 1 0: not locked 1: locked (by CONNLOCKUSER).

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Parameter	Description
CONNLOCKUSER=	User name of connection owner. Connection owner is either the user that created the connection or the last person to modify (including locking) the connection. • Values: string, user name, 20 character max length

Errors

Parse errors: See Table 33 on page 425.

Example

```
rtrv-crs-fiber::20001&&20003:1;

   LN0001 13-05-19 21:30:08
M  1 COMPLD
   "GGN:IPORTID=10001,IPORTGROUP=OpenGroup,IPORTNAME=
InPort1,IPORTCOMMENT=GGN-IN,INPWR=-6.052,OPORTID=
20001,OPORTGROUP=OpenGroup,OPORTNAME=OutPort1,OPORTCOMMENT=
GGN-OUT,OUTPWR=-8.263,SIGBAND=1550,PWRLOSS=2.211,CONNID=
0,CONNNAME=Connection1,CONNSTATE=steady,CONNCAUSE=
none,CONNLOCK=0,CONNLOCKUSER=admin"

   "GGN:IPORTID=0,IPORTGROUP=,IPORTNAME=,IPORTCOMMENT=
,INPWR=NA,OPORTID=20002,OPORTGROUP=OpenGroup,OPORTNAME=
OutPort2,OPORTCOMMENT=GGN-OUT,OUTPWR=-50.880,SIGBAND=
1550,PWRLOSS=NA,CONNID=0,CONNNAME=,CONNSTATE=
single,CONNCAUSE=none,CONNLOCK=0,CONNLOCKUSER="

   "GGN:IPORTID=10003,IPORTGROUP=OpenGroup,IPORTNAME=
InPort3,IPORTCOMMENT=GGN-IN,INPWR=-6.980,OPORTID=
20003,OPORTGROUP=OpenGroup,OPORTNAME=OutPort3,OPORTCOMMENT=
GGN-OUT,OUTPWR=-8.800,SIGBAND=1550,PWRLOSS=1.819,CONNID=
0,CONNNAME=Connection3,CONNSTATE=steady,CONNCAUSE=
none,CONNLOCK=1,CONNLOCKUSER=admin"
;
```

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DLT-CRS-FIBER
Delete Fiber Connection

Description

This command disconnects each of the specified ports from its connected port. See “Connection Configuration” on page 49 for more information on connections.

In general, it is sufficient to disconnect ports by specifying a port list <PLIST> containing one of the ports in the connection. For example, all the input ports or output ports for the desired connections to disconnect. The <PLIST> keyword of 'all' maybe used by a user to disconnect all connections (all ports they have both access to and the privilege to disconnect).

If both <PLIST> and <OPLIST> are provided, each input port in <PLIST> is paired with the output port at the same offset in <OPLIST>. Then for each input-output pairing, the output port is disconnected only if it is verified to be cross-connected to its paired input port.

If <OPMODE> is set to sync, then the response message is not sent until all ports have reached the SINGLE or FAULT state. If <OPMODE> is async, then the response message is sent immediately after deleting the cross-connects. See “Synchronous and Asynchronous Commands” on page 52 " for more information.

NOTE: Before using the PCAT and PPRIV port filters in this command, it is recommended that the user first tests these filters by using the RTRV-PLIST command (page 245) to retrieve a list of the ports that results from these filters.
See ”Port Filters” on page 61 for more information.

Related Commands

ENT-CRS-FIBER
RTRV-CRS-FIBER

Reference

N/A

Input Format

```
DLT-CRS-FIBER:[<tid>]:<PLIST>[,<OPLIST>]:<ctag>:::[PCAT=
<pcat>][,PPRIV=<ppriv>][,PGROUP=<pgroup>][,OPMODE=<opmode>]
[,POFFSET=<poffset>];
```


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Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<PLIST>	Port list - group of port identifiers • Values: all | input | output | port identifier(s) **NOTE**: Use either the input or output port identifier (port number or port name) from a connection, not both. See ”Port Lists” on page 59 for a description of possible values.
[<OPLIST>]	Output port list - group of output port numbers • Values: all | output | output port number(s) **NOTE**: When used, the PLIST above becomes <IPLIST> and the connections are validated as existing prior to disconnect. See ”Port Lists” on page 59 for a description of possible values.
PCAT=	Filter for port category • Values: **all** (default) | nor | ref See ”Port Filters” on page 61 for a description of these values.
PPRIV=	Filter for port privilege level • Values: **all** (default) | none | view | modify | manage See ”Port Filters” on page 61 for a description of these values.
PGROUP=	Filter for port group • Values: **all** (default) | port group name See ”Port Filters” on page 61 for a description of these values.
OPMODE=	Operation mode • Values: **sync** (default) | async See ”Synchronous and Asynchronous Commands” on page 52 for a description of these values.

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Parameter	Description
POFFSET=	Port offset • Values: [(i | **o**)-]<offset> <offset> integer: **0** - 65535 (0xFFFF) See ”Port List Offset” on page 62 for more information.

Response Format

Completed Response - user has the required privileges on both ports in the connection. Invalid ports in the port list are skipped.

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
;
```

Partial Response - the GGN lines indicate the connections derived from the port list for which the user does not have the required privilege to disconnect.

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^PRTL<cr><lf>
^^^"GGN:IPORTID=<iportid>,OPORTID=<oportid>,RESULT=<cause>"
cr lf +
;
```

Response Parameters

NOTES: The parameters listed below are returned only when the Response Type is PRTL (partial). For each connection which could not be named, a quoted line with the parameters listed below will be presented.

Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
IPORTID=	GGN input port number • Values: integer (long port number)
OPORTID=	GGN output port number • Values: integer (long port number)

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Parameter	Description
RESULT=	Explanation of failure • Values: String indicating failure reason

Errors

Parse errors: See Table 33 on page 425.

Examples

Completed Response:

```
<dlt-crs-fiber::output:1;

   LN0001 12-01-02 18:08:08
M  1 COMPLD
;
```

Partial Response:

```
<dlt-crs-fiber::20001&20096:1;

   LN0001 12-01-02 18:13:33
M  1 PRTL
   "GGN:IPORTID=10096,OPORTID=20096,RESULT=failure -
Insufficient Port Privilege"
;
```

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SET-CRS-LOCK
Set Connection Lock

Description

This command locks or unlocks the connection on the specified port(s). A connection can be unlocked by a user with administrator privileges or by the user who originally locked the connection. See “Connection Locking” on page 51 for more information on locking connections.

NOTE: Before using the PCAT and PPRIV port filters in this command, it is recommended that the user first tests these filters by using the RTRV-PLIST command (page 245) to retrieve a list of the ports that results from these filters.

See ”Port Filters” on page 61 for more information.

Related Commands

ENT-CRS-FIBER
RTRV-CRS-FIBER

Reference

N/A

Input Format

```
SET-CRS-LOCK:[<tid>]:<PLIST>:<ctag>:::[CONNLOCK=<connlock>]
[,PCAT=<pcat>][,PPRIV=<ppriv>][,PGROUP=<pgroup>];
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<PLIST>	Port list - group of port identifiers • Values: all | input | output | port identifier(s) **NOTE**: Use either the input or output port identifier (port number or port name) from a connection, not both. See ”Port Lists” on page 59 for a description of possible values.

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Parameter	Description
<PLIST>	Port list - a list of port identifiers • Values: all | input | output | port identifier(s) **NOTE**: When used, the PLIST above becomes <IPLIST> and the connections are validated as existing prior to disconnect. See ”Port Lists” on page 59 for a description of possible values.
CONNLOCK=	Locks or unlocks the specified port(s). • Values: true | false **false** (default): not locked (unlock) true: lock connection See ”Connection Locking” on page 51 for more information on locking connections.
PCAT=	Filter for port category • Values: **all** (default) | nor | ref See ”Port Filters” on page 61 for a description of these values.
PPRIV=	Filter for port privilege level • Values: **all** (default) | none | view | modify | manage See ”Port Filters” on page 61 for a description of these values.
PGROUP=	Filter for port group • Values: **all** (default) | port group name See ”Port Filters” on page 61 for a description of these values.

Response Format

Completed Response: User has required privilege for ports and to override existing port locks.

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
;
```

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Partial Response: The “GGN” lines indicate the connections where the user does not have the required privilege to the ports or to override and existing lock.

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^PRTL<cr><lf>
^^^"GGN:IPORTID=<iportid>,OPORTID=<oportid>,RESULT=<cause>"
cr lf +
;
```

Response Parameters

NOTES: The parameters listed below are returned only when the Response Type is PRTL (partial). For each connection which could not be named, a quoted line with the parameters listed below will be presented.

Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
IPORTID=	GGN input port number • Values: integer (long port number)
OPORTID=	GGN output port number • Values: integer (long port number)
RESULT=	Explanation of failure • Values: String indicating failure reason

Errors

Parse errors: See Table 33 on page 425.

Examples

Completed Response:

```
<set-crs-lock::10001:1:::connlock=true;

   LN0001 12-01-02 18:31:12
M  1 COMPLD
;
```


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Partial Response:

```
<set-crs-lock::10001&10002:1:::connlock=true;

   LN0001 12-01-02 18:31:33
M  1 PRTL
   "GGN:IPORTID=10002,OPORTID=20096,RESULT=failure -
Insufficient Port Privilege"
;
```

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RTRV-CMAPINFO
Retrieve Connection Map General Information

Description

This command retrieves the general information about connection maps. Information includes the maximum number of connection maps, useful for determining the maximum value of <CMAPID> and maximum number of elements in a connection map.

See “Connection Maps” on page 52 for more information on connection maps.

Related Commands

DLT-CFG-CMAP
ENT-CRS-CMAP
RTRV-CFG-CMAP
SET-CFG-CMAP

Reference

N/A

Input Format

```
RTRV-CMAPINFO:[<tid>]::<ctag>;
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^"<ggnid>:MAXMAPS=<maxmaps>,MAXELEMS=<maxelems>" cr lf +
;
```

Response Parameters

NOTE: Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

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Parameter	Description
MAXMAPS=	Maximum number of connection maps that can be stored on the system. • Values: integer
MAXELEMS=	Maximum number of connections per connection map. • Values: integer

Errors

Parse errors: See Table 33 on page 425.

Example

```
<rtrv-cmapinfo:::1;

   rfx 03-07-31 02:10:35
M  1 COMPLD
   "GGN:MAXMAPS=8,MAXELEMS=80
;
```

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SET-CFG-CMAP
Set Connection Map Configuration

Description

This command creates a connection map on the system. The connection map is assigned the ID value in the <CMAPID> field. Once the connection map is created with the SET-CFG-CMAP command, it can be applied to the system using the ENT-CRS-CMAP command (page 238).

See “Connection Maps” on page 52 for more information on connection maps.

NOTES: Users may only create CMAPs containing valid port identifiers for which their privilege is modify or higher. To ascertain these ports, use the following command:

```
RTRV-PLIST::ALL:1:::PPRIV=MODIFY
```

Before using the PCAT and PPRIV port filters in this command, it is recommended that the user first tests these filters by using the RTRV-PLIST command (page 245) to retrieve a list of the ports that results from these filters.

See ”Port Filters” on page 61 for more information.

Related Commands

DLT-CFG-CMAP
ENT-CRS-CMAP
RTRV-CFG-CMAP

Reference

N/A

Input Format

```
SET-CFG-CMAP:[<tid>]:<CMAPID>:<ctag>::<IPLIST>,<OPLIST>::
[PCAT=<pcat>][,PPRIV=<ppriv>][PGROUP=<pgroup>][,POFFSET=
<poffset>];
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<CMAPID>	Connection map ID • Values: integer

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Parameter	Description
<IPLIST>	Input port list - a list of input port numbers • Values: all | input | input port number(s) See ”Port Lists” on page 59 for a description of possible values.
<OPLIST>	Output port list - a list of output port numbers • Values: all | output | output port number(s) See ”Port Lists” on page 59 for a description of possible values.
PCAT=	Filter for port category • Values: **all** (default) | nor | ref See ”Port Filters” on page 61 for a description of these values.
PPRIV=	Filter for port privilege level • Values: **all** (default) | none | view | modify | manage See ”Port Filters” on page 61 for a description of these values.
PGROUP=	Filter for port group • Values: **all** (default) | port group name See ”Port Filters” on page 61 for a description of these values.
POFFSET=	Port offset • Values: [(i | **o**)-]<offset> <offset> integer: **0** - 65535 (0xFFFF) See ”Port List Offset” on page 62 for more information.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

NOTE: This command results in either COMPLD or DENY, as the port list must be correct.

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Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

Parse errors: See Table 33 on page 425.

Example

```
<set-cfg-cmap::2:1::10001&&10004&10005&10006,20002&20001&
20004&20003&20006&20005;

   LN0001 12-01-02 19:37:42
M  1 COMPLD
;
```


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RTRV-CFG-CMAP
Retrieve Connection Map Configuration

Description

This command retrieves the connection map configuration saved in the system memory. This configuration consists of a list of the connections in the map shown as input port and output port pairs and includes port configuration information (i.e., port names and port comments).

See “Connection Maps” on page 52 for more information on connection maps.

NOTE: Users may view CMAPs created by other users. However, the command response will only display connections for ports where the user has modify or higher privileges for both ports. These are the only connections upon which this user can operate.

Related Commands

ENT-CRS-CMAP
SET-CFG-CMAP
DLT-CFG-CMAP

Reference

N/A

Input Format

```
RTRV-CFG-CMAP:[<tid>]:<CMAPID>:<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<CMAPID>	Connection map ID number to be retrieved • Values: integer (1 - 8)

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^"<ggnid>:IDX=<idx>,IPORTID=<iportid>,IPORTNAME=
<iportname>,IPORTCOMMENT=<iportcomment>,OPORTID=
<oportid>,OPORTNAME=<oportname>,OPORTCOMMENT=
```

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```
<oportcomment>" cr lf +
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
IDX=	Index of entry in the connection map • Values: integer
IPORTID=	Input port number • Values: integer (long port number)
IPORTNAME=	Input port name • Values: alpha-num string: 32 characters max
IPORTCOMMENT=	Input port comment • Values: alphanumeric string, 32 characters max
OPORTID=	Output port number • Values: integer (long port number)
OPORTNAME=	Output port name • Values: alpha-num string: 32 characters max
OPORTCOMMENT=	Output port comment • Values: alphanumeric string, 32 characters max

Errors

Parse errors: See Table 33 on page 425.

Example

To retrieve the Connection Map with CMAP ID “2”:

```
<rtrv-cfg-cmap::2:1;

   LN0001 12-01-02 19:37:52
M  1 COMPLD
   "GGN:IDX=0,IPORTID=10001,IPORTNAME=InPort1,IPORTCOMMENT=
GGN,OPORTID=20002,OPORTNAME=OutPort2,OPORTCOMMENT=GGN-O"
   "GGN:IDX=1,IPORTID=10002,IPORTNAME=InPort2,IPORTCOMMENT=
GGN,OPORTID=20001,OPORTNAME=OutPort1,OPORTCOMMENT=GGN-O"
   "GGN:IDX=2,IPORTID=10003,IPORTNAME=InPort3,IPORTCOMMENT=
GGN,OPORTID=20004,OPORTNAME=OutPort4,OPORTCOMMENT=GGN-O"
   "GGN:IDX=3,IPORTID=10004,IPORTNAME=InPort4,IPORTCOMMENT=
```


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```
GGN,OPORTID=20003,OPORTNAME=OutPort3,OPORTCOMMENT=GGN-O"
   "GGN:IDX=4,IPORTID=10005,IPORTNAME=InPort5,IPORTCOMMENT=
GGN,OPORTID=20006,OPORTNAME=OutPort6,OPORTCOMMENT=GGN-O"
   "GGN:IDX=5,IPORTID=10006,IPORTNAME=InPort6,IPORTCOMMENT=
GGN,OPORTID=20005,OPORTNAME=OutPort5,OPORTCOMMENT=GGN-O"
;
```

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DLT-CFG-CMAP
Delete Connection Map Configuration

Description

This command deletes the connection map <CMAPID> saved in the system.

See “Connection Maps” on page 52 for more information on connection maps.

Related Commands

ENT-CRS-CMAP
RTRV-CFG-CMAP
RTRV-CMAPINFO
SET-CFG-CMAP

Reference

N/A

Input Format

```
DLT-CFG-CMAP:[<tid>]:<CMAPID>:<ctag>;
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
<CMAPID>	Connection map ID • Values: integer

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

Parse errors: See Table 33 on page 425.

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Examples

```
<dlt-cfg-cmap::7:1;

   rfx 03-07-31 01:51:26
M  1 COMPLD
;
```

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ENT-CRS-CMAP
Enter Cross Connection Map

Description

This command applies a predefined set of connections to the system. The connections to be applied are defined in a connection map, CMAP, using the SET-CFG-CMAP command. Connection maps are assigned a number, CMAPID, when saved. This command allows the predefined connections to be applied according the connection map mode, CMAPMD, setting defined in the input parameters below.

This command also allows a single connection name, CONNNAME, to be applied to all connections which are made.

See “Connection Maps” on page 52 for more information on connection maps.

NOTE: Users may apply CMAPs created by other users. The actions taken will be confined to the ports in the CMAP that are viewable by the user using the RTRV-CFG-CMAP command. Further, using the CMAP command does not override user privileges. Therefore, connection locks cannot be bypassed and, when the "co" CMAPMD is used, only the connections the user has the privilege to disconnect are disconnected.

Related Commands

DLT-CFG-CMAP
RTRV-CFG-CMAP
RTRV-CMAPINFO
SET-CFG-CMAP

Reference

N/A

Input Format

```
ENT-CRS-CMAP:[<tid>]:<CMAPID>:<ctag>:::[OPMODE=<opmode>]
[,CONNID=<connid>][,CONNNAME=<connname>]
[,CONNLOCK=<connlock>][,CM=<cm>][,CMAPMD=<cmapmd>];
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

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Parameter	Description
<CMAPID>	Connection map ID number to be applied • Values: 1-8
OPMODE=	Operation mode • Values: **sync** (default) | async See ”Synchronous and Asynchronous Commands” on page 52 for a description of these values.
CONNID=	Connection ID (numeric identifier for connection) • Values: integer: **0** - 65535 (0xFFFF)
CONNNAME=	Connection name • Values: string of 32 or fewer characters (enclose names including white space in double quotes)
CONNLOCK=	Lock state of the connection. • Values: 0 | 1 | true | false **0 | false** (default): not locked 1 | true: locked See ”Connection Locking” on page 51 for more information on locking connections.
CM=	Control mode. • Values: **servo** (default) | simplestatic | timedstatic
CMAPMD=	Connection map mode • Values: **c** (default) | co | d • c = make all connections in the CMAP, ignore existing connections not in the CMAP • co = make all connections in the CMAP, disconnect existing connections not in the CMAP • d = disconnect all connections in the CMAP

Response Format

Completed Response - all CMAP connections are completed:

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
;
```

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Partial Response - the GGN lines indicate the connect requests which could not be completed (e.g., port grouping rule violation or insufficient privilege to override existing connection lock):

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^PRTL<cr><lf>
^^^"GGN:IPORTID=<iportid>,OPORTID=<oportid>,RESULT=<cause>"
cr lf +
;
```

Response Parameters

NOTES: The parameters listed below are returned only when the Response Type is PRTL (partial). For each connection which could not be completed, a quoted line with the parameters listed below will be presented.

Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
IPORTID=	Input port number • Values: integer (long port number)
OPORTID=	GGN output port number • Values: integer (long port number)
RESULT=	Explanation of failure • Values: String indicating failure reason

Errors

Parse errors: See Table 33 on page 425.

Examples

Successful response:

```
<ent-crs-cmap::1:1:::cmapmd=c;

   LN0001 12-01-03 16:22:09
M  1 COMPLD
;
```


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Partial response:

```
<ent-crs-cmap::2:1cmapmd=c;

   LN0001 12-01-30 23:42:24
M  1 PRTL
   "GGN:IPORTID=10037,OPORTID=20025,RESULT=failure -
Connection Prohibited By Port Group Configuration"
;
```

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Port Configuration

6

This chapter describes the Port Configuration commands listed in the table below. For a description of the Port Configuration software features, see “Port Configuration” on page 53.

TL1 Command	Description	Page
RTRV-PLIST	Returns a fully enumerated list of port numbers available to the user.	245
SET-CFG-FIBER	Configures the specified port(s).	247
RTRV-CFG-FIBER	Retrieves the configuration for the specified port(s).	252
SET-NAME-FIBER	Assigns a port name to the specified port(s).	255
RTRV-NAME-FIBER	Retrieves the port name assigned to the specified port(s).	258
DLT-NAME-FIBER	Deletes the names associated with the specified port(s).	260
SET-CFG-PORTGROUP	Add a port group and configure/edit the list of other port groups allowed to connect to this group.	263
RTRV-CFG-PORTGROUP	Retrieve the configuration for the specified port group(s).	266
DLT-CFG-PORTGROUP	Delete a port group. **NOTE**: All ports in the deleted group will revert to the port group “OpenGroup”.	269
SET-VOA-FIBER	Configures the Variable Optical Attenuation (VOA) settings for the specified port(s).	271
RTRV-VOA-FIBER	Retrieves the VOA settings for the specified port(s).	274
RTRV-POWER-FIBER	Retrieves the port power for the specified input port(s).	279
SET-SIGBAND-FIBER	Assign a signal band to the specified input port(s).	281
RTRV-SIGBAND-FIBER	Retrieve the signal band assigned to the specified input port(s).	284
SET-SIGTHRESH-FIBER	Assign a signal threshold to the specified port(s)	287

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TL1 Command	Description	Page
RTRV-SIGTHRESH-FIBER	Retrieve the name of the signal threshold assigned to the specified port(s).	290

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RTRV-PLIST
Retrieve Port List

Description

Returns a fully enumerated list of port numbers available to the user.

See ”Port Filters” on page 61 for more information on using filters to narrow down a list of ports.

Related Commands

N/A

Reference

N/A

Input Format

```
RTRV-PLIST:[<tid>]:<PLIST>:<ctag>:::[PCAT=<pcat>][,PPRIV=
<ppriv>][,POFFSET=<poffset>];
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
< PLIST >	Port list - group of GGN port numbers • Values: **all** | input | output | integer See ”Port Lists” on page 59 for a description of possible values.
PCAT=	Filter for port category • Values: **all** (default) | nor | ref See ”Port Filters” on page 61 for a description of these values.
PPRIV=	Filter for port privilege level • Values: **all** (default) | none | view | modify | manage See ”Port Filters” on page 61 for a description of these values.

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Parameter	Description
POFFSET=	Port offset • Values: [(i | **o**)-]<offset> <offset> integer: **0** - 65535 (0xFFFF) See ”Port List Offset” on page 62 for more information.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^"<ggnid>:<portID>[&<portID>]+" cr lf +
;
```

Response Parameters

NOTE: Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
<portID>	GGN port number • Values: integer

Errors

Parse errors: See Table 33 on page 425.

Example

```
<rtrv-plist::10001&&10020:1:::poffset=5;

   rfx 05-05-19 16:44:38
M  1 COMPLD
   "GGN:10006&10007&10008&10009&10010"
   "GGN:10011&10012&10013&10014&10015"
   "GGN:10016&10017&10018&10019&10020"
   "GGN:10001&10002&10003&10004&10005"
;
```


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SET-CFG-FIBER
Configure Port Configuration

Description

This command is used to configure the following attributes for a port or list of ports:

- Port Comment - Assign a descriptive label to all ports in the list
- Port Group - Assign all ports in the list to the specified port group
- Signal Band - Assign all input ports in the list to the specified signal band
- Signal Threshold - Assign all ports in the list to the specified signal threshold
- Assign severities for the following optical alarms to all ports listed in the command:
    - Signal Threshold Minimum (STMIN) - all ports in list
    - Signal Threshold Maximum (STMAX) - all ports in list
    - Connection Fault (CSFLT) - all output ports in list

NOTE: For port name configuration, refer to SET-NAME-FIBER.

Below are the minimum user port privileges required for modifying these attributes:

- Modify privilege is required to change the port comment, signal band, signal threshold, and optical alarm severities.
- Manage privilege for ALL ports is required to change the port group assignment for any port.

Related Commands

RTRV-CFG-FIBER
SET-NAME-FIBER
RTRV-NAME-FIBER
DLT-NAME-FIBER
SET-SIGBAND-FIBER
RTRV-SIGBAND-FIBER
SET-SIGTHRESH-FIBER
RTRV-SIGTHRESH-FIBER

Reference

N/A

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Input Format

```
SET-CFG-FIBER:[<tid>]:<PLIST>:<ctag>:::[PORTCOMMENT=
<portcomment>][,PORTGROUP=<portgroup>][,SIGBAND=<sigband>]
[,SIGTHRESH=<sigthresh>][,STMINSEV=<sev>][,STMAXSEV=<sev>]
[,CSFLTSEV=<sev>][,PCAT=<pcat>][,PPRIV=<ppriv>][,PGROUP=
<pgroup>];
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<PLIST>	Port list - a list of port identifiers • Values: all | input | output | port identifier(s) See ”Port Lists” on page 59 for a description of possible values.
PORTCOMMENT=	Port comment. Enter an alphanumeric string of up to 32 characters. The port comment will be applied to all ports in the <PLIST>. • Values: string, 32 character max **NOTE**: Requires Modify privilege (port).
PORTGROUP=	Name of an existing port group to which listed ports should be assigned. • Values: string, 32 character max **NOTE**: Requires Manage port privilege for all listed ports.
SIGBAND=	Signal band (waveband of signal connected to input port) • Values: 1310 | 1550 **NOTE**: Requires Modify privilege for port
SIGTHRESH=	Signal threshold name • Values: string, name of existing signal threshold **NOTE**: Requires Modify privilege for port
STMINSEV=	Signal Threshold Minimum alarm severity • Values: CR | MJ | MI | NT | **DI** (default) **NOTE**: Requires Modify privilege for port

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Parameter	Description
STMAXSEV=	Signal Threshold Maximum alarm severity • Values: CR | MJ | MI | NT | **DI** (default) **NOTE**: Requires Modify privilege for port
CSFLTSEV=	Connection Failure Alarm Severity • Values: **CR** (default) | MJ | MI | NT | DI **NOTE**: Requires Modify privilege for port **NOTE**: Operates only on output ports in the <PLIST>
PCAT=	Filter for port category • Values: **all** (default) | nor | ref See ”Port Filters” on page 61 for a description of these values.
PPRIV=	Filter for port privilege level • Values: **all** (default) | none | view | modify | manage See ”Port Filters” on page 61 for a description of these values.
PGROUP=	Filter for port group • Values: **all** (default) | port group name See ”Port Filters” on page 61 for a description of these values.

Response Format

Completed response: User has required privilege for ports (modify to change port comment, manage to change port group).

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
;
```

Partial response: The “GGN” lines indicate the ports where the user does not have the required privilege to change the configuration of the port.

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^PRTL<cr><lf>
^^^"GGN:PORTID=<portid>,RESULT=<cause>" cr lf +
;
```

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Response Parameters

NOTES: The parameters listed below are returned only when the response type is PRTL (partial).
See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
PORTID=	Port number • Values: integer (long port number)
RESULT=	Explanation of failure • Values: String indicating failure reason

Errors

Parse errors: See Table 33 on page 425.

Examples

The following command executes the following configuration changes:

- The description, "DplxPair1", is assigned to both ports
- The signal band for input 10001 is set to the 1310 waveband
- The signal threshold, "1310-GbE-SFP, is assigned to both ports
- The STMIN alarm severity is set to minor for both ports
- The CSFLT alarm severity is set to major for output 20001

```
<set-cfg-fiber::10001&20001:1:::portcomment=DplxPair#1,
sigband=1310,sigthresh=1310-10GbE-SFP,stminsev=MI,
csfltsev=MJ;

   LN0001 13-05-14 00:31:17
M  1 COMPLD
;
```

The following command uses a Port Filter (PGROUP) to restrict the STMINSEV=MJ assignment to ports that are currently assigned to the port group named "GROUPA". All other ports are unchanged even though the AID for the command is 'all'.

```
<set-cfg-fiber::all:1:::STMINSEV=MJ,PGROUP=GROUPA;

   LN0001 13-03-09 20:09:36
M  1 COMPLD
;
```


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The following command shows a partial response. The command is successful for input 10003 only.

```
<set-cfg-fiber::10003&10072:1:::PORTGROUP=GROUPA;

   LN0001 13-03-09 20:09:53
M  1 PRTL
   "GGN:PORTID=10072,RESULT=failure - Insufficient
Privilege"
;
```

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RTRV-CFG-FIBER
Retrieve Port Configuration

Description

This command retrieves the configuration for the specified port(s).

