TimeProvider 1000 and 1100 Node Clock

Symmetricom

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How to Use This Guide

This section describes the format, layout, and purpose of this guide.

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Purpose of This Guide

The *TimeProvider TL1 Reference Guide* provides information on TL1 command conventions and parameters. It covers command types, formats, and responses. It provides an explanation of the command function and a description of each command parameter, value, and variable when applicable. It also describes keywords used during provisioning and provides a troubleshooting guide.

Who Should Read This Guide

This guide is a command reference intended for engineers and telecommunications professionals who provision and manage the TimeProvider Node Clock. Chapter 1, TL1 Overview is for those who need a basic understanding of the Transaction Language 1 (TL1) protocol and how it is implemented in the TimeProvider. Chapter 2, TL1 Command Syntax and Description describes TimeProvider TL1 commands in detail (commands are listed in alphabetical order). Appendix A, TL1 Commands by Function is a list of commands grouped by task (security and administration, system performance, and performance monitoring). Appendix B, Alarms and Appendix C, Events provide a list of alarms and events along with a description of the cause of the event.

Structure of This Guide

This guide contains the following sections:

Chapter, Title	Description
Chapter 1, TL1 Overview	Provides a basic overview of the Transaction Language 1 (TL1) used by the TimeProvider.
Chapter 2, TL1 Command Syntax and Description	Describes each of the TimeProvider's TL1 commands in detail.
Appendix A, TL1 Commands by Function	Provides task-oriented lists of security and administrative commands, system commands, and performance monitoring commands.
Appendix B, Alarms	Provides a list of all alarms and a description of their cause.
Appendix C, Events	Provides a list of all events and a description of their cause.
Index	Provides references to individual topics within this guide.

Conventions Used in This Guide

This guide uses the following conventions:

- **Acronyms and Abbreviations** – Terms are spelled out the first time they appear in text. Thereafter, only the acronym or abbreviation is used.

- **Revision Control** – The title page lists the printing date and versions of the product this guide describes.

- **Typographical Conventions** – This guide uses the typographical conventions described in the table below.

When text appears this way...	... it means:
TimeProvider TL1 Reference Guide	The title of a document.
CRITICAL PORT-A J1	An operating mode, alarm state, status, or chassis label.
Select **File**, **Open**...	Click the Open option on the File menu.
Press **Enter**. Press **Print Scrn**.	A named keyboard key. The key name is shown as it appears on the keyboard. An explanation of the key's acronym or function immediately follows the first reference to the key, if required.
`TimeProvider` `Username:`	Text in a source file or a system prompt or other text that appears on a screen.
`ENGINE TDATA` `STATUS`	A command you enter at a system prompt or text you enter in response to a program prompt. You must enter commands for case-sensitive operating systems exactly as shown.
A *re-timing* application	A word or term being emphasized.
Symmetricom ***does not*** recommend...	A word or term given special emphasis.

Warnings, Cautions, Recommendations, and Notes

Warnings, Cautions, Recommendations, and Notes attract attention to essential or critical information in this guide. The types of information included in each are explained in the following examples.

Warning: To avoid serious personal injury or death, ***do not*** disregard warnings. All warnings use this symbol. Warnings are installation, operation, or maintenance procedures, practices, or statements, that if not strictly observed, may result in serious personal injury or even death.

Caution: To avoid personal injury, ***do not*** disregard cautions. All cautions use this symbol. Cautions are installation, operation, or maintenance procedures, practices, conditions, or statements, that if not strictly observed, may result in damage to, or destruction of, the equipment. Cautions are also used to indicate a long-term health hazard.

ESD Caution: To avoid personal injury and electrostatic discharge (ESD) damage to equipment, ***do not*** disregard ESD cautions. All ESD cautions use this symbol. ESD cautions are installation, operation, or maintenance procedures, practices, conditions, or statements that if not strictly observed, may result in possible personal injury, electrostatic discharge damage to, or destruction of, static sensitive components of the equipment.

Electrical Shock Caution: To avoid electrical shock and possible personal injury, ***do not*** disregard electrical shock cautions. All electrical shock cautions use this symbol. Electrical shock cautions are practices, procedures, or statements, that if not strictly observed, may result in possible personal injury, electrical shock damage to, or destruction of components of the equipment.

Recommendation: All recommendations use this symbol. Recommendations indicate manufacturer-tested methods or known functionality. Recommendations contain installation, operation, or maintenance procedures, practices, conditions, or statements, that provide important information for optimum performance results.