Related Commands

SET-CFG-FIBER
SET-NAME-FIBER
RTRV-NAME-FIBER
DLT-NAME-FIBER
SET-SIGBAND-FIBER
RTRV-SIGBAND-FIBER
SET-SIGTHRESH-FIBER
RTRV-SIGTHRESH-FIBER

Reference

N/A

Input Format

```
RTRV-CFG-FIBER:[<tid>]:<PLIST>:<ctag>:::[PCAT=<pcat>]
[,PPRIV=<ppriv>][,PGROUP=<pgroup>];
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<PLIST>	Port list - a list of port identifiers • Values: all | input | output | port identifier(s) See ”Port Lists” on page 59 for a description of possible values.
PCAT=	Filter for port category • Values: **all** (default) | nor | ref See ”Port Filters” on page 61 for a description of these values.

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Parameter	Description
PPRIV=	Filter for port privilege level • Values: **all** (default) | none | view | modify | manage See ”Port Filters” on page 61 for a description of these values.
PGROUP=	Filter for port group • Values: **all** (default) | port group name See ”Port Filters” on page 61 for a description of these values.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^"GGN:PORTID=<portid>,PORTGROUP=<portgroup>,
PORTNAME=<portname>,SIGBAND=<sigband>,
SIGTHRESH=<sigthresh>,PORTHEALTH=<porthealth>,
PORTCAT=<portcat>,PORTCOMMENT=<portcomment>,
STMINSEV=<sev>,STMAXSEV=<sev>,CSFLTSEV=<sev>" cr lf +
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
PORTID=	Port number • Values: integer (long port number)
PORTGROUP=	Port group membership • Values: string of 32 or fewer characters
PORTNAME=	Port name • Values: string of 32 or fewer characters
PORTCOMMENT=	Port name alphanumeric • Values: string, 32 character max
SIGBAND=	Signal band (waveband of signal connected to input port) • Values: 1310 | 1550

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Parameter	Description
SIGTHRESH=	Name of assigned signal threshold • Values: string, name of existing signal threshold
STMINSEV=	Signal Threshold Minimum alarm severity • Values: CR | MJ | MI | NT | **DI** (default)
STMAXSEV=	Signal Threshold Maximum alarm severity • Values: CR | MJ | MI | NT | **DI** (default)
CSFLTSEV=	Connection Failure alarm severity • Values: **CR** (default) | MJ | MI | NT | DI **NOTE**: This field is only present in GGN line for output ports
PORTHEALTH=	Port health • Values: good | bad | invalid
PORTCAT=	Filter for port category • Values: nor | ref See ”Port Filters” on page 61 for a description of these values.

Errors Parse errors: See Table 33 on page 425.

Example

```
<RTRV-CFG-FIBER::10001&20001&10002&20002:1;

   LN0001 13-05-14 16:07:12
M  1 COMPLD
   "GGN:PORTID=10001,PORTGROUP=OpenGroup,PORTNAME=InPort1,
SIGBAND=1550,SIGTHRESH=1550,PORTHEALTH=good,PORTCAT=nor,
PORTCOMMENT=GGN-IN,STMINSEV=MI,STMAXSEV=MJ"
   "GGN:PORTID=20001,PORTGROUP=OpenGroup,PORTNAME=OutPort1,
SIGBAND=1550,SIGTHRESH=1550,PORTHEALTH=good,PORTCAT=nor,
PORTCOMMENT=GGN-OUT,STMINSEV=MI,STMAXSEV=MJ,CSFLTSEV=CR"
   "GGN:PORTID=10002,PORTGROUP=OpenGroup,PORTNAME=InPort2,
SIGBAND=1310,SIGTHRESH=1310,PORTHEALTH=good,PORTCAT=nor,
PORTCOMMENT=GGN-IN,STMINSEV=MI,STMAXSEV=MJ"
   "GGN:PORTID=20002,PORTGROUP=OpenGroup,PORTNAME=OutPort2,
SIGBAND=1310,SIGTHRESH=1310,PORTHEALTH=good,PORTCAT=nor,
PORTCOMMENT=GGN-OUT,STMINSEV=MI,STMAXSEV=MJ,CSFLTSEV=CR"
;
```


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SET-NAME-FIBER
Set Port Name

Description

This command assigns a port name to the specified port(s). The user must have modify or higher privileges for a port to assign a name to the port.

NOTES:
- At least one alphabetical character is required to distinguish the port name from its port number.
- Port names are case sensitive.
- The values “all”, “input”, and “output” may not be used as port names. Case variations of these words, such as “inPut”, “OUTput”, or “ALL” may not be used as port names.

Related Commands

RTRV-NAME-FIBER
DLT-NAME-FIBER
RTRV-CFG-FIBER

Reference

N/A

Input Format

```
SET-NAME-FIBER:[<tid>]:<PLIST>:<ctag>::<NLIST>:[PCAT=
<pcat>][,PPRIV=<ppriv>][,PGROUP=<pgroup>];
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<PLIST>	Port list - group of port identifiers • Values: all | input | output | port identifier(s) See ”Port Lists” on page 59 for a description of possible values.
<NLIST>	Port name list. Multiple values can be listed, separated by the “&” character. • Values: string(s) of 32 or fewer characters **NOTE:** The values “all,” “input,” and “output” cannot be used as port names, nor can any case variation of these words, such as “All”, inPut”, or “OUTPUT”.

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Parameter	Description
PCAT=	Filter for port category • Values: **all** (default) | nor | ref See ”Port Filters” on page 61 for a description of these values.
PPRIV=	Filter for port privilege level • Values: **all** (default) | none | view | modify | manage See ”Port Filters” on page 61 for a description of these values.
PGROUP=	Filter for port group • Values: **all** (default) | port group name See ”Port Filters” on page 61 for a description of these values.

Response Format

Completed response: The user has the required privilege for all ports in list.

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
;
```

Partial response: The “GGN” lines indicate the ports for which the user does not have the required privilege to change the port name.

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^PRTL<cr><lf>
^^^"GGN:PORTID=<portid>,PORTNAME=<portname>,RESULT=<cause>"
cr lf +
;
```

Response Parameters

NOTES: The parameters listed below are returned only when the response type is PRTL (partial).

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

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Parameter	Description
PORTID=	Port number • Values: integer (long port number)
PORTNAME=	Existing port name • Values: integer (long port number)
RESULT=	Explanation of failure • Values: String indicating failure reason

Errors

Parse errors: See Table 33 on page 425.

Examples

Completed response:

```
<set-name-fiber::10001&20001:1::InPort1&OutPort2;

   LN0001 12-01-04 22:14:12
M  1 COMPLD
;
```

Partial response:

```
<set-name-fiber::10002&20096:1::InPort2&OutPort96;

   LN0001 12-01-04 22:14:51
M  1 PRTL
  "GGN:PORTID=20096,PORTNAME=existing_name,RESULT=failure -
Insufficient Port Privilege"
;
```

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RTRV-NAME-FIBER
Retrieve Port Name

Description This command retrieves the port name assigned to the specified port(s).

Related Commands
SET-NAME-FIBER
DLT-NAME-FIBER
RTRV-CFG-FIBER

Reference N/A

Input Format

```
RTRV-NAME-FIBER:[<tid>]:<PLIST>:<ctag>:::[PCAT=<pcat>]
[,PPRIV=<ppriv>][,PGROUP=<pgroup>];
```

Input Parameters The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<PLIST>	Port list - a list of port identifiers • Values: all | input | output | port identifier(s) See ”Port Lists” on page 59 for a description of possible values.
PCAT=	Filter for port category • Values: **all** (default) | nor | ref See ”Port Filters” on page 61 for a description of these values.
PPRIV=	Filter for port privilege level • Values: **all** (default) | none | view | modify | manage See ”Port Filters” on page 61 for a description of these values.

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Parameter	Description
PGROUP=	Filter for port group • Values: **all** (default) | port group name See ”Port Filters” on page 61 for a description of these values.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^"GGN:PORTID=<portid>,PORTGROUP=<portgroup>,PORTNAME=
<portname>" cr lf +
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
PORTID=	Port number • Values: integer (long port number)
PORTGROUP=	Port group membership • Values: string of 32 or fewer characters
PORTNAME=	Port name • Values: string of 32 or fewer characters

Errors

Parse errors: See Table 33 on page 425.

Example

```
<rtrv-name-fiber::10001&20001:1;

   LN0001 12-01-09 23:52:33
M  1 COMPLD
   "GGN:PORTID=10001,PORTGROUP=OpenGroup,PORTNAME=InPort1"
   "GGN:PORTID=20001,PORTGROUP=OpenGroup,PORTNAME=OutPort1"
;
```

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DLT-NAME-FIBER
Delete Port Name

Description

This command deletes the name associated with the specified port(s). The user must have modify or higher privilege for a port to delete the name.

Related Commands

SET-NAME-FIBER
RTRV-NAME-FIBER
RTRV-CFG-FIBER

Reference

N/A

Input Format

```
DLT-NAME-FIBER:[<tid>]:<PLIST>:<ctag>:::[PCAT=<pcat>]
[,PPRIV=<ppriv>][,PGROUP=<pgroup>];
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<PLIST>	Port list - list of port identifiers • Values: all | input | output | port identifier(s) See ”Port Lists” on page 59 for a description of possible values.
PCAT=	Filter for port category • Values: **all** (default) | nor | ref See ”Port Filters” on page 61 for a description of these values.
PPRIV=	Filter for port privilege level • Values: **all** (default) | none | view | modify | manage See ”Port Filters” on page 61 for a description of these values.

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Parameter	Description
PGROUP=	Filter for port group • Values: **all** (default) | port group name See ”Port Filters” on page 61 for a description of these values.

Response Format

Completed response: User has required privilege for all ports in the list:

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
;
```

Partial response: The “GGN” lines indicate the ports for which the user does not have the required privilege to delete the port name:

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^PRTL<cr><lf>
^^^"GGN:PORTID=<portid>,RESULT=<cause>" cr lf +
;
```

Response Parameters

NOTE: The parameters listed below are returned only when the response type is PRTL. See ”Common Parameters” on page 14 for a description of parameters common to all TL1 commands.

Parameter	Description
PORTID=	Port number • Values: integer (long port number)
RESULT=	Explanation of failure • Values: String, "failure - Insufficient Port Privilege"

Errors

Parse errors: See Table 33 on page 425.

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Examples

Completed response:

```
<dlt-name-fiber::10001&20001:1;

   LN0001 12-01-04 22:28:29
M  1 COMPLD
;
```

Partial response:

```
<dlt-name-fiber::10002&20096:1;

   LN0001 12-01-09 23:55:04
M  1 PRTL
   "GGN:PORTID=20096,RESULT=failure - Insufficient Port
Privilege"
;
```


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SET-CFG-PORTGROUP
Set Port Group Configuration

Description

This command is used to create and modify port groups. This command requires a system privilege of manage.

Port groups are generally created to partition the ports in the system for the purpose of restricting connection among groups. Initially, all ports are assigned to a default system group named "OpenGroup". OpenGroup is a special group. Input ports in this group can connect to output ports in all user created groups. Likewise, the input ports of user created groups can connect to the output ports in OpenGroup. To fully restrict the system, move all ports out of OpenGroup into user-created groups.

A port can belong to one only port group. Ports are assigned to port groups using the SET-CFG-FIBER command.

Port groups support two parameters: a description and an allow list. The allow list is used to enable the input ports of other user-created groups to connect to the output ports of this group. This is accomplished by specifying the name of the group permitted to connect to this group in the allow list.

For simplex connections, simply configure the group name(s) permitted to connect to output ports in this group. For duplex connections, ensure that the allow list for both groups contains the group name of the other group.

NOTE: Port group names are case insensitive. The name displayed will reflect the case used when the group was created. For modification, any case may be used (e.g., GroupA = GROUPA = groupa)

Related Commands

RTRV-CFG-PORTGROUP
RTRV-CFG-FIBER
SET-CFG-FIBER

Reference

N/A

Input Format

```
SET-CFG-PORTGROUP:[<tid>]:<PORTGROUP>: <ctag>:::[ALLOW=
<allowlist>][,DESCR=<description>];
```

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Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<PORTGROUP>	Port group name • Values: string of 32 or fewer characters When creating, enter desired name. When modifying allow list or description, enter name of existing group to modify. **NOTE**: Port group names are case insensitive. The name displayed will reflect the case used when the group was created. For modification, any case may be used (e.g., GroupA = GROUPA = groupa).
ALLOW=	Allow list - port groups allowed to connect to this group • Values: string of 32 or fewer characters **NOTES**: • OpenGroup is always allowed to connect to all port groups. • When modifying the allow list, all existing group names must be re-entered. Modifying the allow list overwrites the current list.
DESCR=	Description for the port group • Values: string of 32 or fewer characters **NOTE**: DESCR can be modified independently of the allow list.

Response Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

Parse errors: See Table 33 on page 425.

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Examples

```
<set-cfg-portgroup::GroupB:1:::allow=GroupA,descr="Allow
GroupA";

   LN0001 12-01-07 20:09:07
M  1 COMPLD
;
```

```
<set-cfg-portgroup::GroupA:1:::allow=GroupB&GroupC,descr=
"Allow Groups B and C";

   LN0001 12-01-07 20:13:17
M  1 COMPLD
;
```

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RTRV-CFG-PORTGROUP
Retrieve Port Group Configuration

Description

This command retrieves the configuration for port group(s).

NOTE: Port group names are case insensitive. The name displayed will reflect the case used when the group was created. For retrieval, any case may be used (e.g., GroupA = GROUPA = groupa).

Related Commands

SET-CFG-PORTGROUP
RTRV-CFG-FIBER
DLT-CFG-PORTGROUP

Reference

N/A

Input Format

```
RTRV-CFG-PORTGROUP:[<tid>]:[<PORTGROUP>]:<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<PORTGROUP>	Port group name (s) • Values: **null** (default) | all | group name | list of group names **NOTES:** • Null value (no entry) will retrieve all port groups. • Group names are strings of 32 or fewer characters. • Use an ampersand "&" to separate group names when specifying a list of port groups. • Port group names are case insensitive. The name displayed will reflect the case used when the group was created. For retrieval, any case may be used (e.g., GroupA = GROUPA = groupa).

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Response Format

Completed response:

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^"GGN:PORTGROUP=<portgroup>,ALLOW=<groupnamelist>,
DESCR=<description>" cr lf +
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
PORTGROUP=	Port group name • Values: string of 32 or fewer characters Port group names are case insensitive. The name displayed will reflect the case used when the group was created.
ALLOW=	Allow list - port groups allowed to connect to this group • Values: strings of 32 or fewer characters separated by ampersand ("&") character Input ports of groups in the allow list are permitted to connect to output ports in the port group being retrieved by this command.
DESCR=	Description for the port group • Values: string of 32 or fewer characters

Errors

Parse errors: See Table 33 on page 425.

Examples

```
<rtrv-cfg-portgroup:::1;

   LN0001 12-01-07 20:14:27
M  1 COMPLD
   "GGN:PORTGROUP=GroupA,ALLOW=
GroupB&GroupC,OpenGroup,DESCR=Allow Groups B and C"
   "GGN:PORTGROUP=GroupB,ALLOW=GroupA&OpenGroup,DESCR=Allow
```

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```
GroupA"
   "GGN:PORTGROUP=GroupC,ALLOW=GroupD&OpenGroup,DESCR="
   "GGN:PORTGROUP=GroupD,ALLOW=GroupC&OpenGroup,DESCR="
   "GGN:PORTGROUP=GroupE,ALLOW=OpenGroup,DESCR="
   "GGN:PORTGROUP=OpenGroup,ALLOW=OpenGroup,DESCR=IOS
Default Port Group"
;
```

```
<rtrv-cfg-portgroup::GroupA:1;

   LN0001 12-01-07 20:14:27
M  1 COMPLD
   "GGN:PORTGROUP=GroupA,ALLOW=
GroupB&GroupC&OpenGroup,DESCR=Allow Groups B and C"
;
```

```
<rtrv-cfg-portgroup::GroupA&GroupB:1;

   LN0001 12-01-07 20:14:27
M  1 COMPLD
   "GGN:PORTGROUP=GroupA,ALLOW=
GroupB&GroupC&OpenGroup,DESCR=Allow Groups B and C"
  "GGN:PORTGROUP=GroupB,ALLOW=GroupA&OpenGroup,DESCR=Allow
GroupA"
;
```

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DLT-CFG-PORTGROUP
Delete Port Group

Description

This command is used to delete a user-defined port group.

NOTES:
- The system default group, OpenGroup, cannot be deleted.
- All ports currently assigned to a port group revert to membership in OpenGroup when the group is deleted.
- Port group names are case insensitive. For deletion, any case may be used (e.g., GroupA = GROUPA = groupa).

Related Commands

SET-CFG-PORTGROUP
RTRV-CFG-PORTGROUP
RTRV-CFG-FIBER
SET-CFG-FIBER

Reference

N/A

Input Format

```
DLT-CFG-PORTGROUP:[<tid>]:<PORTGROUP>:<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<PORTGROUP>	Port group name (s) • Values: all | group name | list of group names **NOTES:** • Group names are strings of 32 or fewer characters. • Use an ampersand "&" to separate group names when specifying a list of port groups. • Port group names are case insensitive. For deletion, any case may be used (e.g., GroupA = GROUPA = groupa).

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Response Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

Parse errors: See Table 33 on page 425.

Example

```
<dlt-cfg-portgroup::out3:1;

   LN0001 12-01-30 23:54:20
M  1 COMPLD
;
```


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SET-VOA-FIBER
Set Variable Optical Attenuation Settings

Description

This command configures the Variable Optical Attenuation (VOA) settings for the specified VOA port(s). This command configures the ports for either Dedicated or Switched VOA.

To modify the VOA operation for a port, the user must have modify or higher privileges for that port.

See ”Variable Optical Attenuation (VOA)” on page 67 for more information on VOA.

Related Commands

RTRV-VOA-FIBER
RTRV-VOA-CFG

Reference

N/A

Input Format

```
SET-VOA-FIBER:[<tid>]:<OPLIST>:<ctag>:::[VOAMODE=<voamode]
[,VOAVAL=<voaval>][,PCAT=<pcat>][,PPRIV=<ppriv>][,PGROUP=
<pgroup>];
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<OPLIST>	Output port list - a list of output port numbers with VOA • Values: all | input | output | integer See ”Port Lists” on page 59 for a description of possible values.
VOAMODE=	VOA Mode Setting • Values: **none** (default) | abspower | incrloss See “Modes of Operation for VOA” on page 70 for a description of the possible VOA modes.

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Parameter	Description
VOAVAL=	VOA power (dBm) or loss (dB) setting • Values: float, decimal number When VOAMODE=abspower, enter desired output power (dBm) When VOAMODE=incrloss, enter desired incremental loss (dB)
PCAT=	Filter for port category • Values: **all** (default) | nor | ref See ”Port Filters” on page 61 for a description of these values.
PPRIV=	Filter for port privilege level • Values: **all** (default) | none | view | modify | manage See ”Port Filters” on page 61 for a description of these values.
PGROUP=	Filter for port group • Values: **all** (default) | port group name See ”Port Filters” on page 61 for a description of these values.

Response Format

Completed response: User has required privilege to all ports in list:

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
;
```

Partial response: The “GGN” lines indicate the ports for which the user does not have the required privilege to set VOA operation:

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^PRTL<cr><lf>
^^^"GGN:PORTID=<portid>,RESULT=<cause>" cr lf +
;
```


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Response Parameters

NOTE: The parameters listed below are returned only when the response type is PRTL. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
PORTID=	Port number • Values: integer (long port number)
RESULT=	Explanation of failure • Values: String, "failure - Insufficient Privilege"

Errors

Parse errors: See Table 33 on page 425.

Examples

Completed response:

```
<set-voa-fiber::20001&&20004:1:::VOAMODE=abspower,VOAVAL=
-13.5;

   BD0020 12-01-04 23:47:07
M  1 COMPLD
;
```

Partial response:

```
<set-voa-fiber::all:1::: VOAMODE=abspower,VOAVAL=-13.5;

   BD0020 12-01-04 23:49:41
M  1 PRTL
   "GGN:PORTID=20005,RESULT=failure - Insufficient Privilege"
   "GGN:PORTID=20006,RESULT=failure - Insufficient Privilege"
   "GGN:PORTID=20007,RESULT=failure - Insufficient Privilege"
   "GGN:PORTID=20008,RESULT=failure - Insufficient Privilege"
;
```

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RTRV-VOA-FIBER
Retrieve Variable Optical Attenuation Settings

Description

This command retrieves the Variable Optical Attenuation (VOA) settings for ports configured with VOA devices (see ”Variable Optical Attenuation (VOA)” on page 67 for more information).

For this command, the PLIST keywords "all" and "output" resolve only to ports configured with VOA devices (not all ports in the system).

Related Commands

SET-VOA-FIBER
RTRV-VOA-CFG

Reference

N/A

Input Format

```
RTRV-VOA-FIBER:[<tid>]:<OPLIST>:<ctag>:::[PCAT=<pcat>]
[,PPRIV=<ppriv>][,PGROUP=<pgroup>];
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<OPLIST>	Output port list - a list of output port numbers with VOA. • Values: all | output | output port number(s) See ”Port Lists” on page 59 for a description of building a list of output port numbers to connect.
PCAT=	Filter for port category • Values: **all** (default) | nor | ref See ”Port Filters” on page 61 for a description of these values.
PPRIV=	Filter for port privilege level • Values: **all** (default) | none | view | modify | manage See ”Port Filters” on page 61 for a description of these values.

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Parameter	Description
PGROUP=	Filter for port group • Values: **all** (default) | port group name See ”Port Filters” on page 61 for a description of these values.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^"GGN:PORTID=<portid>,PORTGROUP=<portgroup>,VOAMODE=
<voamode>, VOAVAL=<voaval>" cr lf +
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
PORTID=	Port number • Values: integer (long port number)
PORTGROUP=	Port group membership • Values: string of 32 or fewer characters
VOAMODE=	The VOA mode for the specified port(s). • Values: **none** (default) | abspower | incrloss See ”Modes of Operation for VOA” on page 70 for information on VOA modes and operation.
VOAVAL=	VOA power (dBm) or loss (dB) setting • Values: float, decimal number When VOAMODE=abspower, the VOAVAL value is target output power (dBm). When VOAMODE=incrloss, the VOAVAL value is desired incremental loss (dB).

Errors Parse errors: See Table 33 on page 425.

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Example

```
<rtrv-voa-fiber::20001&&20004&20065&&20068:1;

   BD0020 12-01-05 00:27:17
M  1 COMPLD
   "GGN:PORTID=20001,PORTGROUP=Group_A,VOAMODE=none,VOAVAL=
0.0"
   "GGN:PORTID=20002,PORTGROUP=Group_A,VOAMODE=abspower,
VOAVAL=-11.5"
   "GGN:PORTID=20003,PORTGROUP=Group_A,VOAMODE=none,VOAVAL=
-11.5"
   "GGN:PORTID=20004,PORTGROUP=Group_A,VOAMODE=abspower,
VOAVAL=-22.5"
   "GGN:PORTID=20065,PORTGROUP=Group_B,VOAMODE=incrloss,
VOAVAL=3.5"
   "GGN:PORTID=20066,PORTGROUP=Group_B,VOAMODE=incrloss,
VOAVAL=4.0"
   "GGN:PORTID=20067,PORTGROUP=Group_B,VOAMODE=incrloss,
VOAVAL=5.0"
   "GGN:PORTID=20068,PORTGROUP=Group_B,VOAMODE=incrloss,
VOAVAL=0.0"
;
```


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RTRV-VOA-CFG
Retrieve Variable Optical Attenuation Configuration

Description

This command retrieves the Variable Optical Attenuation (VOA) settings for all ports in the system configured with VOA devices.

See ”Variable Optical Attenuation (VOA)” on page 67 for more information on VOA.

Related Commands

RTRV-VOA-FIBER
SET-VOA-FIBER

Reference

N/A

Input Format

```
RTRV-VOA-CFG:[<tid>]::<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^"GGN:PORTID=<portid>,PORTGROUP=<portgroup>,VOAMODE=
<voamode>, VOAVAL=<voaval>" cr lf +
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
PORTID=	Port number • Values: integer (long port number)
PORTGROUP=	Port group membership • Values: string of 32 or fewer characters

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Parameter	Description
VOAMODE=	The VOA mode for the specified port(s). • Values: **none** (default) | abspower | incrloss See ”Modes of Operation for VOA” on page 70 for information on VOA modes and operation.
VOAVAL=	VOA power (dBm) or loss (dB) setting • Values: float, decimal number When VOAMODE=abspower, the VOAVAL value is target output power (dBm). When VOAMODE=incrloss, the VOAVAL value is desired incremental loss (dB).

Errors

Parse errors: See Table 33 on page 425.

Example

```
<rtrv-voa-cfg:::1;

   BD0020 12-01-05 00:37:11
M  1 COMPLD
   "GGN:PORTID=20001,PORTGROUP=Group_A,VOAMODE=none,VOAVAL=
0.0"
   "GGN:PORTID=20002,PORTGROUP=Group_A,VOAMODE=abspower,
VOAVAL=-11.5"
   "GGN:PORTID=20003,PORTGROUP=Group_A,VOAMODE=none,VOAVAL=
-11.5"
   "GGN:PORTID=20004,PORTGROUP=Group_A,VOAMODE=abspower,
VOAVAL=-22.5"
   "GGN:PORTID=20065,PORTGROUP=Group_B,VOAMODE=incrloss,
VOAVAL=3.5"
   "GGN:PORTID=20066,PORTGROUP=Group_B,VOAMODE=incrloss,
VOAVAL=4.0"
   "GGN:PORTID=20067,PORTGROUP=Group_B,VOAMODE=incrloss,
VOAVAL=5.0"
   "GGN:PORTID=20068,PORTGROUP=Group_B,VOAMODE=incrloss,
VOAVAL=0.0"
;
```


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RTRV-POWER-FIBER
Retrieve Port Power

Description This command retrieves the port power for the port specified by PORTID.

Related Commands RTRV-CRS-FIBER

Input Format

```
RTRV-POWER-FIBER:[<tid>]:<PLIST>:<ctag>:::[PCAT=<pcat>]
[,PPRIV=<ppriv>][,PGROUP=<pgroup>];
```

Input Parameters The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<PLIST>	Port list - a list of port identifiers • Values: all | input | output | port identifier(s) See ”Port Lists” on page 59 for a description of possible values.
PCAT=	Filter for port category • Values: **all** (default) | nor | ref See ”Port Filters” on page 61 for a description of these values.
PPRIV=	Filter for port privilege level • Values: **all** (default) | none | view | modify | manage See ”Port Filters” on page 61 for a description of these values.
PGROUP=	Filter for port group • Values: **all** (default) | port group name See ”Port Filters” on page 61 for a description of these values.

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Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^"GGN:PORTID=<portid>,PORTGROUP=<portgroup>,
PORTNAME=<portname>,PORTPOWER=<portpower>" cr lf +
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
PORTID=	Port number • Values: integer (long port number)
PORTGROUP=	Port group membership • Values: string of 32 or fewer characters
PORTNAME=	Port name • Values: string of 32 or fewer characters
PORTPOWER=	Port power - optical power reading at port (dBm) • Values: decimal number

Errors

Parse errors: See Table 33 on page 425.

Example

```
<rtrv-power-fiber::10001&20001:1;

   LN0001 12-01-05 19:20:28
M  1 COMPLD
   "GGN:PORTID=10001,PORTGROUP=OpenGroup,PORTNAME=InPort1,
PORTPOWER=-4.756"
   "GGN:PORTID=20001,PORTGROUP=OpenGroup,PORTNAME=OutPort1,
PORTPOWER=-7.056"
;
```


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SET-SIGBAND-FIBER
Set Input Port Signal Band

Description

This command assigns the specified signal band (waveband) to the indicated input port(s). Signal bands are assigned only to input ports.

The signal band indicates the optical band of the signal connected to the input port:

- For wavelengths between 1260nm and 1460nm, the value of 1310 is used.
- For wavelength between 1460nm and 1630nm, the value of 1550 is used.

Minimum Command Privilege: This command requires Modify port-level privilege.

Related Commands

RTRV-SIGBAND-FIBER
SET-SIGTHRESH-FIBER
RTRV-SIGTHRESH-FIBER
SET-CFG-FIBER
RTRV-CFG-FIBER

Reference

N/A

Input Format

```
SET-SIGBAND-FIBER:[<tid>]:<IPLIST>:<ctag>:::[SIGBAND=
<sigband>][,PCAT=<pcat>][,PPRIV=<ppriv>][,PGROUP=<pgroup>];
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<IPLIST>	Port list - a list of port identifiers • Values: all | input | output | port identifier(s) See ”Port Lists” on page 59 for a description of possible values.

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Parameter	Description
SIGBAND=	Signal band • Values: 1310 | 1550 **NOTE**: Requires Modify privilege for port(s).
PCAT=	Filter for port category • Values: **all** (default) | nor | ref See ”Port Filters” on page 61 for a description of these values.
PPRIV=	Filter for port privilege level • Values: **all** (default) | none | view | modify | manage See ”Port Filters” on page 61 for a description of these values.
PGROUP=	Filter for port group • Values: **all** (default) | port group name See ”Port Filters” on page 61 for a description of these values.

Response Format

Completed Response - user has privilege to change the signal band of the port(s):

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
;
```

Partial Response - the GGN lines indicate the ports where the user does not have the required privilege to change the signal band:

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^PRTL<cr><lf>
^^^"GGN:PORTID=<portid>,RESULT=<cause>" cr lf +
;
```


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Response Parameters

NOTE: The parameters listed below are returned only when the Response Type is PRTL (partial). See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
PORTID=	Port number • Values: integer (long port number)
RESULT=	Explanation of failure • Values: String, failure - <reason>

Errors

Parse errors: See Table 33 on page 425.

Examples

Completed response example:

```
<SET-SIGBAND-FIBER::10001:1:::sigband=1310;

   LN0001 13-03-10 20:27:52
M  1 COMPLD
;
```

Partial Response Example: The command was successful for input 10016 only. Input 10017 remains unchanged.

```
<SET-SIGBAND-FIBER::10016&10017:1:::sigband=1550;

   LN0001 13-03-10 20:27:57
M  1 PRTL
   "GGN:PORTID=10017,RESULT=failure - Insufficient
Privilege"
;
```

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RTRV-SIGBAND-FIBER
Retrieve Port Signal Band

Description

This command retrieves the signal band in use by the specified port(s).

Minimum Command Privilege: This command requires View port-level privilege.

Related Commands

SET-CFG-FIBER
RTRV-CFG-FIBER
SET-SIGBAND-FIBER
SET-SIGTHRESH-FIBER
RTRV-SIGTHRESH-FIBER

Reference

N/A

Input Format

```
RTRV-SIGBAND-FIBER:[<tid>]:<PLIST>:<ctag>:::[PCAT=<pcat>]
[,PPRIV=<ppriv>][,PGROUP=<pgroup>];
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<PLIST>	Port list - a list of port identifiers • Values: all | input | output | port identifier(s) See ”Port Lists” on page 59 for a description of possible values.
PCAT=	Filter for port category • Values: **all** (default) | nor | ref See ”Port Filters” on page 61 for a description of these values.

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Parameter	Description
PPRIV=	Filter for port privilege level • Values: **all** (default) | none | view | modify | manage See ”Port Filters” on page 61 for a description of these values.
PGROUP=	Filter for port group • Values: **all** (default) | port group name See ”Port Filters” on page 61 for a description of these values.

Response Format

Completed Response - user has privilege to change the signal band of the port(s):

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
^^^"GGN:PORTID=<portid>,PORTGROUP=<portgroup>,PORTNAME=
<portname>,SIGBAND=<sigband>" cr lf +
;
```

Partial Response - the GGN lines indicate the ports where the user does not have the required privilege to change the signal band:

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^PRTL<cr><lf>
^^^"GGN:PORTID=<portid>,RESULT=<cause>" cr lf +
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
PORTID=	Port number • Values: integer (long port number)
PORTGROUP=	Port group membership • Values: string of 32 or fewer characters

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Parameter	Description
PORTNAME=	Port name • Values: string of 32 or fewer characters
SIGBAND=	Signal band • Values: 1310 | 1550

Errors Parse errors: See Table 33 on page 425.

Example Retrieve the signal band in use by input port 10001:

```
<RTRV-SIGBAND-FIBER::10001:1;

   LN0001 13-03-10 20:36:11
M  1 COMPLD
  "GGN:PORTID=10001,PORTGROUP=OpenGroup,PORTNAME=InPort1,
SIGBAND=1310"
;
```


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SET-SIGTHRESH-FIBER
Set Port Signal Threshold

Description

This command assigns the specified signal threshold name to the indicated port(s).

Signal thresholds define the optical power criteria for reporting STMIN and STMAX alarm conditions.

Upon signal threshold assignment, the port's threshold condition will automatically reflect the new threshold settings. Therefore, existing alarms may be cleared or new alarms may be generated based upon the optical power present at the port.

Minimum Command Privilege: This command requires Modify port-level privilege.

Related Commands

RTRV-SIGTHRESH-FIBER
RTRV-SIGBAND-FIBER
SET-SIGBAND-FIBER
SET-CFG-SIGTHRESH
RTRV-CFG-SIGTHRESH

Reference

N/A

Input Format

```
SET-SIGTHRESH-FIBER:[<tid>]:<PLIST>:<ctag>:::[SIGTHRESH=
<sigthresh>][,PCAT=<pcat>][,PPRIV=<ppriv>][,PGROUP=
<pgroup>];
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
< PLIST >	Port list - a list of port identifiers • Values: **all** | input | output | port identifier(s) See ”Port Lists” on page 59 for a description of possible values.

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Parameter	Description
SIGTHRESH=	Signal threshold name • Values: string, name for signal threshold **NOTE**: Requires Modify privilege for port.
PCAT=	Filter for port category • Values: **all** (default) | nor | ref See ”Port Filters” on page 61 for a description of these values.
PPRIV=	Filter for port privilege level • Values: **all** (default) | none | view | modify | manage See ”Port Filters” on page 61 for a description of these values.
PGROUP=	Filter for port group • Values: **all** (default) | port group name See ”Port Filters” on page 61 for a description of these values.

Response Format

Completed response: User has the required privilege to all ports in list:

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
;
```

Partial Response - the GGN lines indicate the ports where the user does not have the required privilege to change the signal threshold:

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^PRTL<cr><lf>
^^^"GGN:PORTID=<portid>,RESULT=<cause>" cr lf +
;
```

Response Parameters

NOTE: The parameters listed below are returned only when the response type is PRTL. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

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Parameter	Description
PORTID=	Port number • Values: integer (long port number)
RESULT=	Explanation of failure • Values: String, "failure - Insufficient Privilege"

Errors

Parse errors: See Table 33 on page 425.

Examples

Completed response:

```
<SET-SIGTHRESH-FIBER::20001:1:::sigthresh=1310RX;

   LN0001 13-03-10 21:14:08
M  1 COMPLD
;
```

Partial response - this command was successful for input 10001 only. Input 10017 remains unchanged:

```
<SET-SIGTHRESH-FIBER::10001&10017:1:::sigthresh=1310TX;

   LN0001 13-03-10 21:15:55
M  1 PRTL
   "GGN:PORTID=10017,RESULT=failure - Insufficient
Privilege"
;
```

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RTRV-SIGTHRESH-FIBER
Retrieve Port Signal Threshold

Description

This command retrieves the name of the signal threshold assigned to the specified port(s).

Minimum Command Privilege: This command requires View port-level privilege.

Related Commands

SET-SIGTHRESH-FIBER
RTRV-SIGBAND-FIBER
SET-SIGBAND-FIBER
SET-CFG-FIBER
RTRV-CFG-FIBER

Reference

N/A

Input Format

```
RTRV-SIGTHRESH-FIBER:[<tid>]:<PLIST>:<ctag>:::[PCAT=<pcat>]
[,PPRIV=<ppriv>][,PGROUP=<pgroup>];
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
< PLIST >	Port list - a list of port identifiers • Values: **all** | input | output | port identifier(s) See ”Port Lists” on page 59 for a description of possible values.
PCAT=	Filter for port category • Values: **all** (default) | nor | ref See ”Port Filters” on page 61 for a description of these values.

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Parameter	Description
PPRIV=	Filter for port privilege level • Values: **all** (default) | none | view | modify | manage See ”Port Filters” on page 61 for a description of these values.
PGROUP=	Filter for port group • Values: **all** (default) | port group name See ”Port Filters” on page 61 for a description of these values.

Response Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
^^^"GGN:PORTID=<portid>,PORTGROUP=<portgroup>,PORTNAME=
<portname>,SIGBAND=<sigband>,SIGTHRESH=<sigthresh>" cr lf +
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
PORTID=	Port number • Values: integer (long port number)
PORTGROUP=	Port group membership • Values: string of 32 or fewer characters
PORTNAME=	Port name • Values: string of 32 or fewer characters
SIGBAND=	Signal band (waveband of signal connected to input port) • Values: 1310 | 1550
SIGTHRESH=	Signal threshold name • Values: string, name of existing signal threshold

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Errors

Parse errors: See Table 33 on page 425.

Example

```
<RTRV-SIGTHRESH-FIBER::10001:1;

   LN0001 13-03-10 21:41:06
M  1 COMPLD
   "GGN:PORTID=10001,PORTGROUP=OpenGroup,PORTNAME=InPort1,
SIGBAND=1310,SIGTHRESH=1310TX"
;
```


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Signal Threshold Configuration

7

This chapter describes the Signal Threshold Configuration commands listed in the table below. For a description of the Signal Threshold Configuration software features, see “Signal Threshold Configuration” on page 65.

TL1 Command	Description	Page
SET-CFG-SIGTHRESH	Creates a new signal threshold or modifies an existing signal threshold.	294
RTRV-CFG-SIGTHRESH	Retrieves the configuration of the specified signal threshold(s).	297
DLT-CFG-SIGTHRESH	Deletes the configuration of the specified signal threshold(s).	299

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SET-CFG-SIGTHRESH
Configure Signal Thresholds

Description

This command is used to create and modify signal thresholds. Signal thresholds have the following attributes:

- Signal Threshold Name - used when assigning the threshold to ports
- Minimum optical power level - used with Hysteresis to establish threshold for reporting/clearing STMIN alarms
- Maximum optical power level - used with Hysteresis to establish threshold for reporting/clearing STMAX alarms
- Hysteresis - power offset used with above power levels to establish thresholds for reporting and clearing of alarms

Minimum Command Privilege: This command requires Modify port-level privilege.

Related Commands

RTRV-CFG-SIGTHRESH
DLT-CFG-SIGTHRESH
SET-SIGTHRESH-FIBER
RTRV-SIGTHRESH-FIBER
SET-CFG-FIBER
RTRV-CFG-FIBER

Reference

N/A

Input Format

```
SET-CFG-SIGTHRESH:[<tid>]:<SIGTHRESH>:<ctag>:::
[STMIN=<pwrmin>][,STMAX=<pwrmax>][,HYST=<hyst>];
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
<SIGTHRESH>	Signal threshold name. • Values: string: maximum of 32 characters max

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Parameter	Description
STMIN=	Minimum optical power level (dBm). Used with hysteresis value to establish the STMIN threshold alarm set/clear power levels. • Values: float, (value to tenth) Threshold alarm at (STMIN - HYST) Threshold alarm clear at (STMIN + HYST)
STMAX=	Maximum optical power level (dBm). Used with hysteresis value to establish the STMAX threshold alarm set/clear power levels. • Values: float, (value to tenth) Threshold alarm at (STMAX + HYST) Threshold alarm clear at (STMAX - HYST)
HYST=	Hysteresis - power (dB) offset. Value is used in conjunction with minimum and maximum power levels to separate alarm set and alarm clear conditions. • Values: float, (value to tenth)

Response Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

Parse errors: See Table 33 on page 425.

Examples

This command is used to create the Signal Threshold named "1310RX”:

```
<SET-CFG-SIGTHRESH::1310RX:1:::STMIN=-18.5,STMAX=-3.5,
HYST=0.5;

   LN0001 13-03-10 22:07:06
M  1 COMPLD
;
```

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This command is used to modify the Signal Threshold named "1310RX". Only the SNMIN value was changed in this command. The STMAX and HYST values previously stored remain unchanged.

```
<set-cfg-sigthresh::1310RX:1:::STMIN=-17.5;

   LN0001 13-03-10 22:07:06
M  1 COMPLD
;
```


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RTRV-CFG-SIGTHRESH
Retrieve Signal Threshold Configuration

Description

This command retrieves the configuration of the specified signal thresholds.

Minimum Command Privilege: This command requires View port-level privilege.

Related Commands

SET-CFG-SIGTHRESH
DLT-CFG-SIGTHRESH
SET-SIGTHRESH-FIBER
RTRV-SIGTHRESH-FIBER
SET-CFG-FIBER
RTRV-CFG-FIBER

Reference

N/A

Input Format

```
RTRV-CFG-SIGTHRESH:[<tid>]:<SIGTHRESH>:<ctag>;
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
<SIGTHRESH>	Signal threshold name(s). • Values: all | <name> | <list of names> More than one threshold name may be specified, separated by the ampersand (&) delimiter. The value *all* retrieves all signal thresholds.

Response Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
^^^"GGN:SIGTHRESH=<sigthresh>,STMIN=<pwrmin>,
STMAX=<pwrmax>,HYST=<hyst>" cr lf +
;
```

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Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

Parse errors: See Table 33 on page 425.

Example

Retrieve all of the signal types:

```
<rtrv-cfg-sigthresh::all:1;

   LN0001 13-03-10 23:02:47
M  1 COMPLD
   "GGN:SIGTHRESH=1310,STMIN=-20,STMAX=5,HYST=1"
   "GGN:SIGTHRESH=1310RX,STMIN=-17.5,STMAX=-3.5,HYST=0.5"
   "GGN:SIGTHRESH=1310TX,STMIN=-5.5,STMAX=-0.5,HYST=0.5"
   "GGN:SIGTHRESH=1550,STMIN=-20,STMAX=5,HYST=1"
;
```


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DLT-CFG-SIGTHRESH
Delete Signal Type Configuration

Description

This command deletes the specified signal threshold(s).

Any ports currently assigned to deleted signal thresholds will be reassigned to the default signal threshold that matches the signal band assigned to the port. The default signal thresholds are named "1310" and "1550" and map to the signal bands of 1310 and 1550 respectively.

Minimum Command Privilege: This command requires Modify port-level privilege.

Related Commands

SET-CFG-SIGTHRESH
RTRV-CFG-SIGTHRESH
SET-CFG-FIBER
RTRV-CFG-FIBER

Reference

N/A

Input Format

```
DLT-CFG-SIGTHRESH:[<tid>]:<SIGTHRESH>:<ctag>;
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
<SIGTHRESH>	Signal threshold name(s). • Values: all | <name> | <list of names> More than one threshold name may be specified, separated by the ampersand (&) delimiter. The value *all* retrieves all signal thresholds. **NOTE**: The built-in default signal thresholds of 1310 and 1550 cannot be deleted.

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Response Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

Parse errors: See Table 33 on page 425.

Example

Delete the 1310TX signal threshold:

```
<DLT-CFG-SIGTHRESH::1310TX:1;

   LN0001 13-03-11 14:26:09
M  1 COMPLD
;
```


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Protection

8

This chapter describes the Protection commands listed in the table below. For a description of the Protection software features, see “Protection” on page 74.

TL1 Command	Description	Page
SET-CFG-PROTECTION	Adds a protection rule to the system.	302
RTRV-CFG-PROTECTION	Retrieves the configuration for all protection rules loaded into the system.	306
DLT-CFG-PROTECTION	Deletes a protection rule from the system.	309

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SET-CFG-PROTECTION
Set Protection Configuration

Description

This command adds a protection rule to the system.

The <WPORTID> and <PPORTID> specify the working and protect ports for the protection rule. If the command includes the SYMMETRIC keyword, then the protect configuration (PMODE, PDELAY, PTRIGGER) is copied from the working configuration (WMODE, WDELAY, WTRIGGER).

The working and protect ports cannot be used by any other protection rule. The system will reject the protection rule if either port is used by any other protection rule.

See the section ”Protection” on page 74 for more information on protection switching.

Related Commands

RTRV-CFG-PROTECTION
DLT-CFG-PROTECTION
WRT-DB

Reference

N/A

Input Format

```
SET-CFG-PROTECTION:[<tid>]:<WPORTID>,<PPORTID>:<ctag>:::
[WMODE=<arm-mode>][,WDELAY=<arm-delay>]
[,WTRIGGER=<trigger-time>][,PMODE=<arm-mode>]
[,PDELAY=<arm-delay>][,PTRIGGER=<trigger-time>]
[,SYMMETRIC=<true-false>][,DUPLEX=<true-false>];
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
<WPORTID>	Port number of working input • Values: integer NOTE: The working and protect ports cannot be used by any other protection rule. The system will reject the rule if either port is used by another protection rule.

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Parameter	Description
<PPORTID>	Port number of protect input • Values: integer NOTE: The working and protect ports cannot be used by any other protection rule. The system will reject the rule if either port is used by another protection rule.
WMODE=	The working connection arm mode that determines how the protection rule is armed. The rule must be armed before the system will start monitoring the working connection for a loss of light condition. • Values: THRESHOLD | TIMED See Table 24 on page 77 for a description of these values.
WDELAY=	The working connection arm delay that specifies how long to wait for before arming the protection rule when in TIMED mode. This parameter is only meaningful if the arm mode is TIMED. • Values: integer (in milliseconds)
WTRIGGER=	The working connection trigger time specifies the number of msec to wait before triggering a protection switch after detecting a loss of light condition. • Values: integer If the loss of light condition corrects itself before the trigger time elapses, then the protection switch will not trigger.
PMODE=	The protect connection arm mode that determines how the protection rule is armed. The rule must be armed before the system will start monitoring the protect connection for a loss of light condition. • Values: THRESHOLD | TIMED See Table 24 on page 77 for a description of these values.
PDELAY=	The protect connection arm delay that specifies how long to wait for before arming the protection rule when in TIMED mode. This parameter is only meaningful if the arm mode is TIMED. • Values: integer

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Parameter	Description
PTRIGGER=	The protect connection trigger time specifies the number of msec to wait before triggering a protection switch after detecting a loss of light condition. • Values: integer If the loss of light condition corrects itself before the trigger time elapses, then the protection switch will not trigger.
SYMMETRIC=	Copies working-configuration to protect configuration. • Values: TRUE | FALSE • true – create symmetric configuration. Protection configuration keywords are ignored. • false – (default) do not copy protection configuration from working configuration. Protection configuration keywords are used.
DUPLEX=	Specifies whether the protection rule uses Duplex or Simplex protection (see ”Protection Types: Simplex vs. Duplex” on page 75 for more information). • Values: TRUE | FALSE • true – apply Duplex protection. • false – apply Simplex protection.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

Parse errors: See Table 33 on page 425.

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Examples

Add a protection rule for inputs 10020 (work) and 10021 (protect) with THRESHOLD arming for working connections and TIMED 750 msec arming for protect connections:

```
<set-cfg-protection::10020,10021:ctag:::WMODE=threshold,
WDELAY=1000, WTRIGGER=50,PMODE=timed,PDELAY=750,
PTRIGGER=100;

   nova 04-06-21 18:35:49
M  ctag COMPLD
;
```

Add a symmetric protection rule for 10022 and 10023 with THRESHOLD arming and a 45 msec trigger:

```
<set-cfg-protection::10022,10023:ctag:::WMODE=threshold,
WDELAY=1000,WTRIGGER=45,SYMMETRIC=true;

   nova 04-06-21 18:37:18
M  ctag COMPLD
;
```

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RTRV-CFG-PROTECTION
Retrieve Protection Configuration

Description

This command retrieves the configuration for all protection rules loaded into the system.

See the section ”Protection” on page 74 for more information on protection switching.

Related Commands

SET-CFG-PROTECTION
DLT-CFG-PROTECTION
WRT-DB

Reference

N/A

Input Format

```
RTRV-CFG-PROTECTION:[<tid>]::<ctag>;
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^"GGN:STATE=<state>,OUTPUT=<output>,WPORTID=<input>,
   WMODE=<arm-mode>,WDELAY=<arm-delay>,
   WTRIGGER=<trigger-time>,PPORTID=<input>,
   PMODE=<arm-mode>,PDELAY=<arm delay>,
   PTRIGGER=<trigger-time>" cr lf +
   . . .
;
```

Response Parameters

NOTE: Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

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Parameter	Description
STATE=	State of the protection rule. • Values: INACTIVE | ACTIVATING | WORKING | PROTECT | FAILED See Table 23 on page 76 for a description of these values.
OUTPUT=	The output port currently connected to either input WPORTID or PPORTID. • Values: integer If neither input is connected, then the output port is zero (0).
WPORTID=	The working-input port. • Values: integer
WMODE=	The working-connection arm mode that determines how the protection rule is armed. The rule must be armed before the system will start monitoring the working connection for a loss of light condition. • Values: THRESHOLD | TIMED See Table 24 on page 77 for a description of these values.
WDELAY=	The working-connection arm delay that specifies how long to wait for before arming the protection rule when in TIMED mode. This parameter is only meaningful if the arm mode is TIMED. • Values: integer (in milliseconds)
WTRIGGER=	The working-connection trigger time specifies the number of msec to wait before triggering a protection switch after detecting a loss of light condition. • Values: integer If the loss of light condition corrects itself before the trigger time elapses, then the protection switch will not trigger.
PPORTID=	The protect input port. • Values: integer

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Parameter	Description
PMODE=	The protect-connection arm mode that determines how the protection rule is armed. The rule must be armed before the system will start monitoring the protect connection for a loss of light condition. • Values: THRESHOLD | TIMED See Table 24 on page 77 for a description of these values.
PDELAY=	The protect-connection arm delay that specifies how long to wait for before arming the protection rule when in TIMED mode. This parameter is only meaningful if the arm mode is TIMED. • Values: integer
PTRIGGER=	The protect-connection trigger time specifies the number of msec to wait before triggering a protection switch after detecting a loss of light condition. • Values: integer If the loss of light condition corrects itself before the trigger time elapses, then the protection switch will not trigger.

Errors

Parse errors: See Table 33 on page 425.

Example

Retrieve the configuration for all protection rules:

```
<rtrv-cfg-protection:::ctag;

   Glimmerglass 06-02-22 15:23:29
M  1 COMPLD
   "GGN:STATE=INACTIVE,OUTPUT=0,WPORTID=10009,
WMODE=THRESHOLD,WDELAY=750,WTRIGGER=50,PPORTID=10010,
PMODE=THRESHOLD,PDELAY=750,PTRIGGER=50,DUPLEX=true"
   "GGN:STATE=INACTIVE,OUTPUT=0,WPORTID=10021,
WMODE=THRESHOLD,WDELAY=750,WTRIGGER=50,PPORTID=10022,
PMODE=THRESHOLD,PDELAY=750,PTRIGGER=50,DUPLEX=true"
   "GGN:STATE=PROTECT,OUTPUT=20001,WPORTID=10001,
WMODE=THRESHOLD,WDELAY=750,WTRIGGER=50,PPORTID=10002,
PMODE=THRESHOLD,PDELAY=750,PTRIGGER=50,DUPLEX=false"

;
```


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DLT-CFG-PROTECTION
Delete Protection Configuration

Description

This command deletes a protection rule from the system.

See the section ”Protection” on page 74 for more information on protection switching.

Related Commands

SET-CFG-PROTECTION
RTRV-CFG-PROTECTION
WRT-DB

Reference

N/A

Input Format

```
DLT-CFG-PROTECTION:[<tid>]:<IPLIST>:<ctag>:::
[PCAT=<pcat>][,PPRIV=<ppriv>];
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
<IPLIST>	Port list - group of GGN port numbers • Values: **all** | input | output | integer See ”Port Lists” on page 59 for a description of possible values.
PCAT=	Filter for port category • Values: **all** (default) | nor | ref See ”Port Filters” on page 61 for a description of these values.
PPRIV=	Filter for port privilege level • Values: **all** (default) | none | view | modify | manage See ”Port Filters” on page 61 for a description of these values.

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Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
^^^"<ggnid>:PORTID=<portid>,PORTNAME=<portname>,
STATUS=<status>" cr lf+
;
```

Response Parameters

NOTE: Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
PORTID=	GGN port number • Values: integer
PORTNAME=	Port name • Values: alpha-numeric string: 32 characters max
STATUS=	Status of the delete operation. A value of “0” indicates that the protection rule was deleted successfully. • Values: 0 NOTE: If the delete operation fails for a protection rule, the response will include an error message and the port ID of the associated port.

Errors

Parse errors: See Table 33 on page 425.

Example

Delete the protection rule for port 10001:

```
<dlt-cfg-protection::10001:1;

   rfx 05-05-20 11:35:52
M  1 COMPLD
   "GGN:PORTID=10001,PORTNAME=,STATUS=0"
;
```


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Alarms, Logs, and Notifications

9

This chapter describes the commands used for configuring, acknowledging, and viewing active alarms; viewing and managing log files; and configuring Syslog, GGNMSG and TL1 autonomous message notifications. For a description of the Alarms, Logs, and Notifications software features, see ”Alarms, Logs, and Notifications” on page 79.

TL1 Command	Description	Page
SET-CFG-ALARM	Customize an alarm severity for a port	313
RTRV-CFG-ALARM	Retrieve list of customized alarm severities.	316
DLT-CFG-ALARM	Delete the customized alarm severity (returns to factory default setting)	320
RTRV-ACT-ALARM	Retrieves the Active Alarm table	322
ACK-ACT-ALARM	Acknowledge alarm(s) in the Active Alarm table.	325
RTRV-LOG	Retrieve the contents of the specified log (autonomous message format).	329
RTRV-GGNMSG-LOG	Retrieve the contents of the specified log. (GGNMSG format)	332
SET-ATTR-LOG	Configure the log file attributes for the specified log.	336
RTRV-ATTR-LOG	Retrieve log file attributes for the specified log.	338
INIT-LOG	Initialize the specified log without changing the log file attributes.	340
SET-SYSLOG-SERVER	Configure system to issue logging activity to a Syslog server.	342
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DLT-SYSLOG-SERVER	Delete a Syslog server from the configuration.	347

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TL1 Command	Description	Page
SET-GGNMSG-SERVER	Configure the system to issue notifications to a CyberSweep™ Path Manager server or server capable of receiving/processing GGNMSGs.	349
RTRV-GGNMSG-SERVER	Retrieve the GGNMSG server configuration.	351
DLT-GGNMSG-SERVER	Remove a GGNMSG target server from the system configuration.	353
ALW-MSG-ALL	Enable autonomous message notifications for alarms and system events on the current TL1 session.	355
INH-MSG-ALL	Inhibit autonomous message notifications for alarms and system events on the current TL1 session. (default setting for sessions)	357
ALW-MSG-ALM	Enable autonomous message notifications for alarms on the current TL1 session.	358
INH-MSG-ALM	Inhibit autonomous message notifications for alarms on the current TL1 session.	360
ALW-MSG-EVT	Enable autonomous message notifications for system events on the current TL1 session.	361
INH-MSG-EVT	Inhibit autonomous message notifications for system events on the current TL1 session.	363

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SET-CFG-ALARM
Configure Alarm Severity for Port and Connection Alarms

Description

This command is used to change the severity of STMIN, STMAX, or CSFLT alarms for an individual port.

NOTE: The SET-CFG-ALARM command only operates on one port at a time. The SET-CFG-FIBER command supports configuration of all alarm severities for a port or list of ports. Therefore, the SET-CFG-FIBER command is easier and more effective to use for changes.

CSFLT alarms are associated only with output ports as shown in the table below.

This command requires the specification of a Resource Type, Object (port), and Operation (Alarm Type) to uniquely identify a port and an alarm. The Alarm Severity field is then used to change the severity for the alarm for this port. The table below shows the valid selections.

Resource	Object	Operation	To Change Severity for
INPUT	<Input Port#>	STMIN	Minimum Power Alarms
INPUT	<Input Port#>	STMAX	Maximum Power Alarms
OUTPUT	<Output Port#>	STMIN	Minimum Power Alarms
OUTPUT	<Output Port#>	STMAX	Maximum Power Alarms
CONNECTION	<Output Port#>	CSFLT	Connection Fault

Required user privilege for command: Modify port level privilege

Related Commands

RTRV-CFG-ALARM
DLT-CFG-ALARM
SET-CFG-FIBER
RTRV-CFG-FIBER

Input Format

```
SET-CFG-ALARM:[<tid>]::<ctag>:::<RESTYPE=<restype>>,
<OBJECT=<resource>>,<OPERATION=<alarmtype>>,
<SEVERITY=<sev>>;
```

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Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
RESTYPE=	Resource type • Values: INPUT | OUTPUT | CONNECTION
OBJECT=	Object - the port number to change • Values: Port number **NOTE:** Must specify an output port when RESTYPE is set to CONNECTION.
OPERATION=	Operation - the alarm type to be changed for the port. • Values: STMIN | STMAX | CSFLT
SEVERITY=	Alarm severity - the desired new severity level for the alarm. • Values: CR | MJ | MI | NT | DI

Response Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

Parse errors: See Table 33 on page 425.

Examples

For input port 1, set the severity of the STMIN alarm to Minor

```
<set-cfg-alarm:::1:::restype=input,
object=10001,operation=stmin,severity=mi;

   LN0001 13-05-22 16:15:35
M  1 COMPLD
;
```


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For output port 1, set the severity of the STMIN alarm to Major

```
<set-cfg-
alarm:::1:::restype=output,object=20001,operation=stmin,
severity=mj;

   LN0001 13-05-22 16:15:59
M  1 COMPLD
;
```

For output port 1, set the severity of the CSFLT alarm to Major.