Note: All notes use this symbol. Notes contain installation, operation, or maintenance procedures, practices, conditions, or statements, that alert you to important information, which may make your task easier or increase your understanding.

Related Documents and Information

Other helpful documents are listed below. See your Symmetricom representative or sales office for a complete list of available documentation.

- *TimeProvider Node Clock User Guide*, part number 097-58001-02.
- TimePictra Administrator's Guide and TimePictra User's Guide.
- *SynCraft* management software online help.

> **Note:** Symmetricom offers a number of applicable training courses designed to enhance product usability. Contact your local representative or sales office for a complete list of courses and outlines.

Where to Find Answers to Product and Document Questions

For additional information about the products described in this guide, please contact your Symmetricom representative or your local sales office. You can also contact us on the web at www.symmetricom.com.

What's New In This Guide

Revision C of this guide contains new Retimer module and Retrieve Log information for the following commands.

- Edit Equipment (ED-EQPT)
- Edit Sync (ED-SYNC)
- Retrieve Equipment (RTRV-EQPT)
- Retrieve Attribute (RTRV-ATTR)
- Retrieve Condition (RTRV-COND)
- Retrieve Craft Data (RTRV-CRAFT)
- Retrieve Inventory (RTRV-INV)
- Retrieve SYNC (RTRV-SYNC)
- Retrieve Threshold (RTRV-TH)
- Retrieve Log (RTRV-LOG)
- Set Attribute (SET-ATTR)
- Set Threshold (SET-TH)

Revision C of this guide contains the following new commands:

- Edit Circuit ID (ED-CKTID)
- Retrieve Circuit ID (RTRV-CKTID)

Chapter 1 TL1 Overview

This chapter provides a basic overview of the Transaction Language 1 (TL1) used by the TimeProvider.

In This Chapter

- Overview
- TL1 Command Structure
- Responses
- Autonomous Messages
- Command Security

Overview

Transaction Language 1 (TL1) is the most widely used management language in the telecommunications industry. TL1 provides a standardized set of vendor-independent, ASCII-based instructions that can be used to manage network elements (NEs) and their resources. The TimeProvider uses TL1 as its human-to-machine command line interface (CLI).

Note: For a complete description of the TL1 syntax, refer to Telcordia (Bellcore) General Requirements *GR-831* and *GR-833*.

The remainder of this chapter explains the TL1 command language and how it applies to the TimeProvider.

TL1 Command Structure

The TL1 commands used in the TimeProvider consist of the following three main parts, or *blocks*:

■ The Command Code Block

■ The Staging Block

■ The Payload Block

These three main blocks are separated by a colon (**:**) *block separator character* and the command is terminated by a semicolon (**;**) *terminating character*. The semicolon indicates that the command statement is completed and the command is then executed.

Figure 1-1 shows the typical structure of a TL1 command, and the paragraphs that follow further explain the elements that constitute each of the main blocks.
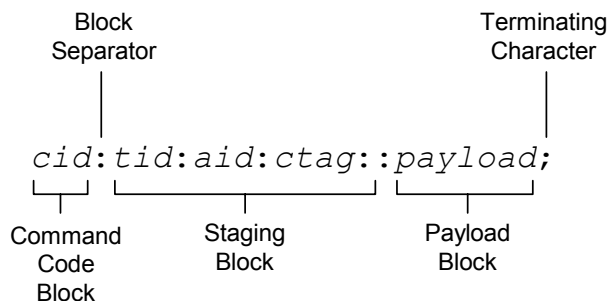
Figure 1-1.   Typical TL1 Command Structure

Command Code Block

The Command Code Block uniquely identifies the command and identifies the action to be taken. It consists of a verb and one or more modifiers, separated by the dash character (-).

`ED-DAT`, for instance, is the command code block used in the TimeProvider's "Edit Date" TL1 command. `ED` is the verb and `DAT` is the modifier indicating that the command will edit a date object.

Staging Block

The Staging Block is comprised of the following blocks, each separated by the block separator character.

■ **The Target Identifier (tid)** - The tid identifies the specific TimeProvider unit to which the command applies. The position of the tid is mandatory within the command string, but it is usually optional sense its value can be null. If it is used in the command, it must match the Source Identifier (sid) that is set within the unit or the unit will not respond to the command. If the command is not directly sent to the unit, as when the command is routed to the unit via a Gateway NE (called indirect routing), a non-null tid is required.