```
<set-cfg-alarm:::1:::restype=connection,object=20001,
operation=csflt,severity=mj;

   LN0001 13-05-22 16:16:30
M  1 COMPLD
;
```

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RTRV-CFG-ALARM

Retrieve Alarm Severity Configuration Changes

Description

This command retrieves the alarm severity settings for alarm types that are changed from factory defaults. The following alarm types may have been modified: STMIN, STMAX, CSFLT.

The factory defaults for these alarm types are displayed below:

- STMIN = Disabled (DI)
- STMAX = Disabled (DI)
- CSFLT = Critical (CR)

This command displays only the ports where the severity is changed from default. Ports where STMIN, STMAX, or CSFLT equal the factory default are not displayed.

Required user privilege for command: View port level privilege

Related Commands

SET-CFG-ALARM
DLT-CFG-ALARM
SET-CFG-FIBER
RTRV-CFG-FIBER

Input Format

```
RTRV-CFG-ALARM:[<tid>]:[<RESTYPE>]:<ctag>:::[RESTYPE=
<restype>][,RESID=<resid>][,ALARMTYPE=<alarmtype>]
[,<ALARMSEV=<sev>];
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<RESTYPE>	Resource type. (This field is optional) • Values: **ALL** (default) | INPUT | OUTPUT | CONNECTION
RESTYPE=	Resource type. (This field is optional) • Values: INPUT | OUTPUT | CONNECTION

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Parameter	Description
OBJECT=	Object - the port number to view • Values: Port number
OPERATION=	Operation - the alarm type to be viewed. • Values: STMIN | STMAX | CSFLT
SEVERITY=	Alarm severity - the severity level to view. • Values: CR | MJ | MI | NT | DI

Response Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
^^^"GGN:RESTYPE=<restype>,RESID=<resid>,
ALARMTYPE=<almtype>,ALARMSEV=<sev>" cr lf +
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

Parse errors: See Table 33 on page 425.

Examples

Retreive all alarm severity records:

```
<rtrv-cfg-alarm:::1;

   LN0001 13-05-22 16:31:33
M  1 COMPLD
   "GGN:RESTYPE=OUTPUT,OBJECT=20001,OPERATION=STMIN,
SEVERITY=MJ"
   "GGN:RESTYPE=CONNECTION,OBJECT=20001,OPERATION=CSFLT,
SEVERITY=MJ"
   "GGN:RESTYPE=OUTPUT,OBJECT=20002,OPERATION=STMIN,
SEVERITY=MI"
   "GGN:RESTYPE=CONNECTION,OBJECT=20002,OPERATION=CSFLT,
SEVERITY=CR"
;
```

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Retrieve alarm severity records where the resource type is "OUTPUT":

```
<rtrv-cfg-alarm::output:1;

   LN0001 13-05-22 16:31:43
M  1 COMPLD
   "GGN:RESTYPE=OUTPUT,OBJECT=20001,OPERATION=STMIN,
SEVERITY=MJ"
   "GGN:RESTYPE=OUTPUT,OBJECT=20002,OPERATION=STMIN,
SEVERITY=MI"
;
```

Retrieve alarm severity records where the resource type is "OUTPUT":

```
<rtrv-cfg-alarm:::1:::restype=output;

   LN0001 13-05-22 16:32:33
M  1 COMPLD
   "GGN:RESTYPE=OUTPUT,OBJECT=20001,OPERATION=STMIN,
SEVERITY=MJ"
   "GGN:RESTYPE=OUTPUT,OBJECT=20002,OPERATION=STMIN,
SEVERITY=MI"
;
```

Retrieve alarm severity records where the object is output port 1:

```
<rtrv-cfg-alarm:::1:::object=20001;

   LN0001 13-05-22 16:32:45
M  1 COMPLD
   "GGN:RESTYPE=OUTPUT,OBJECT=20001,OPERATION=STMIN,
SEVERITY=MJ"
  "GGN:RESTYPE=CONNECTION,OBJECT=20001,OPERATION=CSFLT,
SEVERITY=MJ"
;
```

Retrieve alarm severity records where the operation is STMIN:

```
<rtrv-cfg-alarm:::1:::operation=stmin;

   LN0001 13-05-22 16:33:07
M  1 COMPLD
   "GGN:RESTYPE=OUTPUT,OBJECT=20001,OPERATION=STMIN,
SEVERITY=MJ"
   "GGN:RESTYPE=OUTPUT,OBJECT=20002,OPERATION=STMIN,
SEVERITY=MI"
;
```


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Retrieve alarm severity records where the severity is CRITICAL:

```
<rtrv-cfg-alarm:::1:::severity=cr;

   LN0001 13-05-22 16:46:47
M  1 COMPLD
   "GGN:RESTYPE=CONNECTION,OBJECT=20002,OPERATION=CSFLT,
SEVERITY=CR"
;
```

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DLT-CFG-ALARM
Delete Customized Alarm Severity

Description

This command is used to set the severity for STMIN, STMAX, or CSFLT alarms back to the factory default setting. The factory defaults for these alarm types are:

- STMIN = Disabled (DI)
- STMAX = Disabled (DI)
- CSFLT = Critical (CR)

Required user privilege for command: Modify port level privilege

Related Commands

SET-CFG-ALARM
RTRV-CFG-ALARM
SET-CFG-FIBER
RTRV-CFG-FIBER

Input Format

```
DLT-CFG-ALARM:[<tid>]:[RESTYPE]:<ctag>:::
<RESTYPE=<restype>>,<OBJECT=<resource>>,
<OPERATION=<alarmtype>>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
RESTYPE	Resource type to be set to default. • Values: **ALL** (default) | INPUT | OUTPUT | CONNECTION **NOTE**: This field is optional. When used, all severities for the resource type are set to default.
RESTYPE=	Resource type to be set to default. • Values: INPUT | OUTPUT | CONNECTION **NOTE**: When used (standalone), all severities for the resource type are set to default. May be used standalone or in combination with the 3 keywords below.

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Parameter	Description
OBJECT=	Object - the port number to set to default. • Values: Port number **NOTE**: Requires all four keyword values to be entered (RESTYPE, OBJECT, OPERATION, and SEVERITY).
OPERATION=	Operation - the alarm type to be changed for the port. • Values: STMIN | STMAX | CSFLT

Response Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

Parse errors: See Table 33 on page 425.

Examples

Delete all CSFLT alarms, restore to default of Critical:

```
<dlt-cfg-alarm::connection:1;

   LN0001 13-05-22 17:16:51
M  1 COMPLD
;
```

Delete the STMIN severity of minor for input port 10002 and restore to factory default of disabled:

```
<dlt-cfg-alarm:::1:::restype=input,object=10002,
operation=stmin;

   LN0001 13-05-22 17:17:53
M  1 COMPLD
;
```

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RTRV-ACT-ALARM
Retrieve Active Alarms

Description

This command retrieves the active alarms in the system.

Required user privilege for command: “View” system and port level privileges are required to view all alarms

- “View” system privilege alone will only return hardware and system alarms
- “View” port privilege alone will return only optical alarms

Related Commands

ACK-ACT-ALARM

Input Format

```
RTRV-ACT-ALARM:[<tid>]:[<RESTYPE>]:<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<RESTYPE>	Resource type. • Values: **all** (default) | input | output | connection | fan | hvps | dcpower | temperature | security (The value HVPS indicates high voltage power subsystem.)

Response Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
^^^"GGN:SEVERITY=<sev>,OPERATION=<almtype>,
OBJECT=<resource>,SEQNO=<seq>,DATETIME=<almtime>,
ACKSTATE=<ackstate>,ACKUSER=<ackuser>,ACKTIME=<acktime>"
cr lf +
;
```


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Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
SEVERITY=	Alarm severity - the severity level to be retrieved. • Values: CR | MJ | MI | NT
OPERATION=	Operation - the alarm type to be retrieved. • Values: 48VFLT | FUSEFLT | FANFLT | TEMPHI | VBBLO | VBBHI | VFBLO | VFBHI | INTRUSION | NTPFLT | STMIN | STMAX | CSFLT | LGTRVRS | PWRMAX See ”Alarm Conditions and Severities” on page 79 for a description of these alarm types.
OBJECT=	Name of object in alarm. • Values: string, <name of object in alarm>
SEQNO=	Sequence number for alarm • Values: integer number
DATETIME=	Date and time the alarm condition occurred • Values: time in the format YYYY-MM-DD HH:MM:SS:mmm The date/time is displayed to milliseconds (:mmm)
ACKSTATE=	Alarm acknowledgement state • Values: YES | NO
ACKUSER=	User that acknowledged this alarm • Values: string, <UserID> **NOTE**: Value is null when alarm is not acknowledged
ACKTIME=	Date and time the alarm was acknowledged • Values: time in the format YYYY-MM-DD HH:MM:SS:mmm The date/time is displayed to milliseconds (:mmm) **NOTE**: Value is null when alarm is not acknowledged

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Errors

Parse errors: See Table 33 on page 425.

Example

```
rtrv-act-alarm:::1;

   LN0001 13-05-22 17:54:05
M  1 COMPLD
   "GGN:SEVERITY=MI,OPERATION=STMIN,OBJECT=10001,
SEQNO=216,DATETIME=2013-05-18 17:03:47.055,ACKSTATE=NO,
ACKUSER=,ACKTIME="
   "GGN:SEVERITY=MJ,OPERATION=LGTRVRS,OBJECT=20006,
SEQNO=223,DATETIME=2013-05-18 17:03:59.384,ACKSTATE=YES,
ACKUSER=admin,ACKTIME=2013-05-18 17:04:17.871"
;
```


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ACK-ACT-ALARM
Acknowledge Alarm

Description

This command is used to acknowledge an active alarm. Acknowledging an alarm will cause the visual alarm indicators to change to reflect the severity of remaining active (unacknowledged) alarms. If all active alarms are acknowledged, the alarm indicators will be reset to their normal (unalarmed) condition. If a subsequent alarm occurs, the alarm indicators will update to reflect the severity for the new alarm.

Upon acknowledgment, the alarm record is updated with the following information:

- The name of the user that acknowledged the alarm
- The date/time that the user acknowledged the alarm.

An alarm may be acknowledged by either specifying its sequence number or by specifying both the object and operation in the alarm record. For the latter, the object is the alarmed resource and the operation is the alarm type.

Alarms may not be "unacknowledged" or reassigned to a different user.

Required user privilege for command: Modify system and port level privileges are required if the user is to be permitted to acknowledge hardware, software and optical alarms (all alarms):

- The Modify system level privilege is required to acknowledge hardware and software alarms.
- The Modify port level privilege is required to acknowledge optical alarms

Related Commands

RTRV-ACT-ALARM

Input Format

```
ACK-ACT-ALARM:[<tid>]::<ctag>:::[<SEQNO=<restype>]
[<OBJECT=<resid>,<OPERATION=<alarmtype>];
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

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Parameter	Description
SEQNO=	Alarm sequence number. • Values: Sequence number for alarm **NOTE**: If specifying a sequence number, do not specify an object or operation in the parameters below. The sequence number uniquely identifies the alarm.
OBJECT=	Name of the resource in alarm. • Values: (see table below) **NOTE**: When using OBJECT to specify an alarm, a value for the OPERATION parameter must also be entered.
OPERATION=	The alarm condition for the alarm type to be acknowledged. • Values: (see table below) **NOTE**: When using OPERATION to specify an alarm, a value for the OBJECT parameter must also be entered.

The table below shows the OBJECT and OPERATION combinations when using these two values together to acknowledge an active alarm. (The values inside angle brackets must be referenced from the alarm record in the alarm table.)

OBJECTS (Alarmed Resource)	OPERATIONS (Supported Alarm Types for Object)	Where Reported
<Input Port #>	STMIN | STMAX | PWRMAX	All Systems
<Output Port #>	STMIN | STMAX | CSFLT | LGTRVRS | PWRMAX	All Systems
<UserID>	INTRUSION	All Systems
CHANNEL	INTRUSION	All Systems
NTP	NTPFLT	All Systems
A-FEED	48VFLT | FUSEFLT	DC Systems Only
B-FEED	48VFLT | FUSEFLT	

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OBJECTS (Alarmed Resource)	OPERATIONS (Supported Alarm Types for Object)	Where Reported
LEFT-FAN	FANFLT	System 100 All GG112 Models
RIGHT-FAN		
REAR-FAN		
REAR-LEFT-FAN	FANFLT	System 600 GG514-A Models
REAR-RIGHT-FAN		
FRONT-LEFT-FAN		
FRONT-RIGHT-FAN		
BOTTOM-LEFT-FAN	FANFLT	System 600 GG514-B and above Models
BOTTOM-RIGHT-FAN		
TOP-LEFT-FAN		
TOP-RIGHT-FAN		
MULTIPLE-FANS	FANFLT	All Systems
MPS	VFBLO | VFBHI | VBBLO | VBBHI	All Systems
ENGINE	TEMPHI	All Systems

Response Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

Parse errors: See Table 33 on page 425.

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Examples

Below is an example of an active alarm table showing two active alarms:

```
<rtrv-act-alarm:::1;

   LN0001 13-05-13 22:30:07
M  1 COMPLD
   "GGN:SEVERITY=MJ,OPERATION=STMIN,OBJECT=10005,
SEQNO=13755,DATETIME=2013-05-13 20:58:40.812,
ACKSTATE=NO,ACKUSER=,ACKTIME="
   "GGN:SEVERITY=MI,OPERATION=STMIN,OBJECT=10006,
SEQNO=13800,DATETIME=2013-05-13 22:29:49.551,
ACKSTATE=NO,ACKUSER=,ACKTIME="
;
```

The example below shows acknowledging an alarm by the sequence number:

```
<ack-act-alarm:::1:::SEQNO=13755;

   LN0001 13-05-13 22:30:32
M  1 COMPLD
;
```

The example below shows acknowledging an alarm by specifying both the object and operation values for the alarm:

```
<ack-act-alarm:::1:::OBJECT=10006,OPERATION=STMIN;

   LN0001 13-05-13 22:30:52
M  1 COMPLD
;
```

Below is the active alarm table showing the acknowledged alarms:

```
<rtrv-act-alarm:::1;

   LN0001 13-05-13 22:32:13
M  1 COMPLD
   "GGN:SEVERITY=MJ,OPERATION=STMIN,OBJECT=10005,
SEQNO=13755,DATETIME=2013-05-13 20:58:40.812,
ACKSTATE=YES,ACKUSER=admin,ACKTIME=2013-05-13
22:30:32.210"
   "GGN:SEVERITY=MI,OPERATION=STMIN,OBJECT=10006,
SEQNO=13800,DATETIME=2013-05-13 22:29:49.551,
ACKSTATE=YES,ACKUSER=admin,ACKTIME=2013-05-13
22:32:10.677"
;
```


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RTRV-LOG
Retrieve Log

Description

The command retrieves the contents of the specified log and displays the results in the TL1 autonomous message format.

The logs may also be viewed using the RTRV-GGNMSG-LOG command. The command response format is shorter and provides some filtering options based data in each log record.

Required user privileges to view logs:

- System level privilege of manage is required to view the SECU log
- Port level privilege of view is required to view the ALARM and AUTO logs

Related Commands

INIT-LOG
RTRV-GGNMSG-LOG

Input Format

```
RTRV-LOG:[<tid>]:::<ctag>::<lognm>:[ATAGSEQ=<atagseq>]
[,MSGTYPE=<msgtype>];
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<lognm>	Name of the log to be retrieved • Values: ALARM | AUTO | SECU
ATAGSEQ=	Automated message tag - a sequential message sequence number assigned by the system as log entries are written. • Values: integer: up to 10 digits. **NOTE**: Multiple ATAG numbers may be enter using "&" to separate individual numbers and "&&" to enter a range. Refer to the Response Format section below for the location of the ATAGSEQ in each message in the log.

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Parameter	Description
MSGTYPE=	Message type - values correspond to the <modifier-1> value for each message in the message log. • Values: DBCHG | EVT | ALM

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^COMPLD cr lf
^^^"<lognm>" cr lf
^^^/* <contents of message log> */ cr lf
;
```

Where the format for <contents of message log> above is:

```
#<logseqno>
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
A^^<atagseq>^<verb>^<modifier-1>[<-modifier-2>]
^^^/* <contents of log record> */ cr lf +
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

Parse errors: See Table 33 on page 425.

Example

```
<rtrv-log:::1::AUTO;

   LN0001 13-05-15 23:26:14
M  1 COMPLD
   "AUTO Log"
   /*

#1
   LN0001 13-05-15 23:25:00
A  3390 REPT DBCHG
   /* GGNMSG: SYSTEMID= LN0001,TYPE= CONFIG,
SEVERITY= NOTICE,OPERATION= LOGFILE-INIT,OBJECT= AUTO,
SEQNO= 3390,CLEARSEQ= 0,DATETIME= 2013-05-15 23:25:00.137,
USERID= admin,USERIF= TL1,USERIP= 192.168.1.114,
LOGNAME= AUTO,LOGSIZE= 1000 */

#2
   LN0001 13-05-15 23:25:30
A  3392 REPT EVT FIBER
```


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```
   /* GGNMSG: SYSTEMID= LN0001,TYPE= EVENT,SEVERITY= NOTICE,
OPERATION= LGTON,OBJECT= 10001,SEQNO= 3392,CLEARSEQ= 0,
DATETIME= 2013-05-15 23:25:30.695,INPUT= 10001,
INNAME= InPort1,INDESCR= GGN-IN,INSIGTHRESH= 1550,
INPWR= -6.535,SIGBAND= 1550 */

#3
   LN0001 13-05-15 23:26:09
A  3399 REPT EVT FIBER
   /* GGNMSG: SYSTEMID= LN0001,TYPE= EVENT,SEVERITY= NOTICE,
OPERATION= CSSTD,OBJECT= 20001,SEQNO= 3399,CLEARSEQ= 0,
DATETIME= 2013-05-15 23:26:09.258,INPUT= 10001,
INNAME= InPort1,INDESCR= GGN-IN,INSIGTHRESH= 1550,
INPWR= -6.040,OUTPUT= 20001,OUTNAME= OutPort1,
OUTDESCR= GGN-OUT,OUTSIGTHRESH= 1550,OUTPWR= -8.765,
CONNLOSS= 2.7,SIGBAND= 1550,CONNDESCR= Connection1 */

#4
   LN0001 13-05-15 23:26:09
A  3400 REPT DBCHG
   /* GGNMSG: SYSTEMID= LN0001,TYPE= CONFIG,SEVERITY= NOTICE,
OPERATION= CONNECT,OBJECT= 20001,SEQNO= 3400,CLEARSEQ= 0,
DATETIME= 2013-05-15 23:26:09.258,USERID= admin,USERIF= WEB,
USERIP= 192.168.1.114,INPUT= 10001,INNAME= InPort1,
INDESCR= GGN-IN,INPWR= -6.040,OUTPUT= 20001,
OUTNAME= OutPort1,OUTDESCR= GGN-OUT,OUTPWR= -8.765,
CONNLOSS= 2.725,SIGBAND= 1550,CONNDESCR= Connection1,
CONNLOCK= false */
   */
;
```

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RTRV-GGNMSG-LOG

Retrieve Log and Display in Glimmerglass Message Format

Description

The command retrieves the contents of the specified log and displays the results in the Glimmerglass message (GGNMSG) format.

The GGNMSG format displays each log entry in a quoted line and tagged with a "GGNMSG:" label at the start of the contents. After the label, the log entry is displayed as KEYWORD=VALUE pairs. The first 8 pairs are common to all GGNMSGs regardless of the operation performed. Any KEYWORD=VALUE pairs after the first 8 pairs are specific to the operation, event, or alarm.

Required user privileges to view logs:

- System level privilege of Manage is required to view the SECU log
- Port level privilege of View is required to view the ALARM and AUTO logs

Related Commands

INIT-LOG
RTRV-LOG

Input Format

```
RTRV-GGNMSG-LOG:[<tid>]::<lognm>:<ctag>:::[SEQNO=
<seqno>];
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<lognm>	Name of the log to be displayed. • Values: ALARM | AUTO | SECU
SEQNO=	Sequence number filter. When this filter is used, all entries in the log occurring from the entered sequence number through the most recent sequence number will be returned and displayed. • Values: Sequence number for alarm

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Response Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
^^^"GGNMSG:SYSTEMID= <sysID>,TYPE= <msgType>,SEVERITY=
<sev>,OPERATION= <oper>,OBJECT= <obj>,DATETIME=
<datetime>,[,OPKEYWORDS= <opValues>]" cr lf +
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
SYSTEMID=	Name of the log to be displayed. • Values: string, 20 characters maximum
TYPE=	Message type. • Values: "ACCESS | ALARM | CONFIG | EVENT | MAINT
SEVERITY=	Severity of message. • Values: NOTICE | MINOR | MAJOR | CRITICAL | CLEAR
OPERATION=	Operation performed by user or system. • Values: (see Appendix B, ”GGNMSG Structure and Contents” on page 427 for a list of possible values)
OBJECT=	Object upon which the specified operation was performed. • Values: (see Appendix B, ”GGNMSG Structure and Contents” on page 427 for a list of possible values)
SEQNO=	Message sequence number. • Values: integer, 1 - 10000000

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Parameter	Description
CLEARSEQ=	Sequence number of alarm message which is cleared by this message • Values: integer, 0 | <SEQNO> **NOTE**: The clear sequence number field is only used for TYPE=ALARM, SEVERITY=CLEAR messages reporting the clearing of an active alarm. The value represents the sequence number under which the alarm was originally reported. For all other message types, this value is always set to 0.
DATETIME=	The date/time that the operation occurred • Values: Date and time in format YYYY-MM-DD HH:MM:SS:sss (where .sss represents milliseconds)
OPKEYWORDS=	This is a place holder for additional KEYWORD= VALUE pairs which may be provided depending on the OPERATION performed. See the tables in Appendix B, ”GGNMSG Structure and Contents” on page 427 for information on the additional keywords associated with the various operations.

Errors

Parse errors: See Table 33 on page 425.

Examples

Example of the SECU log using SEQNO filter:

```
<rtrv-ggnmsg-log::SECU:1:::SEQNO=3424;

   LN0001 13-05-16 17:57:40
M  1 COMPLD
   "GGNMSG: SYSTEMID= LN0001,TYPE= ACCESS,SEVERITY=
NOTICE,OPERATION= USER-LOGIN,OBJECT= admin,SEQNO=
3424,CLEARSEQ= 0,DATETIME= 2013-05-16
17:57:07.327,USERID= admin,USERIF= WEB,USERIP=
192.168.1.114"
   "GGNMSG: SYSTEMID= LN0001,TYPE= ACCESS,SEVERITY=
NOTICE,OPERATION= USER-LOGOUT,OBJECT= admin,SEQNO=
3425,CLEARSEQ= 0,DATETIME= 2013-05-16
17:57:11.116,USERID= admin,USERIF= WEB,USERIP=
192.168.1.114"
;
```


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Example of the AUTO log using SEQNO filter:

```
<rtrv-ggnmsg-log::AUTO:1:::SEQNO=3430;

   LN0001 13-05-16 18:00:24
M  1 COMPLD
   "GGNMSG: SYSTEMID= LN0001,TYPE= CONFIG,SEVERITY=
NOTICE,OPERATION= PORT-EDIT,OBJECT= 10001,SEQNO=
3430,CLEARSEQ= 0,DATETIME= 2013-05-16
17:59:41.857,USERID= admin,USERIF= TL1,USERIP=
192.168.1.114,PORTID= 10001,PORTGROUP=
OpenGroup,PORTNAME= InPort1,PORTDESCR= GGN-IN,SIGBAND=
1550,SIGTHRESH= 1550,STMINSEV= MJ,STMAXSEV= MI"
   "GGNMSG: SYSTEMID= LN0001,TYPE= EVENT,SEVERITY=
NOTICE,OPERATION= LGTON,OBJECT= 10001,SEQNO=
3432,CLEARSEQ= 0,DATETIME= 2013-05-16 17:59:48.929,INPUT=
10001,INNAME= InPort1,INDESCR= GGN-IN,INSIGTHRESH=
1550,INPWR= -6.106,SIGBAND= 1550"
;
```

Example of the ALARM log using SEQNO filter:

```
<rtrv-ggnmsg-log::ALARM:1:::SEQNO=3433;

   LN0001 13-05-16 18:02:34
M  1 COMPLD
   "GGNMSG: SYSTEMID= LN0001,TYPE= ALARM,SEVERITY=
MAJOR,OPERATION= STMIN,OBJECT= 10001,SEQNO=
3433,CLEARSEQ= 0,DATETIME= 2013-05-16 18:02:01.691,INPUT=
10001,INNAME= InPort1,INDESCR= GGN-IN,INSIGTHRESH=
1550,INPWR= -50.252,SIGBAND= 1550"
   "GGNMSG: SYSTEMID= LN0001,TYPE= ALARM,SEVERITY=
CLEAR,OPERATION= STMIN,OBJECT= 10001,SEQNO=
3435,CLEARSEQ= 3433,DATETIME= 2013-05-16
18:02:06.225,INPUT= 10001,INNAME= InPort1,INDESCR= GGN-
IN,INSIGTHRESH= 1550,INPWR= -6.109,SIGBAND= 1550"
;
```

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SET-ATTR-LOG
Set Attribute Log

Description

This command sets the size (number of records kept) for the specified log. The current maximum size is 1000 records, which is the default setting.

Each log automatically wraps when the maximum size is reached. The oldest records are purged (FIFO).

Required User Privilege: System level privilege of Manage.

Related Commands

RTRV-ATTR-LOG
RTRV-LOG
RTRV-GGNMSG-LOG

Input Format

```
SET-ATTR-LOG:[<tid>]::<ctag>::<lognm>,,<maxmsg>];
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<lognm>	Name of the log to be for which attributes are to be set. • Values: ALARM | AUTO | SECU
<maxmsg>	Maximum messages to be logged. • Values: integer: 1-1000

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^COMPLD cr lf
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

Parse errors: See Table 33 on page 425.

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Example

```
<set-attr-log:::1::AUTO,,1000;

   LN0001 13-05-16 16:08:18
M  1 COMPLD
;
```

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RTRV-ATTR-LOG
Retrieve Attribute Log

Description

This command retrieves the attributes for the specified log. The current maximum size is 1000 records, which is the default setting.

Each log automatically wraps when the maximum size is reached. The oldest records are purged (FIFO).

Required User Privilege: System level privilege of Manage.

Related Commands

SET-ATTR-LOG
RTRV-LOG
RTRV-GGNMSG-LOG

Input Format

```
RTRV-ATTR-LOG:[<tid>]::<ctag>[::<lognm>];
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<lognm>	Name of the log whose attributes are to be retrieved. A NULL value returns attributes of all logs. • Values: ALARM | AUTO | SECU

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^COMPLD cr lf
^^^"LOG_NAME=<lognm>,MAX_ENTRIES=<maxmsg>,NEXT_SEQUENCE=
<seqno>" cr lf +
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

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Parameter	Description
[<lognm>]	Name of the log • Values: ALARM | AUTO | SECU
MAX_ENTRIES=	Number of entries stored in log • Values: integer
NEXT_SEQUENCE=	Next sequence number system will assign for log entry • Values: integer **NOTE**: Sequence numbers are system assigned and are used in all three logs. Therefore, the next sequence number will be the same for all logs.

Errors

Parse errors: See Table 33 on page 425.

Example

```
<rtrv-attr-log:::1;

   LN0001 13-05-16 16:13:28
M  1 COMPLD
   "LOG_NAME=AUTO,MAX_ENTRIES=1000,NEXT_SEQUENCE=133"
   "LOG_NAME=SECU,MAX_ENTRIES=1000,NEXT_SEQUENCE=133"
   "LOG_NAME=ALARM,MAX_ENTRIES=1000,NEXT_SEQUENCE=133"
;
```

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INIT-LOG
Initialize Log

Description

This command initializes the specified log, clearing the contents of the log without changing the log attributes. The ALARM and AUTO logs may be initialized. For security reasons, the SECU log cannot be initialized.

When a log is cleared, a record is recorded in the AUTO log indicating this event. If the AUTO log is cleared, this record will be the first entry in the log.

Required User Privilege: System level privilege of Manage is required.

Related Commands

RTRV-LOG
RTRV-GGNMSG-LOG

Reference

Maintenance/Surveillance (GR-833-CORE, Issue 1, December 1994)

Input Format

```
INIT-LOG:[<tid>]::<ctag>::<lognm>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<lognm>	Name of the log to be initialized • Values: ALARM | AUTO

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^COMPLD cr lf
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

Parse errors: See Table 33 on page 425.

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Example

```
<init-log:::1::AUTO;

   LN0001 13-05-15 23:50:43
M  1 COMPLD
;
```

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SET-SYSLOG-SERVER
Configure SYSLOG (System Log) Service

Description

Configure system logging to up to three external SYSLOG servers. The logging service level may be:

- OFF - Do not log to external SYSLOG servers.
- AUTO - Post messages that are logged to the TL1 AUTO log (see RTRV-LOG on page 329). These include user actions that change the system configuration, alarm events, and advisory events. The latter excludes actions and events that are related to security, which are posted to the SECU log.
- SECU - Post messages that are logged to the TL1 SECU log and also messages that are logged to the AUTO log.

When multiple SYSLOG server IP addresses are specified, the log messages are posted to each of the servers. The latter SYSLOG servers may in turn be configured to forward the messages to other SYSLOG servers.

The SYSLOG message priority is composed of a severity code and facility code:

- Severity=Critical (2) - A critical/major alarm message, the text in the message specifies the alarm severity (critical or major).
- Severity=Notice (5) - A minor alarm message, the text in the message specifies the alarm severity (minor).
- Severity=Informational (6) - An informational message (configuration change or advisory event) or an alarm clear.
- Facility=User (1) - All messages are posted by the system switch application, versus the Linux Operating System, hence the messages are categorized by SYSLOG as "user".

NOTE: The SYSLOG protocol uses UDP port 514 for client to server log messages. The packet payload is unencrypted plain text which can include user names, user and system IP addresses. Hence transmission over non-secure networks is not advised.

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Related Commands RTRV-SYSLOG-SERVER

Reference N/A

Input Format

```
SET-SYSLOG-SERVER:[<tid>]::<ctag>:::[SERVICE=<service>]
[,SERVERS=<servers>];
```

Input Parameters The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
SERVICE=	System log service logging level: • Values: OFF|AUTO|SECU • Default: OFF
SERVERS=	List of up to three system log IP addresses: • Values: IP addresses separated by "&" • Default: 0.0.0.0 - No servers NOTE: Use "SERVERS=0.0.0.0" to set no servers.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors **IPNV** - Keyword or value is not valid

Example Enable logging of all messages (both AUTO & SECU) to two SYSLOG servers (192.168.1.8 and 192.168.1.24):

```
<set-syslog-server:::1:::SERVICE=SECU,
```

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```
SERVERS=192.168.1.8&192.168.1.24;

   BD0020 11-03-10 17:21:55
M  1 COMPLD
;
```


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RTRV-SYSLOG-SERVER
Retrieve SYSLOG (System Log) Service

Description

Retrieves the SYSLOG (system log) configuration.

For further information see the SET-SYSLOG-SERVER on page 342.

Related Commands

SET-SYSLOG-SERVER

Reference

N/A

Input Format

```
RTRV-SYSLOG-SERVER:[<tid>]::<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Response Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
^^^"GGN:SERVICE=<service>,SERVERS=<servers>"<cr><lf>
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
SERVICE=	System log service logging level: • Values: OFF|AUTO|SECU • Default: OFF
SERVERS=	List of up to three system log IP addresses: • Values: IP addresses separated by "&" • Default: No servers

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Errors

Parse errors: See Table 33 on page 425.

Example

Retrieve the system log configuration for the system:

```
<rtrv-syslog-server:::1;

   LN0001 13-05-16 00:22:51
M  1 COMPLD
   "GGN:SERVERS=192.168.1.114&192.168.1.103,SERVICE=SECU"
;
```


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DLT-SYSLOG-SERVER
Delete a Syslog Server Target

Description

This command is used to remove a destination Syslog server from the Syslog server list.

Required User Privilege: Manage system level privilege is required

Related Commands

SET-SYSLOG-SERVER
RTRV-SYSLOG-SERVER

Input Format

```
DLT-SYSLOG-SERVER:[<tid>]:<IPADDR>:<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<IPADDR>	IP address of target server. • Values: xxx.xxx.xxx.xxx (use dotted decimal IPv4 address notation)

Response Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

Parse errors: See Table 33 on page 425.

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Example

```
<dlt-syslog-server::192.168.1.114:1;

   LN0001 13-05-22 18:04:26
M  1 COMPLD
;
```


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SET-GGNMSG-SERVER

Configure Glimmerglass Message Notification Targets

Description

This command is used to specify up to three target servers (e.g., Path Manager Servers) to receive and process proprietary alarm, event, and configuration change notifications from the system. Each notification contains a GGNMSG payload. These messages are encrypted to Path Manager servers but may be configured as unencrypted for other targets.

Required User Privilege: Manage system level privilege is required

Related Commands

RTRV-GGNMSG-SERVER
DLT-GGNMSG-SERVER

Input Format

```
SET-GGNMSG-SERVER:[<tid>]:<IPADDR>:<ctag>:::
<PORT=<port>>[,ENCRYTION=<enc>];
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<IPADDR>	IP address of target server. • Values: xxx.xxx.xxx.xxx (use dotted decimal IPv4 address notation)
PORT=	UDP port at target server (this is a required field). • Values: integer, UDP port number of server Port 10041 is the default port for the Path Manager Server.
ENCRYPTION=	Encryption specification. • Values: **ON** (default) | OFF

Response Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
;
```

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Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

Parse errors: See Table 33 on page 425.

Example

```
<set-ggnmsg-server::192.168.1.114:1:::PORT=10041;

   LN0001 13-05-20 17:50:18
M  1 COMPLD
;
```


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RTRV-GGNMSG-SERVER

Retrieve Glimmerglass Message Notification Targets

Description

This command is used to list the servers that are configured to receive GGNMSG notifications.

Required User Privilege: View system level privilege is required

Related Commands

SET-GGNMSG-SERVER
DLT-GGNMSG-SERVER

Input Format

```
RTRV-GGNMSG-SERVER:[<tid>]::<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Response Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
^^^"GGN:SERVERS=<ipaddr1>:<port1>:<enc1>[&<ipaddr2>:
<port2>:<enc2>]
[&<ipaddr3>:<port3>:<enc3>],SERVICE=<state>" cr lf +
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
<ipaddr#>	IP address of target server. • Values: xxx.xxx.xxx.xxx (dotted decimal IPv4 address notation)
<port#>	UDP port at target server. • Values: integer, UDP port number of server Port 10041 is the default port for the Path Manager Server.

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Parameter	Description
<enc#>	Encryption specification. • Values: E (encrypted) | O (open)

Errors

Parse errors: See Table 33 on page 425.

Example

This example retrieves the servers that are configured to receive GGNMSG notifications. Note that the "&" character separates each of the three server targets, and the three values for each server are delimited by a colon.

```
<rtrv-ggnmsg-server:::1;

   LN0001 13-05-20 18:02:58
M  1 COMPLD
   "GGN:SERVERS=192.168.1.114:10041:E&
192.168.1.103:10041:E&192.168.1.113:10040:O,SERVICE=ON"
;
```


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DLT-GGNMSG-SERVER

Delete Glimmerglass Message Notification Targets

Description

This command is used to remove a GGNMSG target server that is configured to receive proprietary alarm, event, and configuration change notifications from the system.

Required User Privilege: Manage system level privilege is required.

Related Commands

SET-GGNMSG-SERVER
RTRV-GGNMSG-SERVER

Input Format

```
DLT-GGNMSG-SERVER:[<tid>]:<IPADDR>:<ctag>:::
<PORT=<port>>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<IPADDR>	IP address of target server. • Values: xxx.xxx.xxx.xxx (use dotted decimal IPv4 address notation)
PORT=	UDP port at target server (this is a required field). • Values: integer, UDP port number of server Port 10041 is the default port for the Path Manager Server.

Response Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

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Errors

Parse errors: See Table 33 on page 425.

Example

```
<dlt-ggnmsg-server::192.168.1.114:1:::PORT=10040;

   LN0001 13-05-20 18:30:12
M  1 COMPLD
;
```


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ALW-MSG-ALL
Allow All Autonomous Message

Description

This command enables the transmission of all autonomous messages to the user for the duration of the user session or until again inhibited by the user.

Autonomous messages are described in Chapter 11, “Autonomous Messages”.

All autonomous messages are inhibited by default when opening a TL1 session.

This command must be used to enable notifications for all alarms and system events if the session will be used to monitor for these events.

Related Commands

INH-MSG-ALL
ALW-MSG-ALM
INH-MSG-ALM
ALW-MSG-EVT
INH-MSG-EVT

Reference

Maintenance/Surveillance (GR-833-CORE, Issue 1, December 1994)

Input Format

```
ALW-MSG-ALL:[<tid>]::<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

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Errors Parse errors: see Table 33 on page 425.

Example

```
<alw-msg-all:::1;

   LN0001 13-05-14 16:30:58
M  1 COMPLD
;
```


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INH-MSG-ALL
Inhibit All Autonomous Messages

Description

This command disables the transmission of all autonomous messages to the user for the duration of the user session or until again allowed by the user. The default condition for new user sessions is for all autonomous messages to be inhibited.

Autonomous messages are described in Chapter 11, “Autonomous Messages”.

Related Commands

ALW-MSG-ALL
ALW-MSG-ALM
INH-MSG-ALM
ALW-MSG-EVT
INH-MSG-EVT

Input Format

```
INH-MSG-ALL:[<tid>]::<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^COMPLD cr lf
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

Parse errors: see Table 33 on page 425.

Example

```
<inh-msg-all:::1;

   LN0001 13-03-10 19:27:35
M  1 COMPLD
;
```

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ALW-MSG-ALM
Allow Autonomous Messages for Alarm Conditions

Description

This command enables the transmission of autonomous system alarm messages to the user for the duration of the user session or until again inhibited by the user.

System event autonomous messages are enumerated in REPT ALM SYS and REPT ALM FIBER in Chapter 11, “Autonomous Messages”.

All autonomous messages are inhibited by default when opening a TL1 session.

This command must be used to enable only REPT ALM SYS and REPT ALM FIBER notifications (as opposed to ALW-MSG-ALL) if the session will be used to monitor for these events.

Related Commands

ALW-MSG-ALL
INH-MSG-ALL
INH-MSG-ALM
ALW-MSG-EVT
INH-MSG-EVT

Input Format

```
ALW-MSG-ALM:[<tid>]::<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

Parse errors: See Table 33 on page 425.

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Example

```
<alw-msg-alm:::1;

   LN0001 13-03-10 19:26:35
M  1 COMPLD
;
```

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INH-MSG-ALM
Inhibit Autonomous Messages for Alarm Conditions

Description

This command disables the transmission of autonomous alarm messages (REPT ALM SYS and REPT ALM FIBER) to the user for the duration of the user session or until again allowed by the user. The default condition for new user sessions is for all autonomous messages to be inhibited.

Autonomous messages are described in Chapter 11, “Autonomous Messages”.

Related Commands

ALW-MSG-ALL
INH-MSG-ALL
ALW-MSG-ALM
ALW-MSG-EVT
INH-MSG-EVT

Input Format

```
INH-MSG-ALL:[<tid>]::<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

Parse errors: See Table 33 on page 425.

Example

```
<inh-msg-all:::1;

   LN0001 13-03-10 19:27:35
M  1 COMPLD
;
```


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ALW-MSG-EVT
Allow Autonomous Messages for System and Optical Events

Description

This command enables the transmission of autonomous system event messages to the user for the duration of the user session or until again inhibited by the user.

System event autonomous messages are enumerated in REPT EVT SYS and REPT EVT FIBER in Chapter 11, “Autonomous Messages”.

All autonomous messages are inhibited by default when opening a TL1 session.

This command may be used to enable only REPT EVT SYS and REPT EVT FIBER notifications (as opposed to ALW-MSG-ALL) if the session will be used to monitor for these events.

Related Commands

ALW-MSG-ALL
INH-MSG-ALL
ALW-MSG-ALM
INH-MSG-ALM
INH-MSG-EVT

Input Format

```
ALW-MSG-EVT:[<tid>]::<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

Parse errors: See Table 33 on page 425.

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Example

```
<alw-msg-evt:::1;

   LN0001 13-03-10 19:23:35
M  1 COMPLD
;
```


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INH-MSG-EVT
Inhibit Autonomous Messages for System and Optical Events

Description

This command disables the transmission of autonomous event messages (REPT EVT SYS and REPT EVT FIBER) to the user for the duration of the user session or until again allowed by the user. The default condition for new user sessions is for all autonomous messages to be inhibited.

Autonomous messages are described in Chapter 11, “Autonomous Messages”.

Related Commands

ALW-MSG-ALL
INH-MSG-ALL
ALW-MSG-ALM
INH-MSG-ALM
ALW-MSG-EVT

Input Format

```
INH-MSG-EVT:[<tid>]::<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

Parse errors: See Table 33 on page 425.

Example

```
<inh-msg-evt:::1;

   LN0001 13-03-10 19:27:35
M  1 COMPLD
;
```

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System Maintenance

10

This chapter describes the System Maintenance commands listed in the table below. For a description of the System Maintenance software features, see “System Maintenance” on page 83.

TL1 Command	Description	Page
INIT-SYS	Shutdown/reboot system, reset system configuration	366
APPLY-CFG	Applies (restore) the system configuration from a system configuration XML (backup) file.	369
COPY-CFG	Copies (backs up) the system configuration to a system configuration XML file.	371
DLT-CFG	Deletes the system configuration XML (backup) file.	373
RTRV-CFG	Retrieves summary information from the system configuration XML (backup) file.	375
APPLY-UPGRADE	System software upgrade - Upgrades the non-volatile inactive/rollback partition from the system software upgrade file in the system's /dnld directory	378
DLT-UPGRADE	Cancels a partially applied system software upgrade	380
RTRV-UPGRADE	Retrieves the system software upgrade status	382
APPLY-ROLLBACK	System software rollback - Rolls back the system software release to the prior release (the release in the rollback partition)	384
RTRV-ROLLBACK	Retrieves the system software rollback status	386
COPY-RFILE	Copies a system file from/to an external FTP server.	388
RTRV-RFILE	Retrieves the status of the COPY-RFILE command.	393
CANC-RFILE	Cancels a system file FTP transfer (see COPY-RFILE).	395

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INIT-SYS
Initialize System

Description

This command is used to reset the system. There are several reset operation options which are described below.

- STOPONLY - used for graceful shutdown of the switch application prior to powering off the system.
- SOFTREBOOT - used to reboot the system without affecting established connections (hitless reboot).
- RESTART - restarts the switch application only without affecting established connections (hitless).
- HARDRESET - hardware initialization and reboot. All connections are dropped at the outset of the command. If the system is configured to restore connections, the pre-existing connections will be re-established after the system initializes. If not, then connections will not be restored.
- FACTORYRESET - resets the system to the factory default configuration. All connections are dropped. Pre-existing connections will not be restored.

NOTE: Resetting to factory defaults does not change the system's IP configuration. After the system initializes, it is still possible to remotely connect to the system using the IP address configured prior to the reset. For login, remember that the passwords for the default admin and maint accounts as well as the SNMP community strings have been reset to the factory default values. The default password for the admin account is “password”.

For the STOPONLY option, wait one minute after the command is entered prior to powering off the system to allow sufficient time for the system to gracefully shutdown.

All operations are 'safe'. The system performs a database save prior to shutting down or rebooting.

Required user privilege for command: Manage system level privilege

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Related Commands

WRT-DB

Input Format

```
INIT-SYS:::<ctag>::<rebootMode>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
<rebootMode>	Indicates which reset operation is desired. • Values: 0 = STOPONLY 1 = SOFTREBOOT 2 = RESTART 3 = FACTORYRESET 256 = HARDRESET Either the numeric value or textual value may be entered (not case sensitive).

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: Parameters that match input parameters are not repeated here. See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

Parse errors: Refer to Table 33 on page 425.

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Example

Perform a soft reboot on the system.

```
<init-sys:::1::1;
   LosAngeles 08-04-29 16:21:17
M 1 COMPLD
;
```


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APPLY-CFG
Apply System Configuration

Description

Applies (restores) the system configuration from a system configuration XML (backup) file in the system's download directory (/dnld).

The APPLY-CFG command is synchronous, meaning that the command completion response does not occur until the configuration restoration file is verified and applied (approximately 5-10 seconds). If the applied configuration includes updates to the system network parameters (e.g., Ethernet IP address, gateway, etc.), the network parameter changes will not take effect until the next system reboot. Similarly, if the applied configuration includes revisions to the startup parameters (TCP port numbers), the startup parameter changes will not take effect until the next system restart or reboot.

The system configuration XML file includes identifying information such as: system name, serial number, when the file was created, by whom (user ID) and the user entered comments/description. The file also includes read-only information about the system (hardware features, licenses and embedded software version). The read-only information is not restored by APPLY-CFG.

The system configuration may be backed up to an XML file and restored from an XML file via the ClickFlow, SNMP, and TL1 interfaces. HTTPS (ClickFlow), FTP (the COPY-RFILE command in TL1), and SCP/SFTP may be used to copy the system configuration file to/from a Linux server or Windows PC. See the *Glimmerglass IOS Installation and Maintenance Guide* for more information.

Related Commands

COPY-CFG
DLT-CFG
RTRV-CFG

Reference

N/A

Input Format

```
APPLY-CFG:[<tid>]::<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

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Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

SROF – Status, Requested Operation Failed - Configuration file not found, configuration file not applicable to this system, configuration file corrupt.

NOTE: Before applying a system configuration file, optionally verify its suitability for this system via RTRV-CFG (see page 375).

Example

Restore the system configuration from a system configuration (backup) file previously copied to the system download directory:

```
<apply-cfg:::1;

   BD0020 11-03-10 17:21:55
M  1 COMPLD
;
```


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COPY-CFG
Copy System Configuration

Description

Copies (backs up) the system configuration to a system configuration XML file in the system's download directory (/dnld).

The copy system configuration command is synchronous, meaning that the command completion response does not occur until the configuration file is created (usually under 200 ms).

The system configuration XML file includes identifying information such as: system name, serial number, when the file was created, by whom (user-id) and the user entered comments/description. The file also includes read-only information about the system (hardware features, licenses and embedded software version).

The system configuration may be backed up to an XML file and restored from an XML file via the ClickFlow, SNMP and TL1 interfaces. HTTPS (ClickFlow), FTP (the COPY-RFILE command in TL1), and SCP/SFTP may be used to copy the system configuration file to/from a Linux server or a Windows PC. See the *Glimmerglass IOS Installation and Maintenance Guide* for more information.

Related Commands

APPLY-CFG
DLT-CFG
RTRV-CFG

Reference

N/A

Input Format

```
COPY-CFG:[<tid>]::<ctag>:::[DESCR=<descr>];
```

Input Parameters

See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
DESCR=	System configuration file description • Values: 0-32 characters

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Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

IPNV – Keyword or value is not valid

Example

Copy (backup) the system configuration to a system configuration XML file in the system's download directory:

```
<copy-cfg:::1;

   BD0020 11-03-10 17:21:55
M  1 COMPLD
;
```


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DLT-CFG
Delete System Configuration

Description

Deletes the system configuration XML (backup) file in the system's download directory (/dnld).

This command may be optionally used to delete a prior system configuration file in the download directory before backing up the system configuration via COPY-CFG (page 371), or before uploading a backup file for restoration via APPLY-CFG (page 369). This step is optional, in that in both cases the old file would be automatically overwritten by the new file.

The system configuration may be backed up to an XML file and restored from an XML file via the ClickFlow, SNMP and TL1 interfaces. HTTPS (ClickFlow), FTP (the COPY-RFILE command in TL1), and SCP/SFTP may be used to copy the system configuration file to/from a Linux server or a Windows PC. See the *Glimmerglass IOS Installation and Maintenance Guide* for more information.

Related Commands

APPLY-CFG
COPY-CFG
RTRV-CFG

Reference

N/A

Input Format

```
DLT-CFG:[<tid>]::<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

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Errors

Parse errors: See Table 33 on page 425.

NOTE: DLT-CFG will return a COMPLD response when there is no system configuration file to delete.

Example

Delete the system configuration from a system configuration XML file in the system's download directory:

```
<dlt-cfg:::1;

   BD0020 11-03-10 17:21:55
M  1 COMPLD
;
```


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RTRV-CFG
Retrieve System Configuration

Description

Retrieves summary information from the system configuration XML (backup) file in the system download directory (/dnld).

Optionally use this command after backing up the system configuration via COPY-CFG (page 371) to ensure that the system configuration file is valid, or before restoring a system configuration file via APPLY-CFG (page 369) to ensure the system configuration file is valid for this system.

The system configuration may be backed up to an XML file and restored from an XML file via the ClickFlow, SNMP and TL1 interfaces. HTTPS (ClickFlow), FTP (the COPY-RFILE command in TL1), and SCP/SFTP may be used to copy the system configuration file to/from a Linux server or a Windows PC. See the *Glimmerglass IOS Installation and Maintenance Guide* for more information.

Related Commands

APPLY-CFG
COPY-CFG
DLT-CFG

Reference

N/A

Input Format

```
RTRV-CFG:[<tid>]::<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Response Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
^^^"GGN:STATUS=<status>,SYSTEMNAME=<systemname>,
SERIALNUM=<serialnum>,DATE=<date>,CREATOR=<creator>,
FILENAME=<filename>,DESCR=<descr><cr><lf>
;
```

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Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
STATUS=	System configuration file status: • Values: ERROR | NONE | VALID | WARNING • ERROR - The system configuration file is corrupt or it is not suitable for restoration on this system. • NONE - No system configuration file found. • VALID - The system configuration file is present, is not corrupt, and is applicable for this system (same serial number). • WARNING - The system configuration file's serial number does not match this system, however the file may be restored on this "identical" (replacement) system.
SYSTEMNAME=	System configuration file system name: • Values: 1-20 characters
SERIALNUM=	System configuration file system serial number: • Values: 12 characters
DATE=	System configuration file UTC creation date and time: • Values: <yyyy-mm-dd hh:mm:ss>
CREATOR=	System configuration file created by user ID: • Values: 3-20 characters
FILENAME=	System configuration file name/directory path.
DESCR=	System configuration file description • Values: 0-32 characters

Errors

Parse errors: See Table 33 on page 425.

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Example

Retrieve summary information from the system configuration XML (backup) file previously copied to the system download directory (/dnld):

```
<rtrv-cfg:::1;

   BD0020 11-03-11 00:55:47
M  1 COMPLD
   "GGN:STATUS=VALID,SYSTEMNAME=BD0020,SERIALNUM=
04BD4PC10020,DATE=2011-03-11 00:55:39,CREATOR=admin,
FILENAME=/dnld/iosconfigbackup.xml,DESCR="
;
```

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APPLY-UPGRADE
Apply Upgrade

Description

System software upgrade: Upgrades the non-volatile inactive/rollback partition from the system software upgrade file in the system's /dnld directory. System availability is unaffected by this upgrade phase; the system continues to operate under the current release. The duration of this upgrade phase is 3-7 minutes as a function of the system model.

The APPLY-UPGRADE command is asynchronous, meaning that the command completion response is returned before completion of the partition upgrade. An event message is posted on conclusion of the upgrade (see the example below). During upgrade the RTRV-UPGRADE command may be used to poll for upgrade completion (status changes from RUNNING to READY).

After successful completion of the upgrade you can do either of the following:

- Reboot the system (INIT-SYS) to switch to the upgraded partition
- Cancel the upgrade (DLT-UPGRADE)

See the section ”System Software Upgrade and Rollback” on page 84 for more information.

Related Commands

DLT-UPGRADE
RTRV-UPGRADE

Reference

N/A

Input Format

```
APPLY-UPGRADE:[<tid>]::<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

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Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

SROF – Status, Requested Operation Failed - Upgrade file not found, upgrade file not applicable to this system, upgrade file corrupt.

NOTE: Before applying a system upgrade file, optionally verify its suitability for this system via RTRV-UPGRADE (see page 382).

Example

Upgrade the non-volatile inactive/rollback partition from the system software upgrade file previously copied to the system's /dnld directory; the subsequent event message indicates successful conclusion of the upgrade.

```
<apply-upgrade:::1;

   LN0001 13-05-17 01:04:49
M  1 COMPLD
;

   LN0001 13-05-17 01:07:53
A  31 REPT EVT SYS
   "GGNMSG: SYSTEMID= LN0001,TYPE= MAINT,
SEVERITY= NOTICE,OPERATION= UPGRADE-COMPLETE,
OBJECT= SYSTEM,SEQNO= 31,CLEARSEQ= 0,
DATETIME= 2013-05-17 01:07:53.456,USERID= admin,
USERIF= TL1,USERIP= 192.168.1.114,UPGRADE-PARTITION= 0,
UPGRADE-VERSION= R08.00p000"
;
```

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DLT-UPGRADE
Delete Upgrade

Description

Cancels a partially applied system software upgrade.

After the inactive/rollback partition has been successfully upgraded via the APPLY-UPGRADE command you can do either of the following:

- Reboot the system (INIT-SYS) to switch to the upgraded partition
- Cancel the upgrade (DLT-UPGRADE)

The DLT-UPGRADE does not return the inactive/rollback partition to its previous release, it simply housekeeps the download directory and prevents a subsequent reboot or power-cycle from booting and activating the upgraded partition.

See the section ”System Software Upgrade and Rollback” on page 84 for more information.

Related Commands

APPLY-UPGRADE
RTRV-UPGRADE

Reference

N/A

Input Format

```
DLT-UPGRADE:[<tid>]::<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

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Errors	**SROF** - Status, Requested Operation Failed - No upgrade to cancel
Example	Cancel the partially completed upgrade procedure:

```
<dlt-upgrade:::1;

   BD0020 11-03-10 17:21:55
M  1 COMPLD
;
```

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RTRV-UPGRADE
Retrieve Upgrade

Description

Retrieves the information from the system software upgrade file and the system software upgrade status.

This command may be used before software upgrade (APPLY-UPGRADE) to verify the version of the system software upgrade file to be applied and the applicability of the upgrade file to this system. During upgrade, which usually takes 3-7 minutes, this command may be used to poll for upgrade completion. The status values are:

- AVAIL—A valid upgrade file is present in /dnld and it may be applied
- BADFILE—The upgrade file in /dnld is corrupt or not applicable to this system
- READY—The APPLY-UPGRADE command has completed
- RUNNING—The APPLY-UPGRADE command is still in progress
- NOTALLOWED—The upgrade is prohibited due to a prior upgrade not being activated by reboot (INIT-SYS) or canceled (DLT-UPGRADE)
- NOTAVAIL—There is no upgrade file in /dnld

See the section ”System Software Upgrade and Rollback” on page 84 for more information.

Related Commands

APPLY-UPGRADE
DLT-UPGRADE

Reference

N/A

Input Format

```
RTRV-UPGRADE:[<tid>]::<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

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Response Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
^^^"GGN:STATUS=<status>,UPGRADE_VERSION=<version>,
UPGRADE_PARTITION=<partition><cr><lf>
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Parameter	Description
STATUS=	System configuration file status: • Values: AVAIL | BADFILE | READY | RUNNING | NOTALLOWED | NOTAVAIL (These values are described in the command description above.)

UPGRADE_VERSION=	System upgrade release:
	• Values:
	  • <version> (For example: "R07.00p001")
	  • UNKNOWN (if no upgrade file)

UPGRADE_PARTITION=	System software partition number to be upgraded: • Values: 0|1

Errors

Parse errors: See Table 33 on page 425.

Example

Retrieve upgrade file information from a system upgrade file previously copied to the system download directory:

```
<rtrv-upgrade:::1;

   BD0020 11-03-11 00:55:47
M  1 COMPLD
   "GGN:STATUS=AVAIL,UPGRADE_VERSION=R07.00p001,UPGRADE_
PARTITION=0"
;
```

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APPLY-ROLLBACK
Apply Rollback

Description

System software rollback - Rolls back the system software release to the prior release (the release in the rollback partition). Rollback will be prohibited if either of the following are true:

- The most recent software upgrade has already been rolled back
- The most recent partially completed upgrade was canceled by DLT-UPGRADE

See the section ”System Software Upgrade and Rollback” on page 84 for more information.

Related Commands

RTRV-ROLLBACK

Reference

N/A

Input Format

```
APPLY-ROLLBACK:[<tid>]::<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

Errors

SROF - Status, Requested Operation Failed - Rollback is not permitted.

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NOTE: Before rolling back, optionally verify the rollback status via RTRV-ROLLBACK (page 386).

Example

Rollback the system software to the prior release:

```
<apply-rollback:::1;

   BD0020 11-03-10 17:21:55
M  1 COMPLD
;
```

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RTRV-ROLLBACK
Retrieve Rollback

Description

Retrieves the system software rollback status. The rollback status will be NOTALLOWED if either of the following are true:

- The most recent software upgrade has already been rolled back
- The most recent partially completed upgrade was canceled by DLT-UPGRADE

See the section ”System Software Upgrade and Rollback” on page 84 for more information.

Related Commands

APPLY-ROLLBACK

Reference

N/A

Input Format

```
RTRV-ROLLBACK:[<tid>]::<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Response Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
^^^"GGN:STATUS=<status>,ROLLBACK_VERSION=<version>,
ROLLBACK_PARTITION=<partition><cr><lf>
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

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Parameter	Description

STATUS=	System rollback status:
	• Values: READY | NOTALLOWED
	  • READY - Rollback is allowed
	  • NOTALLOWED - Rollback is not allowed

ROLLBACK_VERSION=	System rollback release: • Values: 10 characters For example: "R06.00p002"
ROLLBACK_PARTITION=	System software partition number: • Values: 0|1

Errors Parse errors: See Table 33 on page 425.

Example Retrieves the system software rollback status:

```
<rtrv-rollback:::1;

   BD0020 11-03-11 00:55:47
M  1 COMPLD
   "GGN:STATUS=READY,ROLLBACK_VERSION=R06.00p002,
ROLLBACK_PARTITION=0"
;
```

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COPY-RFILE
Copy Remote File

Description

This command is used to copy a system file from/to an external FTP server for the following maintenance activities that require file transfers:

- Copy a system software upgrade file from an FTP server to the system in preparation for using the APPLY-UPGRADE command to upgrade the system software.
- Copy a system configuration backup file from an FTP server to the system in preparation for using the APPLY-CFG command to restore the system configuration from the file.
- Copy a system configuration backup file generated using the COPY-CFG command from the system to an FTP server for off-system storage.

The COPY-RFILE command is asynchronous. Therefore, the command completion response is returned aft the command is successfully entered but PRIOR to the completion of the file transfer it initiated. The above operation is reflected by two log (notification) events: The first event has the operation value of "FTP-START". The second event is when the actual file transfer completes. The operation value for the completion is "FTP-COMPLETE".

If the FTP transfer does not successfully complete within three minutes, the system will abort the file transfer and post a log/notification with the operation value of "FTP-ABORT". The operation message will be posted if the user cancels the file transfer using the CANC-RFILE command.

During the file transfer, the RTRV-RFILE command may be used to poll the status of the file transfer. During the transfer, the status will be "ACTIVE". Upon completion, the transfer will be "IDLE".

NOTE:	FTP file transfer session is not secure. The system configuration file, however, is encrypted.

Required user privilege for command: Manage system level privilege

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The following table describes the format for the parameter values in this command:

Value	Description
IOS_CONFIG_FILE	A keyword representing file /dnld/iosconfigbackup.xml
IOS_UPGRADE_FILE	A keyword representing file /dnld/GGNIOSUPG.tgz
<ftp-url>	The FTP information and URL in the format: FTP://[<userid>:<password>@]<ip>[:<port>]/<file> Where: <userid> FTP server user ID <password> FTP server password <ip> FTP server IP address <port> FTP server port (default value is 21) <file> FTP server file path and name (this could be just the file name, if the file is in the FTP server's root directory) For an anonymous FTP server, omit "<userid>:<password>@" in the FTP URL. If the FTP user ID and password contain any of the URL reserved delimiter characters then per RFC 2396 they must be replaced in the FTP URL by the following three-character sequences: Reserved Character / Replacement Sequence / %2F ? %3F : %3A @ %40 & %26 = %3D + %24 $ %2B , %2C

Related Commands

RTRV-RFILE
CANC-RFILE
APPLY-UPGRADE
RTRV-UPGRADE

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APPLY-CFG
COPY-CFG
RTRV-CFG

Reference N/A

Input Format

```
COPY-RFILE:[<tid>]::<ctag>:::SRC=<src>,DEST=<dest>;
```

Input Parameters The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Parameter	Description
SRC=	Location/name of the source file to copy. • Values: IOS_CONFIG_FILE | "<ftp-url>" **NOTE**:The <ftp-url> value must be placed inside double quotes. IOS_CONFIG_FILE is used when copying a system configuration backup file to the FTP Server.
DEST=	Destination location/name where the source file is to be copied. • Values: "<ftp-url>" | IOS_CONFIG_FILE | IOS_UPGRADE_FILE **NOTE**:The <ftp-url> value must be placed inside double quotes. IOS_CONFIG_FILE is used when copying a system configuration file from the FTP server to the system to subsequently restore. IOS_UPGRADE_FILE is used when copying a software upgrade file from the FTP server to the system in preparation for a system software upgrade.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

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Errors

IPNV – Keyword or value is not valid

Examples

Copy a system software upgrade file from an FTP server to the system:

```
<copy-rfile:::1:::SRC="ftp://ftpuser:ftppassword@10.0.0.1/
GGNIOSUPG.tgz",DEST=IOS_UPGRADE_FILE;


   LN0001 13-05-16 20:49:20
M  1 COMPLD
;
```

Copy a system configuration backup file from an FTP server to the system:

```
<copy-rfile:::1:::SRC="ftp://ftpuser:
ftppassword@10.0.0.1/iosconfigbackup-2012-05-15.xml",
DEST=IOS_CONFIG_FILE;

   LN0001 13-05-16 20:56:09
M  1 COMPLD
;
```

Copy a system configuration backup file the system to an FTP server:

```
<copy-rfile:::1:::SRC=IOS_CONFIG_FILE,DEST="ftp://
ftpuser:ftppassword@10.0.0.1/LN0001Backup-2012-5-
16.xml";

   LN0001 13-05-16 20:59:16
M  1 COMPLD
;
```

Log and notification example: FTP of upgrade file from server to the system (FTP-START & FTP-COMPLETE)

```
   "GGNMSG: SYSTEMID= LN0001,TYPE= EVENT,SEVERITY=
NOTICE,OPERATION= FTP-START,OBJECT= SYSTEM,SEQNO=
3463,CLEARSEQ= 0,DATETIME= 2013-05-16
20:49:20.456,USERID= admin,USERIF= TL1,USERIP=
192.168.1.114,FTP-TYPE= Upload,FTP-SRC= ftp://
ftpuser:****@10.0.0.1/GGNIOSUPG.tgz,FTP-DEST= /dnld/
GGNIOSUPG.tgz"
   "GGNMSG: SYSTEMID= LN0001,TYPE= EVENT,SEVERITY=
NOTICE,OPERATION= FTP-COMPLETE,OBJECT= SYSTEM,SEQNO=
3464,CLEARSEQ= 0,DATETIME= 2013-05-16
20:49:28.659,USERID= admin,USERIF= TL1,USERIP=
192.168.1.114,FTP-TYPE= Upload,FTP-SRC= ftp://
```

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```
ftpuser:****@ 10.0.0.1/GGNIOSUPG.tgz,FTP-DEST= /dnld/
GGNIOSUPG.tgz"
```

Log and notification example: FTP of backup file system to the server (FTP-START & FTP-COMPLETE):

```
   "GGNMSG: SYSTEMID= LN0001,TYPE= EVENT,SEVERITY=
NOTICE,OPERATION= FTP-START,OBJECT= SYSTEM,SEQNO=
3469,CLEARSEQ= 0,DATETIME= 2013-05-16
20:59:16.127,USERID= admin,USERIF= TL1,USERIP=
192.168.1.114,FTP-TYPE= Download,FTP-SRC= /dnld/
iosconfigbackup.xml,FTP-DEST= ftp://ftpuser:****@
10.0.0.1/LN0001Backup-2012-5-16.xml"
   "GGNMSG: SYSTEMID= LN0001,TYPE= EVENT,SEVERITY=
NOTICE,OPERATION= FTP-COMPLETE,OBJECT= SYSTEM,SEQNO=
3470,CLEARSEQ= 0,DATETIME= 2013-05-16
20:59:16.275,USERID= admin,USERIF= TL1,USERIP=
192.168.1.114,FTP-TYPE= Download,FTP-SRC= /dnld/
iosconfigbackup.xml,FTP-DEST= ftp://
ftpuser:****@10.0.0.1/LN0001Backup-2012-5-16.xml"
```


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RTRV-RFILE
Retrieve Copy Remote File

Description

Retrieves the status of the COPY-RFILE command:

- STATUS=ACTIVE - A file transfer is in progress
- STATUS=IDLE - No file transfer is in progress

When a file transfer completes the status changes from ACTIVE to IDLE and an event is posted, see COPY-RFILE.

Related Commands

COPY-RFILE
CANC-RFILE
APPLY-UPGRADE
RTRV-UPGRADE
APPLY-CFG
COPY-CFG
RTRV-CFG

Reference

N/A

Input Format

```
RTRV-RFILE:[<tid>]::<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Response Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss><cr><lf>
M^^<ctag>^^COMPLD<cr><lf>
^^^"GGN:STATUS=<status>,SRC=<src>,DEST=<dest>"<cr><lf>
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

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Parameter	Description
STATUS=	FTP transfer status. • Values: ACTIVE|IDLE
SRC=	Source of the file. • Values: IOS_CONFIG_FILE "<ftp-url>" • Default: None
DEST=	Destination for the file: • Values: IOS_CONFIG_FILE IOS-UPGRADE_FILE “<ftp-url>" • Default: None

Errors

Parse errors: See Table 33 on page 425.

Example

Retrieves the status of the COPY-RFILE command:

```
<rtrv-rfile:::1;

   BD0267 11-05-12 15:11:47
M  1 COMPLD
   "GGN:STATUS=ACTIVE,SRC=ftp://
ftpuser:****@192.168.1.85/GGNIOSUPG.tgz,DEST=/dnld/
GGNIOSUPG.tgz"
;
```


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CANC-RFILE
Cancel Remote File

Description

Cancel a system file FTP transfer.

If a file transfer initiated by COPY-RFILE appears to be hung (the RTRV-RFILE status is ACTIVE much longer than expected), then the transfer may be canceled by this command.

A file transfer will automatically terminate if it exceeds 3 minutes. On time out or cancel an event message with RESULT=FAILED is posted on termination of the file transfer (see example below).

Related Commands

COPY-RFILE
RTRV-RFILE
APPLY-UPGRADE
RTRV-UPGRADE
APPLY-CFG
COPY-CFG
RTRV-CFG

Reference

N/A

Input Format

```
CANC-RFILE:[<tid>]::<ctag>;
```

Input Parameters

The <tid> and <ctag> parameters are common to all TL1 commands and are described in ”Common Parameters” on page 14.

Response Format

```
cr lf lf
^^^<sid>^<YY-MM-DD>^<HH:MM:SS> cr lf
M^^<ctag>^^COMPLD cr lf
;
```

Response Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear frequently in TL1 commands.

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Errors

Parse errors: See Table 33 on page 425.

Example

Cancel the pending copy remote file operation:

```
<canc-rfile:::1;

   BD0267 11-05-12 15:26:14
M  1 COMPLD
;
<

   BD0267 11-05-12 15:26:15
A  846 REPT EVT SYS
   "BD0267:FILETRANSFER,NA,NSA"
   /* GGNMSG:SWITCH_ID= BD0267,TYPE=SYSTEM_ADMIN,
SEVERITY= NOTICE,SEQNO= 839,DATE= 11-05-12,TIME=
15:26:15,USER_CMD= FILE_TRANSFER_COMPLETE,USER_ID=
admin,USER_HOST= 192.168.1.85,USER_APP= TL1,SERVICE=
NSA,RESULT= FAILED,FILE_TRANSFER_TYPE=Upload,
FILE_TRANSFER_SRC= ftp://ftpuser:****@192.168.1.85/
GGNIOSUPG.tgz,FILE_TRANSFER_DEST= /dnld/GGNIOSUPG.tgz */
;
```


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Autonomous Messages

11

This chapter contains information regarding the autonomous message format that is native to TL1. Log file contents are displayed in the autonomous message format when using the RTRV-LOG command to view the system logs. The autonomous message format is also used when notifications are issued to an active TL1 session. Notifications to active TL1 sessions are normally inhibited but may be enabled by the user.

The RTRV-LOG command may be used (depending on user privilege) to view any of the three system logs, SECU, AUTO, and ALARM:

- The SECU log contains log records pertaining to user configuration, security policy configuration as well as switch access (login/logout) activity.
- The AUTO log contains log records pertaining to system configuration, port configuration and connection provisioning activity.
- The ALARM log contains log records pertaining to alarm activity in the system (report, acknowledge, clear).

Active TL1 sessions may receive autonomous messages as unsolicited (automatic) notifications. Glimmerglass supports sending autonomous message notifications for alarm and event messages only.

Autonomous messages are composed of a TL1 header followed a GGNMSG record (quoted line). The format is shown below.

```
<cr> <lf> <lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss> <cr> <lf>
<almcode>^^<atag>^^REPT^<modifier1>^[<modifier2>] <cr> <lf>
^^^"<GGNMSG Payload>" <cr> <lf>
;
```

The format above is observed when using the RTRV-LOG command and when receiving autonomous message notifications on an active TL1 session. Refer to ”Common Parameters” on page 14 for a description of the fields in the TL1 header. Refer to Appendix B for information on GGNMSG format and contents.

This chapter describes the Autonomous Messages listed in the table below.

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TL1 Command	Description	Page
REPT DBCHG	Generated for system, port and connection configuration operations.	399
REPT DBCHG SECU	Generated for user and security policy configuration as well as system access activity.	402
REPT ALM SYS	Generated when a hardware or software alarm condition is detected, acknowledged or cleared.	405
REPT ALM FIBER	Generated when an optical alarm is detected, acknowledged or cleared.	409
REPT EVT SYS	Generated by system to confirm completion of maintenance events.	414
REPT EVT FIBER	Generated by system to record non-alarm related optical events.	417

NOTE: Notifications from the switch are implemented through other interfaces which provide more functionality.

- SNMP may be used to send traps for system and optical alarms as well as selected system events.
- Syslog may be used to send all or selected notification types to a Syslog server
- Glimmerglass GGNMSGs (UDP) may be issued to up to three listeners as an alternative to Syslog if desired.

All the logs (SECU, AUTO, and ALARM) may be viewed using the RTRV-GGNMSG-LOG command. The output for this command displays only the quoted line for each GGNMSG. It does not carry the overhead of the RTRV-LOG command output.

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REPT DBCHG
Report Database Change

Description

Autonomous Message notification is not available for REPT DBCHG events.

Configuration activities on system settings, port settings, signal thresholds, port groups, or connections are logged as configuration changes. When RTRV-LOG is used to view the AUTO log, these log items are shown as REPT DBCHG messages.

All configuration and provisioning activity not related to users, security policies and alarm acknowledgments is written to the AUTO log.

Related Commands

RTRV-LOG

Output Format

```
^^^<sid>^<yy-mm-dd>^<hh:mm:ss> cr lf
<almcode>^^<atag>^^REPT^DBCHG cr lf
^^^"GGNMSG:SYSTEMID= <sysID>,TYPE= <msgType>,SEVERITY=
<sev>,OPERATION= <oper>,OBJECT= <obj>,SEQNO=
<seqno>,CLEARSEQ=<seqno>,DATETIME= <datetime>[,OPKEYWORDS=
<opValues>]" cr lf
;
```

Output Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear in all TL1 responses as well as autonomous message headers.

Parameter	Description
<almcode>	Alarm code • Values: A (autonomous)
<atag>	Automatic message tag • Values: integer, system-assigned unique number
SYSTEMID=	System name • Values: string, 20 characters maximum
TYPE=	Message type • Values: EVENT | MAINT | CONFIG

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Parameter	Description
SEVERITY=	Severity of alarm • Values: NOTICE
OPERATION=	Operation reported by the system • Values: (for a list of possible values, see Appendix B, Table 35 through Table 37 where Logname=AUTO)
OBJECT=	Object of operation. • Values: (for a list of possible values, see Appendix B, Table 35 through Table 37 where Logname=AUTO)
SEQNO=	Sequence number for message • Values: integer, 1 - 10000000
CLEARSEQ=	Cleared sequence number • Values: integer: 0 **NOTE**: The value is always “0” for REPT DBCHG messages.
DATETIME=	The date/time that the operation occurred • Values: Date and time in format YYYY-MM-DD HH:MM:SS:sss (where .sss represent milliseconds)
OPKEYWORDS=	Operation-specific “KEYWORD= VALUE” pairs. See Appendix B, Table 38 on page 437 for the OPKEYWORDS for these system events.

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Example

RTRV-LOG example for AUTO log showing REPT DBCHG messages:

```
<rtrv-log:::1::AUTO;

   LN0001 13-05-18 22:26:14
M  1 COMPLD
   "AUTO Log"
   /*

#1
   LN0001 13-05-18 22:25:46
A  235 REPT DBCHG
   "GGNMSG: SYSTEMID= LN0001,TYPE= CONFIG,SEVERITY= NOTICE,
OPERATION= LOGFILE-INIT,OBJECT= AUTO,SEQNO= 235,CLEARSEQ= 0,
DATETIME= 2013-05-18 22:25:46.204,USERID= admin,USERIF= TL1,
USERIP= 192.168.1.114,LOGNAME= AUTO,LOGSIZE= 1000"

#2
   LN0001 13-05-18 22:25:59
A  236 REPT DBCHG
   "GGNMSG: SYSTEMID= LN0001,TYPE= CONFIG,SEVERITY= NOTICE,
OPERATION= PORT-EDIT,OBJECT= 10001,SEQNO= 236,CLEARSEQ= 0,
DATETIME= 2013-05-18 22:25:59.398,USERID= admin,USERIF= TL1,
USERIP= 192.168.1.114,PORTID= 10001,PORTGROUP= OpenGroup,
PORTNAME= InPort1,PORTDESCR= GGN-IN,SIGBAND= 1550,SIGTHRESH=
1550,STMINSEV= DI,STMAXSEV= MI"

#3
   LN0001 13-05-18 22:26:07
A  237 REPT EVT FIBER
   "GGNMSG: SYSTEMID= LN0001,TYPE= EVENT,SEVERITY= NOTICE,
OPERATION= LGTOFF,OBJECT= 10001,SEQNO= 237,CLEARSEQ= 0,
DATETIME= 2013-05-18 22:26:07.333,INPUT= 10001,INNAME=
InPort1,INDESCR= GGN-IN,INSIGTHRESH= 1550,INPWR= -
50.282,SIGBAND= 1550"
   */
;
```

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REPT DBCHG SECU
Report Database Change Security

Description

Autonomous Message notification is not available for REPT DBCHG SECU events.

All user access (login/logout), user configuration, and security policy configuration activities are placed in the security log. When RTRV-LOG is used to view the SECU log, these log items are shown as REPT DBCHG SECU messages.

All configuration commands in Chapter 3, “Access and Security Management” are written to the SECU log.

Related Commands

RTRV-LOG

Output Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss> cr lf
<almcode>^^<atag>^^REPT^DBCHG^SECU cr lf
^^^"GGNMSG:SYSTEMID= <sysID>,TYPE= <msgType>,SEVERITY= <sev>,
OPERATION= <oper>,OBJECT= <obj>,SEQNO= <seqno>,
CLEARSEQ=<seqno>,DATETIME= <datetime>
[,OPKEYWORDS= <opValues>]" cr lf
;
```

Output Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear in all TL1 responses as well as autonomous message headers.

Parameter	Description
<almcode>	Alarm code • Values: A (notice)
<atag>	Automatic message tag • Values: integer, system-assigned unique number
SYSTEMID=	System name • Values: string, 20 characters maximum

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Parameter	Description
TYPE=	Message type • Values: ACCESS | CONFIG | EVENT
SEVERITY=	Severity of event • Values: NOTICE
OPERATION=	Operation reported by the system • Values: (for a list of possible values, see Appendix B, Table 35 through Table 37 where Logname=AUTO)
OBJECT=	Object of operation. • Values: (for a list of possible values, see Appendix B, Table 35 through Table 37 where Logname=AUTO)
SEQNO=	Sequence number for message • Values: integer, 1 - 10000000
CLEARSEQ=	Cleared sequence number • Values: integer: 0 **NOTE**: The value is always “0” for REPT DBCHG SECU messages.
DATETIME=	The date/time that the operation occurred • Values: Date and time in format YYYY-MM-DD HH:MM:SS:sss (where .sss represent milliseconds)
OPKEYWORDS=	Operation-specific “KEYWORD= VALUE” pairs. See Appendix B, Table 38 on page 437 for the OPKEYWORDS for these system events.

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Example RTRV-LOG example for SECU log showing REPT DBCHG SECU messages:

```
<rtrv-log:::1::SECU;

   LN0001 13-05-18 22:44:09
M  1 COMPLD
   "SECU Log"
   /*

#1
   LN0001 13-05-18 22:42:06
A  241 REPT DBCHG SECU
   /* GGNMSG: SYSTEMID= LN0001,TYPE= ACCESS,SEVERITY= NOTICE,
OPERATION= USER-LOGIN,OBJECT= admin,SEQNO= 241,CLEARSEQ= 0,
DATETIME= 2013-05-18 22:42:06.984,USERID= admin,USERIF= TL1,
USERIP= 192.168.1.114 */

#2
   LN0001 13-05-18 22:43:09
A  242 REPT DBCHG SECU
   /* GGNMSG: SYSTEMID= LN0001,TYPE= CONFIG,SEVERITY= NOTICE,
OPERATION= USER-ADD,OBJECT= DocUser,SEQNO= 242,CLEARSEQ= 0,
DATETIME= 2013-05-18 22:43:09.172,USERID= admin,USERIF= TL1,
USERIP= 192.168.1.114,SUSERID= DocUser,PAGE= 0,PCND= 0,PINT=
0,UOUT= 0,STATE= IS,SYSPRIV= modify,PORTPRIV= modify */

#3
   LN0001 13-05-18 22:43:38
A  243 REPT DBCHG SECU
   /* GGNMSG: SYSTEMID= LN0001,TYPE= ACCESS,SEVERITY= NOTICE,
OPERATION= USER-LOGOUT,OBJECT= admin,SEQNO= 243,CLEARSEQ= 0,
DATETIME= 2013-05-18 22:43:38.304,USERID= admin,USERIF= TL1,
USERIP= 192.168.1.114 */
   */
;
```


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REPT ALM SYS
Report System Alarms

Description

REPT ALM SYS autonomous message notifications are provided for the system alarms (detection, acknowledgment, clear) indicated below. These events are written to the ALARM log.

To receive these autonomous notifications in a TL1 session, issue either the ALW-MSG-ALM command or the ALW-MSG-ALL command in the session. ALW-MSG-ALL will also enable autonomous notification for system and optical events.

- INTRUSION -issued when the maximum invalid login attempt threshold is exceeded when attempting to start a ClickFlow or TL1 session.
- NTPFLT - issued when system cannot synchronize with any of the NTP servers configured as NTP sources.
- 48VFLT - issued when 48V is not present at one of the DC feeds.
- FUSEFLT - issued when a fuse is failed/missing at one of the DC feeds.
- FANFLT - issued when a fan failure is detected.
- TEMPHI - issued when the optical engine temperature reaches 70C.
- VBBLO - issued when optical engine back-bias voltage is too low.
- VFBLO - issued when optical engine forward-bias voltage is too low.
- VBBHI - issued when optical engine back-bias voltage is too high.
- VFBHI - issued when optical engine forward-bias voltage is too high.

Related Commands

ALW-MSG-ALL
INH-MSG-ALL
ALW-MSG-ALM
INH-MSG-ALM
RTRV-LOG

Output Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss> cr lf
<almcode>^^<atag>^^REPT^ALM^SYS cr lf
^^^"GGNMSG:SYSTEMID= <sysID>,TYPE= <msgType>,SEVERITY=
<sev>,OPERATION= <oper>,OBJECT= <obj>,SEQNO=
```

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```
<seqno>,CLEARSEQ=<seqno>,DATETIME=
<datetime>[,OPKEYWORDS= <opValues>]" cr lf
;
```

Output Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear in all TL1 responses as well as autonomous message headers.

Parameter	Description
<almcode>	Alarm code • Values: *C | ** | * | A *C: critical **: major *: minor A: autonomous
<atag>	Automatic message tag • Values: integer, system-assigned unique number
SYSTEMID=	System name • Values: string, 20 characters maximum
TYPE=	Message type • Values: ALARM
SEVERITY=	Severity of alarm • Values: CRITICAL | MAJOR | MINOR | NOTICE | ACKNOWLEDGE | CLEAR
OPERATION=	Operation (alarm type) • Values: (refer to Description section of this command)
OBJECT=	System object on which the alarm change is detected • Values: SYSTEM
SEQNO=	Sequence number for message • Values: integer, 1 - 10000000

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Parameter	Description
CLEARSEQ=	Cleared sequence number • Values: integer: 0 | <sequence # of original alarm> The value of “0” is used for original alarm. For clear/ acknowledge messages, the sequence number of the original alarm is entered.
DATETIME=	The date/time that the operation occurred • Values: Date and time in format YYYY-MM-DD HH:MM:SS:sss (where .sss represent milliseconds)
OPKEYWORDS=	Operation-specific “KEYWORD= VALUE” pairs. See Appendix B, Table 40 on page 441 for the OPKEYWORDS for these system alarm events.

Examples

INTRUSION alarm :

```
   LN0001 13-05-17 15:06:28
*  69 REPT ALM SYS
   "GGNMSG: SYSTEMID= LN0001,TYPE= ALARM,SEVERITY=
MINOR,OPERATION= INTRUSION,OBJECT= CHANNEL,SEQNO=
69,CLEARSEQ= 0,DATETIME= 2013-05-17 15:06:28.276,USERID=
Hacker,USERIF= WEB,USERIP= 192.168.1.114,FAILED-ATTEMPTS= 4"
;
```

INTRUSION acknowledge:

```
   LN0001 13-05-17 15:07:46
A  71 REPT ALM SYS
   "GGNMSG: SYSTEMID= LN0001,TYPE= ALARM,SEVERITY=
ACKNOWLEDGE,OPERATION= INTRUSION,OBJECT= CHANNEL,SEQNO=
71,CLEARSEQ= 69,DATETIME= 2013-05-17 15:07:46.816,USERID=
admin,USERIF= WEB,USERIP= 192.168.1.114"
;
```

INTRUSION clear:

```
   LN0001 13-05-17 15:07:46
A  72 REPT ALM SYS
   "GGNMSG: SYSTEMID= LN0001,TYPE= ALARM,SEVERITY=
CLEAR,OPERATION= INTRUSION,OBJECT= CHANNEL,SEQNO=
72,CLEARSEQ= 69,DATETIME= 2013-05-17 15:07:46.817,USERID=
Hacker,USERIF= WEB,USERIP= 192.168.1.114,FAILED-ATTEMPTS= 6"
;
```

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48VFLT alarm:

```
   LN0001 13-05-17 15:51:30
** 104 REPT ALM SYS
   "GGNMSG: SYSTEMID= LN0001,TYPE= ALARM,SEVERITY=
MAJOR,OPERATION= 48VFLT,OBJECT= B-FEED,SEQNO= 104,CLEARSEQ=
0,DATETIME= 2013-05-17 15:51:30.935"
```

NTPFLT alarm:

```
   LN0001 13-05-17 15:02:41
*  64 REPT ALM SYS
   "GGNMSG: SYSTEMID= LN0001,TYPE= ALARM,SEVERITY=
MINOR,OPERATION= NTPFLT,OBJECT= NTP,SEQNO= 64,CLEARSEQ=
0,DATETIME= 2013-05-17 15:02:41.443"
;
```


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REPT ALM FIBER
Report Optical Alarms

Description

REPT ALM FIBER autonomous message notifications are provided for the optical alarms (detection, acknowledgement, clear) indicated below. These events are written to the ALARM log.

To receive these autonomous notifications in a TL1 session, issue either the ALW-MSG-ALM command or the ALW-MSG-ALL command in the session. ALW-MSG-ALL will also enable autonomous notification for system and optical events.

- STMIN - Issued when the optical power falls below the signal type minimum threshold (STMIN) configured in the Signal Threshold assigned to the port. This alarm means the optical power measured at the port has dropped below the acceptable level defined by the user in the Signal Threshold.
- STMAX - Issued when the optical power rises above the signal type maximum threshold (STMIN) configured in the Signal Threshold assigned to the port. This alarm means the optical power measured at the port has risen above the acceptable level defined by the user in the Signal Threshold.
- PWRMAX - Issued when the optical power rises above the system maximum optical power range value. For standard systems, this alarm occurs when the optical power is measure above 20.5 dBm at the port. The port will be marked bad and placed out of service.
- LGTRVRS - Output ports only. Issued when the fiber connected to the output port is receiving light from the distant end. This alarm indicates an invalid fiber connection at the patch panel for standard systems.
- CSFLT - Issued if the connection optimization software cannot optimize the output power and, therefore, connection loss. Connection faults are only reported for the output port in the connection.

NOTE: Typically, CSFLT conditions will be reported if the power at the output port is too low for successful connection optimization. Thus, the STMIN threshold may be used in lieu of CSFLT for detecting problems as, in most cases, the low power condition will be a problem for the receiving equipment well before the switch will experience problems with connection optimization.

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Related Commands

ALW-MSG-ALL
INH-MSG-ALL
ALW-MSG-ALM
INH-MSG-ALM
RTRV-LOG

Output Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss> cr lf
<almcode>^^<atag>^^REPT^ALM^FIBER cr lf
^^^"GGNMSG:SYSTEMID= <sysID>,TYPE= <msgType>,SEVERITY=
<sev>,OPERATION= <oper>,OBJECT= <obj>,SEQNO=
<seqno>,CLEARSEQ=<seqno>,DATETIME= <datetime>[,OPKEYWORDS=
<opValues>]" cr lf
;
```

Output Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear in all TL1 responses as well as autonomous message headers.

Parameter	Description
<almcode>	Alarm code • Values: *C | ** | * | A *C: critical **: major *: minor A: autonomous
<atag>	Automatic message tag • Values: integer, system-assigned unique number
SYSTEMID=	System name • Values: string, 20 characters maximum
TYPE=	Message type • Values: ALARM
SEVERITY=	Severity of alarm • Values: CRITICAL | MAJOR | MINOR | NOTICE | ACKNOWLEDGE | CLEAR

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Parameter	Description
OPERATION=	Operation (alarm type) • Values: STMIN | STMAX | CSFLT | LGTRVRS | PWRMAX
OBJECT=	System object on which the alarm change is detected • Values: <InPort#> | <OutPort#>
SEQNO=	Sequence number for message • Values: integer, 1 - 10000000
CLEARSEQ=	Cleared sequence number • Values: integer: 0 | <sequence # of original alarm> The value of “0” is used for original alarm. For clear/ acknowledge messages, the sequence number of the original alarm is entered.
DATETIME=	The date/time that the operation occurred • Values: Date and time in format YYYY-MM-DD HH:MM:SS:sss (where .sss represent milliseconds)
OPKEYWORDS=	Operation-specific “KEYWORD= VALUE” pairs. See Appendix B, Table 40 on page 441 for the OPKEYWORDS for these optical alarm events.

Examples

STMIN alarm on output port 20004:

```
   LN0001 13-05-18 00:58:12
** 197 REPT ALM FIBER
   /* GGNMSG: SYSTEMID= LN0001,TYPE= ALARM,SEVERITY=
MAJOR,OPERATION= STMIN,OBJECT= 20004,SEQNO= 197,CLEARSEQ=
0,DATETIME= 2013-05-18 00:58:12.438,INPUT= 10004,INNAME=
InPort4,INDESCR= GGN-IN,INSIGTHRESH= 1550,INPWR= -
49.605,OUTPUT= 20004,OUTNAME= OutPort4,OUTDESCR= GGN-
OUT,OUTSIGTHRESH= 1550,OUTPWR= -50.705,CONNLOSS= NA,SIGBAND=
1550,CONNDESCR= Connection4"
;
```

STMIN alarm clear on output port 20004:

```
   LN0001 13-05-18 01:01:17
A  202 REPT ALM FIBER
   "GGNMSG: SYSTEMID= LN0001,TYPE= ALARM,SEVERITY=
CLEAR,OPERATION= STMIN,OBJECT= 20004,SEQNO= 202,CLEARSEQ=
197,DATETIME= 2013-05-18 01:01:17.975,INPUT= 10004,INNAME=
```

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```
InPort4,INDESCR= GGN-IN,INSIGTHRESH= 1550,INPWR= -
7.179,OUTPUT= 20004,OUTNAME= OutPort4,OUTDESCR= GGN-
OUT,OUTSIGTHRESH= 1550,OUTPWR= -9.013,CONNLOSS= 1.8,SIGBAND=
1550,CONNDESCR= Connection4"
;
```

LGTRVRS alarm on output port 20006 (unconnected):

```
   LN0001 13-05-18 17:03:59
** 223 REPT ALM FIBER
   "GGNMSG: SYSTEMID= LN0001,TYPE= ALARM,SEVERITY=
MAJOR,OPERATION= LGTRVRS,OBJECT= 20006,SEQNO= 223,CLEARSEQ=
0,DATETIME= 2013-05-18 17:03:59.384,OUTPUT= 20006,OUTNAME=
OutPort6,OUTDESCR= GGN-OUT,OUTSIGTHRESH= 1550,OUTPWR= -
7.455,SIGBAND= 1550"
;
```

LGTRVRS alarm acknowledge for output port 20006:

```
   LN0001 13-05-18 17:04:17
A  224 REPT ALM FIBER
   "GGNMSG: SYSTEMID= LN0001,TYPE= ALARM,SEVERITY=
ACKNOWLEDGE,OPERATION= LGTRVRS,OBJECT= 20006,SEQNO=
224,CLEARSEQ= 223,DATETIME= 2013-05-18 17:04:17.871,USERID=
admin,USERIF= WEB,USERIP= 192.168.1.114"
;
```

LGTRVRS alarm on output port 20005 (connected, OUTPWR > INPWR):

```
   LN0001 13-05-18 17:00:22
** 213 REPT ALM FIBER
   "GGNMSG: SYSTEMID= LN0001,TYPE= ALARM,SEVERITY=
MAJOR,OPERATION= LGTRVRS,OBJECT= 20006,SEQNO= 213,CLEARSEQ=
0,DATETIME= 2013-05-18 17:00:22.631,INPUT= 10006,INNAME=
InPort6,INDESCR= GGN-IN,INSIGTHRESH= 1550,INPWR= -
8.741,OUTPUT= 20006,OUTNAME= OutPort6,OUTDESCR= GGN-
OUT,OUTSIGTHRESH= 1550,OUTPWR= -7.389,CONNLOSS= 0.0,SIGBAND=
1550,CONNDESCR=BadConnection"
;
```

CSFLT alarm on connection to output port 20004:

```
   LN0001 13-05-18 00:58:12
*C 194 REPT ALM FIBER
   "GGNMSG: SYSTEMID= LN0001,TYPE= ALARM,SEVERITY=
CRITICAL,OPERATION= CSFLT,OBJECT= 20004,SEQNO= 194,CLEARSEQ=
0,DATETIME= 2013-05-18 00:58:12.436,INPUT= 10004,INNAME=
InPort4,INDESCR= GGN-IN,INSIGTHRESH= 1550,INPWR= -
49.605,OUTPUT= 20004,OUTNAME= OutPort4,OUTDESCR= GGN-
OUT,OUTSIGTHRESH= 1550,OUTPWR= -50.705,CONNLOSS= NA,SIGBAND=
1550,CONNDESCR= Connection4"
;
```


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CSFLT alarm acknowledge:

```
   LN0001 13-05-18 01:00:20
A  199 REPT ALM FIBER
   "GGNMSG: SYSTEMID= LN0001,TYPE= ALARM,SEVERITY=
ACKNOWLEDGE,OPERATION= CSFLT,OBJECT= 20004,SEQNO=
199,CLEARSEQ= 194,DATETIME= 2013-05-18 01:00:20.559,USERID=
admin,USERIF= WEB,USERIP= 192.168.1.114"
;
```

CSFLT alarm clear:

```
   LN0001 13-05-18 01:01:17
A  203 REPT ALM FIBER
   "GGNMSG: SYSTEMID= LN0001,TYPE= ALARM,SEVERITY=
CLEAR,OPERATION= CSFLT,OBJECT= 20004,SEQNO= 203,CLEARSEQ=
194,DATETIME= 2013-05-18 01:01:17.980,INPUT= 10004,INNAME=
InPort4,INDESCR= GGN-IN,INSIGTHRESH= 1550,INPWR= -
7.179,OUTPUT= 20004,OUTNAME= OutPort4,OUTDESCR= GGN-
OUT,OUTSIGTHRESH= 1550,OUTPWR= -9.013,CONNLOSS= 1.8,SIGBAND=
1550,CONNDESCR= Connection4"
;
```

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REPT EVT SYS
Report Event System

Description

REPT EVT SYS autonomous message notifications are provided for confirmation of maintenance actions and to record application startup. The supported notifications are indicated below. These events are written to the AUTO log.

To receive these autonomous notifications in a TL1 session, issue either the ALW-MSG-ALM command or the ALW-MSG-ALL command in the session. ALW-MSG-ALL will also enable autonomous notification for alarms.

The following actions generate system events.

- SYSTEM-STOP - issued at the moment the system stops in response to a restart, reboot, shutdown or reset to factory default request.
- UPGRADE-COMPLETE - issued when a software upgrade request successfully completes.
- UPGRADE-FAIL - issued when a software upgrade request fails to complete successfully.
- FTP-COMPLETE - issued when an FTP request completes successfully
- FTP-FAIL - issued when an FTP request fails to complete.
- SYSTEM-START - message logged to report the date/time the system started upon initialization for any reason.

NOTE: The SYSTEM-START message is logged only. No TL1 session can be started until after the system is fully initialized.

Related Commands

ALW-MSG-ALL
INH-MSG-ALL
ALW-MSG-ALM
INH-MSG-ALM
RTRV-LOG

Output Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss> cr lf
<almcode>^^<atag>^^REPT^EVT^SYS cr lf
^^^"GGNMSG:SYSTEMID= <sysID>,TYPE= <msgType>,SEVERITY=
<sev>,OPERATION= <oper>,OBJECT= <obj>,SEQNO=
<seqno>,CLEARSEQ=<seqno>,DATETIME= <datetime>[,OPKEYWORDS=
<opValues>]" cr lf
;
```


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Output Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear in all TL1 responses as well as autonomous message headers.

Parameter	Description
<almcode>	Alarm code • Values: A (notice)
<atag>	Automatic message tag • Values: integer, system-assigned unique number
SYSTEMID=	System name • Values: string, 20 characters maximum
TYPE=	Message type • Values: EVENT | MAINT
SEVERITY=	Severity of event • Values: NOTICE
OPERATION=	Operation reported by the system. • Values: (refer to command description above)
OBJECT=	Object of operation (always equals SYSTEM) • Values: SYSTEM
SEQNO=	Sequence number for message • Values: integer, 1 - 10000000
CLEARSEQ=	Cleared sequence number • Values: integer: 0 **NOTE**: The value is always “0” for REPT EVT SYS messages.
DATETIME=	The date/time that the operation occurred • Values: Date and time in format YYYY-MM-DD HH:MM:SS:sss (where .sss represent milliseconds)
OPKEYWORDS=	Operation-specific “KEYWORD= VALUE” pairs. See Appendix B, Table 39 on page 440 for the OPKEYWORDS for these system events.

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Examples

SYSTEM-STOP:

```
   LN0001 13-05-17 14:43:44
A  49 REPT EVT SYS
   "GGNMSG: SYSTEMID= LN0001,TYPE= EVENT,SEVERITY= NOTICE,
OPERATION= SYSTEM-STOP,OBJECT= SYSTEM,SEQNO= 49,CLEARSEQ= 0,
DATETIME= 2013-05-17 14:43:44.978"
;
```

UPGRADE-COMPLETE:

```
   LN0001 13-05-17 15:20:58
A  82 REPT EVT SYS
   "GGNMSG: SYSTEMID= LN0001,TYPE= MAINT,SEVERITY=
NOTICE,OPERATION= UPGRADE-COMPLETE,OBJECT= SYSTEM,SEQNO=
82,CLEARSEQ= 0,DATETIME= 2013-05-17 15:20:58.280,USERID=
admin,USERIF= WEB,USERIP= 192.168.1.114,UPGRADE-PARTITION= 0,
UPGRADE-VERSION= R08.00p000"
;
```

FTP-COMPLETE:

```
   LN0001 13-05-17 15:49:32
A  103 REPT EVT SYS
   "GGNMSG: SYSTEMID= LN0001,TYPE= EVENT,SEVERITY=
NOTICE,OPERATION= FTP-COMPLETE,OBJECT= SYSTEM,SEQNO=
103,CLEARSEQ= 0,DATETIME= 2013-05-17 15:49:32.932,USERID=
admin,USERIF= TL1,USERIP= 192.168.1.114,FTP-TYPE=
Download,FTP-SRC= /dnld/iosconfigbackup.xml,FTP-DEST= ftp://
ftpuser:****@10.0.0.1/configbackup.xml"
;
```


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REPT EVT FIBER
Report Port Event

Description

REPT EVT FIBER autonomous message notifications are provided for the optical conditions indicated below. These events are written to the AUTO log.

To receive these autonomous notifications in a TL1 session, issue either the ALW-MSG-ALM command or the ALW-MSG-ALL command in the session. ALW-MSG-ALL will also enable autonomous notification for alarms.

- LGTON - For input ports only. Issued when the optical power at the input port rises above -39.5 dBm (above system power minimum threshold plus hysteresis)
- LGTOFF - For input ports only. Issued when the optical power at the input port falls below -40.5 dBm (below the system power minimum threshold plus hysteresis)
- CSSTD - For new connections only, reported for the output port. Issued if the initial connection request results in a steady (optimized) connection

NOTES: If the initial connection request results in a non-optimized connection, a connection alarm (CSFLT) will be generated and reported as a REPT ALM FIBER.

Once a connection is made, no further CSSTD messages will be generated for that connection even if the connection is reconnected. This is because connecting already connected ports does not break-then-remake the connection (no glitch).

After the connection is made, any status changes are reflect as alarm conditions or alarm clear conditions.

This event simply confirms the initial connection request was resulted in a steady connection.

Related Commands

ALW-MSG-ALL
INH-MSG-ALL
ALW-MSG-ALM
INH-MSG-ALM
RTRV-LOG

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Output Format

```
<cr><lf><lf>
^^^<sid>^<yy-mm-dd>^<hh:mm:ss> cr lf
<almcode>^^<atag>^^REPT^EVT^FIBER cr lf
^^^"GGNMSG:SYSTEMID= <sysID>,TYPE= <msgType>,SEVERITY=
<sev>,OPERATION= <oper>,OBJECT= <obj>,SEQNO=
<seqno>,CLEARSEQ=<seqno>,DATETIME= <datetime>[,OPKEYWORDS=
<opValues>]" cr lf
;
```

Output Parameters

NOTE: See ”Common Parameters” on page 14 for a description of the parameters that appear in all TL1 responses as well as autonomous message headers.

Parameter	Description
<almcode>	Alarm code • Values: A (notice)
<atag>	Automatic message tag • Values: integer, system-assigned unique number
SYSTEMID=	System name • Values: string, 20 characters maximum
TYPE=	Message type • Values: EVENT
SEVERITY=	Severity of event • Values: NOTICE
OPERATION=	The optical event type. • Values: LGTON | LGTOFF | CSSTD
OBJECT=	Port # on which the optical event is detected • Values: <InPort#> | <OutPort#>
SEQNO=	Sequence number for message • Values: integer, 1 - 10000000
CLEARSEQ=	Cleared sequence number • Values: integer: 0 **NOTE**: The value is always “0” for REPT EVT FIBER messages.

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Parameter	Description
DATETIME=	The date/time that the operation occurred • Values: Date and time in format YYYY-MM-DD HH:MM:SS:sss (where .sss represent milliseconds)
OPKEYWORDS=	Operation-specific “KEYWORD= VALUE” pairs. See Appendix B, Table 39 on page 440 for the OPKEYWORDS for these events.

Examples

Connection fault report

```
LN0001 12-01-31 01:01:46
*C 1547 REPT EVT FIBER
   "20003:CS-FA,TC,01-31,01-01-46,409.896"
   /* GGNMSG:SWITCH_ID= LN0001,TYPE= EVENT,SEVERITY=
CRITICAL,SEQNO= 1500,DATE= 12-01-31,TIME= 01:01:46,SERVICE=
SA,RESOURCE= STATE-CHG,COND= CS-FAULT,AFFECTED-PORT=
20003,SIGNAL-TYPE= 1550,INPUT= 10003,INPWR= -50.618,OUTPUT=
20003,OUTPWR= -51.092 */
;
```

Steady connection report (initial connect or post-connection fault)

```
LN0001 12-01-31 01:05:26
A  1553 REPT EVT FIBER
   "20001:CS-ST,TC,01-31,01-05-26,287.574"
   /* GGNMSG:SWITCH_ID= LN0001,TYPE= EVENT,SEVERITY=
NOTICE,SEQNO= 1506,DATE= 12-01-31,TIME= 01:05:26,SERVICE=
NSA,RESOURCE= STATE-CHG,COND= CS-STEADY,AFFECTED-PORT=
20001,SIGNAL-TYPE= 1550,INPUT= 10001,INNAME=
C1000EastPrimary,INCMNT= Cabinet1Rack2Port3,INPWR=
-4.741,OUTPUT= 20001,OUTPWR= -7.046 */
;
```

Optical power drops below user defined minimum threshold for "valid"
Case 1: Unconnected Input Port

```
LN0001 12-01-31 01:10:35
*  1558 REPT EVT FIBER
   "10001:ST1B,TC,01-31,01-10-35,892.538"
   /* GGNMSG:SWITCH_ID= LN0001,TYPE= EVENT,SEVERITY=
MINOR,SEQNO= 1511,DATE= 12-01-31,TIME= 01:10:35,SERVICE=
NSA,RESOURCE= THRESHOLD-ID1,COND= BELOW,AFFECTED-PORT=
10001,SIGNAL-TYPE= 1550,INPUT= 10001,INNAME=
C1000EastPrimary,INCMNT= Cabinet1Rack2Port3,INPWR= -21.738 */
;
```

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Optical power drops below user defined minimum threshold for "valid"
Case 2: Connected Output Port

```
LN0001 12-01-31 01:05:24
*  1551 REPT EVT FIBER
   "20001:ST1B,TC,01-31,01-05-24,028.380"
   /* GGNMSG:SWITCH_ID= LN0001,TYPE= EVENT,SEVERITY=
MINOR,SEQNO= 1504,DATE= 12-01-31,TIME= 01:05:24,SERVICE=
NSA,RESOURCE= THRESHOLD-ID1,COND= BELOW,AFFECTED-PORT=
20001,SIGNAL-TYPE= 1550,INPUT= 10001,INNAME=
C1000EastPrimary,INCMNT= Cabinet1Rack2Port3,INPWR=
-50.324,OUTPUT= 20001,OUTPWR= -50.435 */
;
```


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Error Codes

A

Listed below are the errors codes that can be generated by the TL1 software, listed alphabetically within the sections in which they are defined.

GR-833

Table 29 GR-833 Error Codes

Error Code	Description
EATN	Equipage, Not Valid for Access Type
ENAC	Equipage, Not equipped with Alarm Cutoff
ENAD	Equipage, Not equipped with Audit capability
ENAR	Equipage, Not equipped with Automatic Reconfiguration
ENDG	Equipage, Not equipped with DiaGnostic capability
ENDS	Equipage, Not equipped with Duplex Switching
ENEA	Equipage, Not equipped with Error Analysis capability
ENEQ	Equipage, Not Equipped
ENEX	Equipage, Not equipped with Exercise capability
ENFL	Equipage, Not equipped for Fault Locating
ENMD	Equipage, Not equipped with Memory Device
ENPM	Equipage, Not equipped for Performance Monitoring
ENPS	Equipage, Not equipped with Protection Switching
ENRI	Equipage, Not equipped for Retrieving specified Information
ENRS	Equipage, Not equipped for Restoration
ENSA	Equipage, Not equipped for Scheduling Audit
ENSI	Equipage, Not equipped for Setting specified Information
ENSS	Equipage, Not equipped with Synchronization Switching

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Error Code	Description
ICNV	Input, Command not Valid
IDNV	Input, Data not Valid
IDRG	Input, Data Range
IIAC	Input, Invalid ACcess identifier
IICT	Input, Invalid Correlation Tag
IIFM	Input, Invalid data Format
IIPG	Input, Invalid Parameter Grouping
IISP	Input, Invalid Syntax or Punctuation
IITA	Input, Invalid Target identifier
INUP	Input, Non-null Unimplemented Parameter
IPMS	Input, Parameter Missing
ISCH	Input, Syntax invalid Character
ISPC	Input, Syntax invalid Punctuation
PICC	Privilege, Invalid Command Code
PIMA	Privilege, Invalid Memory Address
PIMF	Privilege, Invalid Memory File
PLNA	Privilege, Login Not Active
SAAL	Status, Already Allowed
SABT	Status, Aborted
SAIN	Status, Already Inhibited
SAIS	Status, Already In Service
SAMS	Status, Already In Maintenance State
SAOP	Status, Already Operated
SAPR	Status, Already in Protection state
SARB	Status, All Resources Busy
SATF	Status, Automatic Test Failed
SCNA	Status, Command Not Able to be aborted
SCNF	Status, Command Not Found
SDAS	Status, Diagnosis Already Started
SDFA	Status, Duplex unit Failed

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Error Code	Description
SDLD	Status, Duplex unit Locked
SDNA	Status, Duplex unit Not Available
SDNR	Status, Data Not Ready
SDNS	Status, Diagnosis Not Started yet
SFAS	Status, Fault locating Already Started
SFNS	Status, Fault locating Not Started yet
SLNS	Status, Log Not Started yet
SNOS	Status, Not currently Out of Service
SNPR	Status, Not in Protection state
SNRM	Status, system Not in Restoration Mode
SNSR	Status, No Switch Request outstanding
SNVS	Status, Not in Valid State
SPFA	Status, Protection unit Failed
SPLD	Status, Protection unit Locked
SPNA	Status, Process Not Able to be aborted
SPNF	Status, Process Not Found
SRCI	Status, Requested Command(s) Inhibited
SROF	Status, Requested Operation Failed
SRTO	Status, Reply Time-Out
SSRD	Status, Switch Request Denied
SSRE	Status, System Resources Exceeded
STAB	Status, Test Aborted
SWFA	Status, Working unit Failed
SWLD	Status, Working unit Locked

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GR-835

Table 30 GR-835 Error Codes

Error Code	Description
IPNV	Input, Parameter Not Valid
IPNC	Input, Parameter Not Consistent
IPMC	Input, Parameter Missing
IPEX	Input, Parameter Extra
IDNC	Input, Data Not Consistent
ICNC	Input, Command Not Consistent
IBNC	Input, Block Not Consistent
IBEX	Input, Block Extra
IBMS	Input, Block Missing
PIFC	Privilege, Illegal Field Code
PIRC	Privilege, Illegal Record Control
PIUC	Privilege, Illegal User Code
PIUI	Privilege, Illegal User Identity
SDNC	Status, Data Not Consistent
SSTP	Status, Stopped
SLEM	Status, List Exceeds Maximum
SLBM	Status, List Below Minimum
MERR	Multiple Error

GR-199

Table 31 GR-199 Error Codes

Error Code	Description
IEAE	Input, Entity Already Exists
IENE	Input, Entity Not Exists
EQWT	Equipage, Wrong Type

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GR-831

Table 32 GR-831 Error Codes

Error Code	Description
IICM	Input, Entity Not Exists
SOSE	Operating System Error
SDBE	Internal Data Base Error
SNCC	Not Cross-Connected
IDMS	Data Missing

Common Parsing Errors

All port commands use a common function to parse the AID block into port lists and to parse the information in the keyword block. As such, these commands have a common set of error codes resulting from parse errors. These error codes are listed in Table 33.

Table 33 Common Parsing Error Codes

TL1 Error Code	Description	Information Returned	Error Conditions
IDMS	data missing	The name of the missing field or parameter.	The parameter value is missing or the AID block does not contain data in a field that is required by the port command. For example, this error would result if a port list were not supplied in the first field of the AID block to the RTRV-CFG-FIBER port command. RTRV-CFG-FIBER requires a port list in the first field of the AID block.
IDNV	data not valid	The erroneous field name and its correspond-ing value in that field of the AID block.	The parsing function is unable to parse a field into a port list. For example, this error would occur if an invalid keyword or a malformed port range were to be supplied.
IDNV	data not valid	The parameter name and its invalid value.	An invalid parameter value is sup-plied for a particular keyword.

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TL1 Error Code	Description	Information Returned	Error Conditions
IDRG	date range error	The parameter name and its invalid value.	The parameter value is not in the expected range.
IIAC	invalid AID	The invalid field in the AID block.	Invalid data has been provided in the AID. Examples include: • The number of ports in the port-list range exceeds the maximum number of ports • The port list contains unrecognized ports, such as invalid port names.
IIFM	invalid format	The parameter name and its invalid value.	The parameter value supplied is not in the expected format.
INUP	Input, Non-null Unimplemented Parameter	The unimplemented parameter block.	A parameter is supplied in a parameter block, but the command does not expect any parameters in that block.
IPNV	invalid parameter	The invalid parameter or parameter name found in block.	This error occurs in these situations: • An unknown keyword is supplied • A keyword that is not valid for the port command is supplied • A port list is supplied in a field that is not valid for the port command. For example, this error would occur if a port list were supplied in the second field of the AID block to the RTRV-CFG-FIBER port command. RTRV-CFG-FIBER only expects one port list to be found in the first field of the AID block.

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GGNMSG Structure and Contents

B

The format for Glimmerglass messages (GGNMSGs) is shown below. This format represents the structure used within the system to store log records. With the exception of SNMP traps, these records are issued when sending notifications to external servers (Syslog and GGNMSG servers). TL1 autonomous messages are also assembled using the GGNMSG format as the quote-line payload following the TL1 autonomous message header.

```
^^^"GGNMSG:SYSTEMID=^<value>,TYPE= <value>,SEVERITY=^<value>,
OPERATION=^<value>,OBJECT=^<value>,SEQNO=^<value>,CLEARSEQ=^<value>,
DATETIME=^<value>[,OPKEYWORDS=^<opvalues>]" cr lf
```

GGNMSG Components

Each GGNMSG record is a string composed of the following elements:

- QUOTES: Each GGNMSG is a string contained within double quotes. The quoted string is preceded by three whitespace characters.
- GGNMSG: Label starting the message. All data between the colon ending the label and the end of the line are KEYWORD= VALUE pairs.
- KEYWORDS: All keywords end with =^ (equal sign + whitespace character). Keywords are composed of alphanumeric characters and may contain a hyphen. No whitespace or other punctuation characters (e.g., colon, equal sign, or comma) are used within the keyword. Keyword value pairs are delimited by commas until the last pair is reached (end of line).
- VALUES: Values may contain colon, equal sign, and commas which are used as delimiters in the over message. When used in a value, the equal sign and comma characters are escaped (as are several other characters). The characters which are escaped are displayed below. The colon is not escaped as, after the GGNMSG label is parsed, colon characters are not delimiters in the keyword/value payload.

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The following characters are escaped (shown below) when included in a <value>.

Character	Escape Format
Double Quote (")	\"
Apostrophe (')	\'
Equal Sign (=)	\=
Comma (,)	\,
Backslash (\)	\\

GGNMSG Keyword/Value Fields

The table below describes each of the keyword/value fields contained in the GGNMSG after the label. The first eight keyword/value pairs are required in the order shown above in all GGNMSG strings. The last item in the GGNMSG format, [OPKEYWORDS=^<opvalues>], is bracketed to indicate that not all GGNMSGS will include keyword/value pairs beyond the required pairs.

Table 34 GGNMSG Keyword/Value Fields

Keyword	Description and Values
SYSTEMID=	This field carries the name of the system that issued this GGNMSG. The system name is a string between 3 and 20 characters. Valid characters: Alphanumeric, and hyphen, underscore, period
TYPE=	This field is a categorization of the operation performed or detected by the systems. The values are shown below. Values — Description ACCESS — User session origination and termination (e.g. login attempts, logout, timeout) ALARM — Alarm activity (Alarm detection, acknowledge, clear) CONFIG — System configuration and provisioning (All configuration changes on the system) EVENT — Events generated by system monitoring (system notifications as well as notifications for selected optical events that are not alarms) MAINT — Maintenance commands (Upgrade, Reboot, Restart, Reset)

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Keyword	Description and Values
SEVERITY=	This field indicates the severity assigned to the operation reported in this message. The values are shown below. Values — Description CRITICAL: Critical alarm condition MAJOR: Major alarm condition MINOR: Minor alarm condition CLEAR: Clear alarm condition ACKNOWLEGDGE: Alarm acknowledged NOTICE: No alarm, used for all non-alarm messages
OPERATION=	The operation field is used to identify the reason for the message and hence is a qualifier for the message type. This breaks down as follows: • For TYPE= ACCESS, the operation will reflect login/logout operations • For TYPE= ALARM, the operation will reflect the type of alarm • For TYPE= CONFIG, the operation will indicate the configuration or provisioning operation that was performed • For TYPE= EVENT, the operation will indicate a system or optical event • For TYPE= MAINT, the operation will indicate the maintenance operation that was requested. All operation values are listed in the tables in Table 35, Table 36, and Table 37 in the following section. These tables include the associated TYPE and OBJECT values.
OBJECT=	The object field contains the name of the system resource that was the subject of the operation. All object values are listed in Table 35, Table 36, and Table 37 in the following section. This table includes the associated TYPE and OPERATION values.
SEQNO=	This field identifies the sequence number for this message. All messages are assigned a sequence number. This is an integer value between 1 and 1000000
CLEARSEQ=	This field identifies a clear sequence number. A clear sequence number is only non-zero when the message severity is either CLEAR or ACKNOWLEDGE. In these two cases, the clear sequence number contains the sequence number of the original message reporting the alarm condition being acknowledged or cleared.

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Keyword	Description and Values
DATETIME=	The date and time the condition causing the event was detected in the system. The date time format is: YYYY-MM-DD HH:MM:SS.sss, where sss represent milliseconds.
OPKEYWORDS=	These are keyword value/pairs which are operation dependent. When present, they provide further information regarding the operation. These keyword/value pairs are fixed for the operation and will always be displayed even if the value for the keyword is null. These are listed by operation in Table 38, Table 39, and Table 40 in the OPKEYWORDS section.

GGNMSG - Type, Operation, and Object Value Details

This section contains three tables that identify all GGNMSGs issued by the system:

- Table 35 contains all TL1 commands in alphabetical order and shows the log where these messages are written, and the resulting message type, operation and object combination used to identify the operation.
- Table 36 shows all system-generated events and indicates the log where written as well as the message type, operation and object values recorded for the event.
- Table 37 shows all alarm condition messages. These are all written to the alarm log and carry the message type of ALARM. The operation and object values identify the alarm type and affected resource or threshold respectively.

Table 35 TL1 Command to Operation Mapping

TL1 COMMAND	GGNMSG LOGNAME	MESSAGE TYPE	OPERATION VALUE	OBJECT VALUE
ACK-ACT-ALARM	ALARM	ALARM	<AlarmType>	<AlarmObj>
ACT-USER	SECU	ACCESS	USER-LOGIN	<USERID>
ACT-USER	SECU	ACCESS	USER-LOGIN-FAIL	<USERID>
ALW-USER-SECU	SECU	CONFIG	USER-EDIT	<USERID>
APPLY-CFG	AUTO	EVENT	RESTORE-COMPLETE	SYSTEM

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TL1 COMMAND	GGNMSG LOGNAME	MESSAGE TYPE	OPERATION VALUE	OBJECT VALUE
APPLY-ROLLBACK	AUTO	MAINT	ROLLBACK-START	SYSTEM
APPLY-UPGRADE	AUTO	MAINT	UPGRADE-START	SYSTEM
CANC-CID-SECU	SECU	ACCESS	USER-TERMINATED	<USERID>
CANC-USER	SECU	ACCESS	USER-LOGOUT	<USERID>
CANC-USER-SECU	SECU	ACCESS	USER-TERMINATED	<USERID>
COPY-CFG	AUTO	EVENT	BACKUP-COMPLETE	SYSTEM
COPY-RFILE	AUTO	MAINT	FTP-START	SYSTEM
DLT-CFG-ALARM	AUTO	CONFIG	ALARM-DELETE	<Port#>
DLT-CFG-PORTGROUP	AUTO	CONFIG	PORTGROUP-DELETE	<PortGroup>
DLT-CFG-PROTECTION	AUTO	CONFIG	PROTRULE-DELETE	<Port#>
DLT-CFG-SIGTHRESH	AUTO	CONFIG	SIGTHRESH-DELETE	<SigThresh>
DLT-CRS-FIBER	AUTO	CONFIG	DISCONNECT	<OutPort#>
DLT-GGNMSG-SERVER	AUTO	CONFIG	GGNMSG-EDIT-SERVER	SYSTEM
DLT-NAME-FIBER	AUTO	CONFIG	PORT-EDIT	<Port#>
DLT-SNMP-COMMUNITY	AUTO	CONFIG	SET-SNMP-COMMUNITY	SYSTEM
DLT-SNMP-SERVER	AUTO	CONFIG	SNMP-EDIT-SERVER	SYSTEM
DLT-SYSLOG-SERVER	AUTO	CONFIG	SYSLOG-EDIT	SYSTEM
DLT-UPGRADE	AUTO	MAINT	UPGRADE-REMOVED	SYSTEM
DLT-USER-SECU	SECU	CONFIG	USER-DELETE	<USERID>
ED-CID-SECU	SECU	CONFIG	SYSTEM-EDIT-ACCOUNT-OPTIONS	SYSTEM
ED-DAT	AUTO	CONFIG	SYSTEM-EDIT-DATETIME	SYSTEM

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TL1 COMMAND	GGNMSG LOGNAME	MESSAGE TYPE	OPERATION VALUE	OBJECT VALUE
ED-NE-GEN	AUTO	CONFIG	SYSTEM-EDIT-NETWORK	SYSTEM
ED-PARAM	AUTO	CONFIG	SYSTEM-EDIT-RUNTIME-OPTIONS	SYSTEM
ED-PID	SECU	CONFIG	USER-EDIT-PASSWD	<USERID>
ED-USER-SECU	SECU	CONFIG	USER-EDIT	<USERID>
ENT-CRS-CMAP	AUTO	CONFIG	CMAP-CONNECT	SYSTEM
ENT-CRS-CMAP	AUTO	CONFIG	CMAP-CONNECT	SYSTEM
ENT-CRS-CMAP	AUTO	CONFIG	CMAP-DISCONNECT	SYSTEM
ENT-CRS-FIBER	AUTO	CONFIG	CONNECT	<OutPort#>
ENT-USER-SECU	SECU	CONFIG	USER-ADD	<USERID>
INH-USER-SECU	SECU	CONFIG	USER-EDIT	<USERID>
INIT-LOG	AUTO	CONFIG	SYSTEM-INIT-LOG	SYSTEM
INIT-SYS	AUTO	MAINT	SYSTEM-STOPAPP	SYSTEM
INIT-SYS	AUTO	MAINT	SYSTEM-REBOOT	SYSTEM
INIT-SYS	AUTO	MAINT	SYSTEM-RESTART	SYSTEM
INIT-SYS	AUTO	MAINT	SYSTEM-RESET-HARD	SYSTEM
INIT-SYS	AUTO	MAINT	SYSTEM-RESET-FACTORY	SYSTEM
SET-ATTR-LOG	AUTO	CONFIG	LOGFILE-RESIZE	SYSTEM
SET-CFG-ALARM	AUTO	CONFIG	ALARM-ADD	<Port#>
SET-CFG-ALARM	AUTO	CONFIG	ALARM-EDIT	<Port#>
SET-CFG-FIBER	AUTO	CONFIG	PORT-EDIT	<Port#>
SET-CFG-PORTGROUP	AUTO	CONFIG	PORTGROUP-ADD	<PortGroup>

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TL1 COMMAND	GGNMSG LOGNAME	MESSAGE TYPE	OPERATION VALUE	OBJECT VALUE
SET-CFG-PORTGROUP	AUTO	CONFIG	PORTGROUP-EDIT	<PortGroup>
SET-CFG-PROTECTION	AUTO	CONFIG	PROTRULE-ADD	<InPort#>
SET-CFG-SIGTHRESH	AUTO	CONFIG	SIGTHRESH-ADD	<SigThresh>
SET-CFG-SIGTHRESH	AUTO	CONFIG	SIGTHRESH-EDIT	<SigThresh>
SET-CRS-LOCK	AUTO	CONFIG	CONNECTION-EDIT	<Port#>
SET-CRS-NAME	AUTO	CONFIG	CONNECTION-EDIT	<Port#>
SET-DFLT-SECU	SECU	CONFIG	SYSTEM-EDIT-ACCOUNT-OPTIONS	SYSTEM
SET-GGNMSG-SERVER	AUTO	CONFIG	GGNMSG-EDIT-SERVER	SYSTEM
SET-NAME-FIBER	AUTO	CONFIG	PORT-EDIT	<Port#>
SET-NTP-SERVER	AUTO	CONFIG	NTP-EDIT	SYSTEM
SET-NTP-SERVER	AUTO	CONFIG	NTP-START	SYSTEM
SET-NTP-SERVER	AUTO	CONFIG	NTP-STOP	SYSTEM
SET-PRIV-FIBER	SECU	CONFIG	USER-EDIT	<USERID>
SET-PRIV-SYSTEM	SECU	CONFIG	USER-EDIT	<USERID>
SET-SID	AUTO	CONFIG	SYSTEM-EDIT-NAME	SYSTEM
SET-SIGBAND-FIBER	AUTO	CONFIG	PORT-EDIT	<InPort#>
SET-SIGTHRESH-FIBER	AUTO	CONFIG	PORT-EDIT	<Port#>
SET-SNMP-COMMUNITY	AUTO	CONFIG	SET-SNMP-COMMUNITY	SYSTEM
SET-SNMP-SERVER	AUTO	CONFIG	SNMP-EDIT-SERVER	SYSTEM
SET-SYSLOG-SERVER	AUTO	CONFIG	SYSLOG-EDIT	SYSTEM
SET-VOA-FIBER	AUTO	CONFIG	VOA-EDIT	<OutPort#>

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TL1 COMMAND	GGNMSG LOGNAME	MESSAGE TYPE	OPERATION VALUE	OBJECT VALUE
ClickFlow Only Operation	AUTO	CONFIG	CONNECT-DUPLEX	<OutPort#>
ClickFlow Only Operation	AUTO	CONFIG	DISCONNECT-DUPLEX	<OutPort#>
ClickFlow Only Operation	AUTO	CONFIG	SYSTEM-EDIT-DESCR	SYSTEM
ClickFlow Only Operation	AUTO	CONFIG	SYSTEM-EDIT-BANNER	SYSTEM

Table 36 System Event to Operation Mapping

SYSTEM EVENT (REASON REPORTED)	GGNMSG LOGNAME	MESSAGE TYPE	OPERATION VALUE	OBJECT VALUE
Switch SW Stopped	AUTO	EVENT	SYSTEM-STOP	SYSTEM
Switch SW Initialized	AUTO	EVENT	SYSTEM-START	SYSTEM
Upgrade successful	AUTO	EVENT	UPGRADE-COMPLETE	SYSTEM
Upgrade not successful	AUTO	EVENT	UPGRADE-FAIL	SYSTEM
FTP successful	AUTO	EVENT	FTP-COMPLETE	SYSTEM
FTP not successful	AUTO	EVENT	FTP-FAILURE	SYSTEM
Optical Power Detected	AUTO	EVENT	LGTON	<InPort#>
Optical Power Lost	AUTO	EVENT	LGTOFF	<InPort#>
New Connection-Steady	AUTO	EVENT	CSSTD	<OutPort#>
UserID set Out-of-Service	SECU	EVENT	USER-OOS	<UserID>

Table 37 Alarm Condition to Operation Mapping

ALARM CONDITION (ALARM or ALARM CLEAR)	GGNMSG LOGNAME	MESSAGE TYPE	OPERATION VALUE	OBJECT VALUE
DC Input, A-Feed	ALARM	ALARM	48VFLT	A-FEED
DC Input, B-Feed	ALARM	ALARM	48VFLT	B-FEED
DC Fuse, A-Feed	ALARM	ALARM	FUSEFLT	A-FEED
DC Fuse, B-Feed	ALARM	ALARM	FUSEFLT	B-FEED
Engine Temperature	ALARM	ALARM	TEMPHI	ENGINE
Single Fan Failure	ALARM	ALARM	FANFLT	<FanName>

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ALARM CONDITION (ALARM or ALARM CLEAR)	GGNMSG LOGNAME	MESSAGE TYPE	OPERATION VALUE	OBJECT VALUE
Multiple Fan Failures	ALARM	ALARM	FANFLT	MULTIPLE-FANS
HVPS Voltage Failure	ALARM	ALARM	MPS	VBBLO
HVPS Voltage Failure	ALARM	ALARM	MPS	VBBHI
HVPS Voltage Failure	ALARM	ALARM	MPS	VFBLO
HVPS Voltage Failure	ALARM	ALARM	MPS	VFBHI
Exceeded invalid login attempts using valid UserID	ALARM	ALARM	INTRUSION	<UserID>
Exceeded invalid login attempts using invalid UserID	ALARM	ALARM	INTRUSION	CHANNEL
Loss of Synchronization with NTP Server(s)	ALARM	ALARM	NTPFLT	NTP
Min. Power Alarm (Unconnected Input)	ALARM	ALARM	STMIN	<InPort#>
Max. Power Alarm (Unconnected Input)	ALARM	ALARM	STMAX	<InPort#>
Min. Power Alarm (Connected Port)	ALARM	ALARM	STMIN	<Port#>
Max. Power Alarm (Connected Port)	ALARM	ALARM	STMAX	<Port#>
Reverse Light Alarm (Unconnected Output)	ALARM	ALARM	LGTRVRS	<OutPort#>
Reverse Light Alarm (Connected Output)	ALARM	ALARM	LGTRVRS	<OutPort#>
Port Failure	ALARM	ALARM	PORTFLT	<InPort#>
Port Failure	ALARM	ALARM	PORTFLT	<OutPort#>
Connection Fault	ALARM	ALARM	CSFLT	<OutPort#>

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GGNMSG - OPKEYWORD Mapping by Operation

This section provides the information on the variable component of GGNMSGs which are the keyword/value pairs appended after the required keyword value pairs.

The additional keyword/value pairs for any operation are fixed. These will be present in the GGNMSG regardless of if the value portion is null (empty).

In addition to the overall GGNMSG composition rules, the following conventions are observed for the OPKEYWORD section of the GGNMSG.

The GGNMSG for all configuration, access, alarm and maintenance operations executed by a user will include the following keyword/value pairs.

- USERID= <UserID>
- USERIF= <UserIF>
- USERIP= <UserIP>

These three pairs identify the user, the interface used by the user, and the IP address of the user's machine. These fields are also returned for system event messages reporting confirmation of an activity requested by a user (e.g., upgrade or restore).

The GGNMSG for alarm acknowledgment is specially marked. In the required fields, the SEVERITY value is ACKNOWLEDGE, the CLEARSEQ value contains the sequence number of the alarm record being acknowledged and the DATETIME value is the date and time of the acknowledgment. The OPERATION and OBJECT fields carry the values of the original alarm record. In addition, the USERID, USERIF, and USERIP fields discussed above identify the user that performed the acknowledgment.

For different TL1 commands that resolve to the same operation type, the OPKEYWORD payload will be the same. For example, there are several commands to edit port configuration. The operation for all of these commands resolves to PORT-EDIT.

Most delete operations in the system record the configuration of the object prior to deletion in the event that the previous configuration needs to be known to restore some service.

Table 38, Table 39, and Table 40 below match Table 35, Table 36, and Table 37 from the previous section:

- Table 38 provides the information for command operations.
- Table 39 provides information on system events.

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- Table 40 provides information on alarm conditions.

Table 38 OPKEYWORD Mappings for Command Operations

Operation Performed	Corresponding OPKEYWORD= <opValue> Pairs
ALARM-EDIT	USERID= <>,USERIF= <>,USERIP= <>,ALARM-OBJECT= <>, ALARM-OPERATION= <>,ALARM-SEVERITY= <>
ALARM-ADD	USERID= <>,USERIF= <>,USERIP= <>,ALARM-OBJECT= <>, ALARM-OPERATION= <>,ALARM-SEVERITY= <>
ALARM-DELETE	USERID= <>,USERIF= <>,USERIP= <>,ALARM-OBJECT= <>, ALARM-OPERATION= <>,ALARM-SEVERITY= <>
BACKUP-COMPLETE	USERID= <>,USERIF= <>,USERIP= <>,BACKUP-OWNER= <>, BACKUP-SERIAL= <>,BACKUP-SYSTEM= <>, BACKUP-DATE= <>,BACKUP-DESCR= <>
CMAP-CONNECT	USERID= <>,USERIF= <>,USERIP= <>,CMAPID= <>, CMAPMODE= <>,CONNLOCK= <>,CONNDESCR= <>
CMAP-DISCONNECT	USERID= <>,USERIF= <>,USERIP= <>,CMAPID= <>, CMAPMODE= <>,CONNLOCK= <>,CONNDESCR= <>
CONNECT	USERID= <>,USERIF= <>,USERIP= <>,INPUT= <>, INNAME= <>,INDESCR= <>,INPWR= <>,OUTPUT= <>, OUTNAME= <>,OUTDESCR= <>,OUTPWR= <>, CONNLOSS= <>,SIGBAND= <>,CONNDESCR= <>, CONNLOCK= <>
CONNECT-DUPLEX	USERID= <>,USERIF= <>,USERIP= <>,INPUT= <>, INNAME= <>,INDESCR= <>,INPWR= <>,OUTPUT= <>, OUTNAME= <>,OUTDESCR= <>,OUTPWR= <>, CONNLOSS= <>,SIGBAND= <>,CONNDESCR= <>, CONNLOCK= <>
CONNECTION-EDIT	USERID= <>,USERIF= <>,USERIP= <>,INPUT= <>,INNAME= <>, INDESCR= <>,INPWR= <>,OUTPUT= <>,OUTNAME= <>, OUTDESCR= <>,OUTPWR= <>,CONNLOSS= <>,SIGBAND= <>, CONNDESCR= <>,CONNLOCK= <>
DISCONNECT	USERID= <>,USERIF= <>,USERIP= <>,INPUT= <>,INNAME= <>, INDESCR= <>,INPWR= <>,OUTPUT= <>,OUTNAME= <>, OUTDESCR= <>,OUTPWR= <>,CONNLOSS= <>,SIGBAND= <>, CONNDESCR= <>,CONNLOCK= <>
DISCONNECT DUPLEX	USERID= <>,USERIF= <>,USERIP= <>,INPUT= <>,INNAME= <>, INDESCR= <>,INPWR= <>,OUTPUT= <>,OUTNAME= <>, OUTDESCR= <>,OUTPWR= <>,CONNLOSS= <>,SIGBAND= <>, CONNDESCR= <>,CONNLOCK= <>

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Operation Performed	Corresponding OPKEYWORD= <opValue> Pairs
FTP-START	USERID= <>,USERIF= <>,USERIP= <>,FTP-TYPE= <>, FTP-SRC= <>,FTP-DEST= <>
GGNMSG-EDIT-SERVER	USERID= <>,USERIF= <>,USERIP= <>, GGNMSG-SERVERS= <>,GGNMSG-SERVICE= <>
LOGFILE-RESIZE	USERID= <>,USERIF= <>,USERIP= <>,LOGNAME= <>, LOGSIZE= <>
NTP-EDIT	USERID= <>,USERIF= <>,USERIP= <>,NTP-SERVERS= <>
NTP-START	USERID= <>,USERIF= <>,USERIP= <>,NTP-SERVERS= <>
NTP-STOP	USERID= <>,USERIF= <>,USERIP= <>,NTP-SERVERS= <>
PORT-EDIT	USERID= <>,USERIF= <>,USERIP= <>,PORTID= <>, PORTGROUP= <>,PORTNAME= <>,PORTDESCR= <>, SIGBAND= <>,SIGTHRESH= <>,STMINSEV= <>, STMAXSEV= <>,CSFLTSEV= <>
PORTGROUP-ADD	USERID= <>,USERIF= <>,USERIP= <>,GROUP= <> , GROUPDESCR= <>,GROUPALLOW= <>
PORTGROUP-DELETE	USERID= <>,USERIF= <>,USERIP= <>,GROUP= <> , GROUPDESCR= <>,GROUPALLOW= <>
PORTGROUP-EDIT	USERID= <>,USERIF= <>,USERIP= <>,GROUP= <>, GROUPDESCR= <>,GROUPALLOW= <>
PROTRULE-ADD	USERID= <>,USERIF= <>,USERIP= <>,RULE= <> , WPORTID= <>,PPORTID= <>,WMODE= <>,WDELAY= <>, WTRIGGER= <>,PMODE= <> ,PDELAY= <>,PTRIGGER= <>
PROTRULE-DELETE	USERID= <>,USERIF= <>,USERIP= <>,RULE= <> , WPORTID= <>,PPORTID= <>,WMODE= <>,WDELAY= <>, WTRIGGER= <>,PMODE= <> ,PDELAY= <>,PTRIGGER= <>
RESTORE-COMPLETE	USERID= <>,USERIF= <>,USERIP= <>,BACKUP-OWNER= <>, BACKUP-SERIAL= <>,BACKUP-SYSTEM= <>, BACKUP-DATE= <>,BACKUP-DESCR= <>
ROLLBACK-START	USERID= <>,USERIF= <>,USERIP= <>, ROLLBACK-PARTITION= <>,ROLLBACK-VERSION= <>
SET-SNMP-COMMUNITY	USERID= <>,USERIF= <>,USERIP= <>
SIGTHRESH-ADD	USERID= <>,USERIF= <>,USERIP= <>,SIGTHRESH= <>, PWRMIN= <>,PWRMAX= <>,HYST= <>

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Operation Performed	Corresponding OPKEYWORD= <opValue> Pairs
SIGTHRESH-DELETE	USERID= <>,USERIF= <>,USERIP= <>,SIGTHRESH= <>, PWRMIN= <>,PWRMAX= <>,HYST= <>
SIGTHRESH-EDIT	USERID= <>,USERIF= <>,USERIP= <>,SIGTHRESH= <>, PWRMIN= <>,PWRMAX= <>,HYST= <>
SNMP-EDIT-SERVER	USERID= <>,USERIF= <>,USERIP= <>,SNMP-SERVERS= <>
SYSLOG-EDIT	USERID= <>,USERIF= <>,USERIP= <>,SYSLOG-NOTIFY= <>, SYSLOG-SERVERS= <>
SYSTEM-EDIT-ACCOUNT-OPTIONS	USERID= <>,USERIF= <>,USERIP= <>,SPAGE= <>,SPCND= <>, SPINT= <>,SUOUT= <>,PMINLENG= <>,PMAXCONC= <>, PMINPUNC= <>,PMINNUMR= <>,PMINLWRC= <>, PMINUPRC= <>,PMAXSAME= <>,PUSRNAME= <>, PMAXHIST= <>,SLOCKTRYS= <>,SLOCKTIME= <>, SIDLETIME= <>
SYSTEM-EDIT-NETWORK	USERID= <>,USERIF= <>,USERIP= <>,HOSTNAME= <>, IPADDR1= <>,MASK1= <>,GATEWAY= <>,IPADDR2= <>, MASK2= <>
SYSTEM-EDIT-RUNTIME-OPTIONS	USERID= <>,USERIF= <>,USERIP= <>,AUTOSAVE= <>, DELAY= <>,CONNRESTORE= <>,THROTTLE= <>, IMPORTMODE= <>,CLICKFLOW-CONFIRM-REQUIRED= <>, CLICKFLOW-CONNECT-MODE= <>,POWER-MONITORING= <>
SYSTEM-EDIT-DATETIME	USERID= <>,USERIF= <>,USERIP= <>
SYSTEM-EDIT-NAME	USERID= <>,USERIF= <>,USERIP= <>
SYSTEM-INIT-LOG	USERID= <>,USERIF= <>,USERIP= <>,LOGNAME= <>, LOGSIZE= <>
SYSTEM-REBOOT	USERID= <>,USERIF= <>,USERIP= <>
SYSTEM-RESET-FACTORY	USERID= <>,USERIF= <>,USERIP= <>
SYSTEM-RESET-HARD	USERID= <>,USERIF= <>,USERIP= <>
SYSTEM-RESTART	USERID= <>,USERIF= <>,USERIP= <>
SYSTEM-STOPAPP	USERID= <>,USERIF= <>,USERIP= <>
UPGRADE-REMOVED	USERID= <>,USERIF= <>,USERIP= <>, UPGRADE-PARTITION= <>,UPGRADE-VERSION= <>
UPGRADE-START	USERID= <>,USERIF= <>,USERIP= <>, UPGRADE-PARTITION= <>,UPGRADE-VERSION= <>

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Operation Performed	Corresponding OPKEYWORD= <opValue> Pairs
USER-ADD	USERID= <>,USERIF= <>,USERIP= <>,SUSERID= <>, SUSERIF= <>,SUSERIP= <>,PAGE= <>,PCND= <>,PINT= <>, UOUT= <>,STATE= <>,SYSPRIV= <>,PORTPRIV= <>
USER-DELETE	USERID= <>,USERIF= <>,USERIP= <>,SUSERID= <>, SUSERIF= <>,SUSERIP= <>,PAGE= <>,PCND= <>,PINT= <>, UOUT= <>,STATE= <>,SYSPRIV= <>,PORTPRIV= <>
USER-EDIT	USERID= <>,USERIF= <>,USERIP= <>,SUSERID= <>, SUSERIF= <>,SUSERIP= <>,PAGE= <>,PCND= <>,PINT= <>, UOUT= <>,STATE= <>,SYSPRIV= <>,PORTPRIV= <>
USER-EDIT-PASSWD	USERID= <>,USERIF= <>,USERIP= <>
USER-LOGIN	USERID= <>,USERIF= <>,USERIP= <>
USER-LOGIN-FAIL	USERID= <>,USERIF= <>,USERIP= <>
USER-LOGOUT	USERID= <>,USERIF= <>,USERIP= <>
USER-TERMINATED	USERID= <>,USERIF= <>,USERIP= <>,SUSERID= <>, SUSERIF= <>,SUSERIP= <>
VOA-EDIT	USERID= <>,USERIF= <>,USERIP= <>,OUTPUT= <>, VOAMODE= <>,VOAVALUE= <>

Table 39 OPKEYWORD Mappings for Events Detected by the System

Event Detected	Corresponding OPKEYWORD= <opValue> Pairs
SYSTEM-STOP	<no keyword/value pairs>
SYSTEM-START	<no keyword/value pairs>
UPGRADE-COMPLETE	USERID= <>,USERIF= <>,USERIP= <>,
UPGRADE-FAIL	UPGRADE-PARTITION= <>,UPGRADE-VERSION= <>
FTP-COMPLETE	USERID= <>,USERIF= <>,USERIP= <>, FTP-TYPE= <>,FTP-SRC= <>,FTP-DEST= <>
FTP-FAILURE	USERID= <>,USERIF= <>,USERIP= <>, FTP-TYPE= <>,FTP-SRC= <>,FTP-DEST= <>
LGTON	INPUT= <> ,INNAME= <> ,INDESCR= <>, INSIGTHRESH= <>,INPWR= <>,SIGBAND= <>
LGTOFF	INPUT= <> ,INNAME= <> ,INDESCR= <>, INSIGTHRESH= <>,INPWR= <>,SIGBAND= <>

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Event Detected	Corresponding OPKEYWORD= <opValue> Pairs
CSSTD	INPUT= <>,INNAME= <>,INDESCR= <>,INSIGTHRESH= <>, INPWR= <>,OUTPUT= <>,OUTNAME= <>,OUTDESCR= <>, OUTSIGTHRESH= <>,OUTPWR= <>,CONNLOSS= <>, SIGBAND= <>,CONNDESCR= <>

Table 40 OPKEYWORD Mappings for Alarm Condition Changes Detected by the System

Alarm Type	Corresponding OPKEYWORD= <opValue> Pairs
48VFLT	<no keyword/value pairs>
FUSEFLT	<no keyword/value pairs>
TEMPHI	<no keyword/value pairs>
FANFLT	<no keyword/value pairs>
MPS	<no keyword/value pairs>
INTRUSION	USERID= <>,USERIF= <>,USERIP= <>,FAILED-ATTEMPTS= <>
NTPFLT	<no keyword/value pairs>
STMIN (Unconnected Input)	INPUT= <>,INNAME= <>,INDESCR= <>,INSIGTHRESH= <>, INPWR= <>,SIGBAND= <>
STMAX (Unconnected Input)	INPUT= <>,INNAME= <>,INDESCR= <>,INSIGTHRESH= <>, INPWR= <>,SIGBAND= <>
STMIN (Connected Port)	INPUT= <>,INNAME= <>,INDESCR= <>,INSIGTHRESH= <>, INPWR= <>,OUTPUT= <>,OUTNAME= <>,OUTDESCR= <>, OUTSIGTHRESH= <>,OUTPWR= <>,CONNLOSS= <>,SIGBAND= <>, CONNDESCR= <>
STMAX (Connected Port)	INPUT= <>,INNAME= <>,INDESCR= <>,INSIGTHRESH= <>, INPWR= <>,OUTPUT= <>,OUTNAME= <>,OUTDESCR= <>, OUTSIGTHRESH= <>,OUTPWR= <>,CONNLOSS= <>,SIGBAND= <>, CONNDESCR= <>
LGTRVRS	OUTPUT= <>,OUTNAME= <>,OUTDESCR= <>,OUTSIGTHRESH= <>, OUTPWR= <>,SIGBAND= <>
LGTRVRS (Connected Output)	INPUT= <>,INNAME= <>,INDESCR= <>,INSIGTHRESH= <>, INPWR= <>,OUTPUT= <>,OUTNAME= <>,OUTDESCR= <>, OUTSIGTHRESH= <>,OUTPWR= <>,CONNLOSS= <>,SIGBAND= <>, CONNDESCR= <>
PORTFLT (Input)	INPUT= <>,INNAME= <>,INDESCR= <>,INSIGTHRESH= <>, INPWR= <>,SIGBAND= <>

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Alarm Type	Corresponding OPKEYWORD= <opValue> Pairs
PORTFLT (Output)	OUTPUT= <>,OUTNAME= <>,OUTDESCR= <>,OUTSIGTHRESH= <>, OUTPWR= <>,SIGBAND= <>
CSFLT	INPUT= <>,INNAME= <>,INDESCR= <>,INSIGTHRESH= <>, INPWR= <>,OUTPUT= <>,OUTNAME= <>,OUTDESCR= <>, OUTSIGTHRESH= <>,OUTPWR= <>,CONNLOSS= <>,SIGBAND= <>, CONNDESCR= <>

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