■ **The Access Identifier (aid)** - The aid uniquely identifies the entity within the associated target unit. In the TL1 syntax descriptions provided in Chapter 2 of this manual, the <aid> syntax tag is used specifically to denote modules, inputs, outputs, or ports. Other more specific syntax tags are used to denote types of entities, such as <uid> a user identifier, or <cid> a command identifier. The position of the aid block within the command string always occurs between the second and third block separator character.

■ **The Correlation Tag (ctag)** - The ctag is used to correlate commands and responses. It can be any alphanumeric string up to six characters in length. In the TimeProvider, use of the ctag is not mandatory, but is strongly recommended. If the value for the ctag is null in the command string, the unit returns a zero (`0`) as the ctag in responses.

■ **The General Block** - In the TimeProvider the General Block is not used so its value should always be null. If the General Block is the last block in the command syntax, it, and the remaining block separator characters can be omitted from the command string.

Payload Block

The Payload Block contains the parameters associated with the command's operation. In the TimeProvider's command syntax, the Payload Block can take on either of the following two forms, depending on the command:

■ **Position-Defined** – In a position-defined payload block, the parameters that make up the block are implied by their position within the block. The individual parameters are separated by the comma character (,). If the value of a given parameter is null, its position within the block still must be maintained by using adjacent commas (,,). Refer to Copy Memory (CPY-MEM), on page 43 for an example of a command that uses a position-defined payload block.

■ **Name-Defined** – In a name-defined payload block, the parameters that make up the block take on the form <keyword>=<value>. The <keyword> identifies the parameter, and <value> is that parameter's value. Keywords are not case-sensitive. Refer to Edit Equipment (ED-EQPT), on page 53 for an example of a command that uses a name-defined payload block.

Responses

When the TimeProvider receives and processes a command, it returns one of the following types of responses:

■ Normal Response

■ Error Response

■ In-Process Response

The following paragraphs explain these response types.

Normal Response

The TimeProvider sends a Normal response when it receives and can properly process a TL1 command. The format of a Normal response is as follows. Note that M and COMPLD identify the response as a Normal response:

```
<cr><lf><lf>
    sid date time<cr><lf>
M   ctag COMPLD<cr><lf>
    textblk<cr><lf>
    textblk<cr><lf>
      .
      .
    LG_textblk<cr><lf>
;
```

> **Note:** The textblk and LG_textblk fields are only returned with the Normal response when the command requires such a message be returned.

Table 1-1 explains each field that is contained in the Normal response.

Table 1-1. Normal Response Fields

Field	Description
sid	The unit's Source Identifier (SID), which identifies the specific TimeProvider unit within the synchronization network. The unit's SID is set using the `SET-SID` TL1 command.
date	The date of the response, in the format *YY-MM-DD*, where *YY* is the 2-digit year, *MM* is the 2-digit representation of the month, and *DD* is the day of the month.
time	The time of the response, in the format *HH*:*MM*:*SS*, where *HH* is the hour in 24-hour format, *MM* is the minutes, and *SS* is the seconds.
ctag	The correlation tag that was sent as part of the TL1 command string. If the value for the ctag is null in the command string, the unit returns a zero (0) as the ctag in the response.
textblk	A double-quoted message containing less than 4kBytes of information that the unit returns in response to the command.
LG_textblk	If the unit responds with a message containing more than 4kBytes of information, the message is divided into records of approximately 4kBytes, each ending with `COMPLD<cr><lf>`. The last record ends with `<cr><lf>;`.

Error Response

The TimeProvider sends an Error response when a command is mis-typed, an invalid command is issued, or some other operator error is performed. The format of an Error response is as follows. Note that `M` and `DENY` identify the response as an Error response:

```
<cr><lf><lf>
    sid date time<cr><lf>
M   ctag DENY<cr><lf>
    errcde<cr><lf>
;
```
Table 1-2 explains each field that is contained in the Error response.

Table 1-2. Error Response Fields

Field	Description
sid	The unit's Source Identifier (SID), which identifies the specific TimeProvider unit within the synchronization network. The unit's SID is set using the `SET-SID` TL1 command.
date	The date of the response, in the format *YY-MM-DD*, where *YY* is the 2-digit year, *MM* is the 2-digit representation of the month, and *DD* is the day of the month.
time	The time of the response, in the format *HH*:*MM*:*SS*, where *HH* is the hour in 24-hour format, *MM* is the minutes, and *SS* is the seconds.

Table 1-2. Error Response Fields (Continued)

Field	Description
ctag	The correlation tag that was sent as part of the TL1 command string. If the value for the ctag is null in the command string, the unit returns a zero (0) as the ctag in the response.
errcde	The error code, which identifies the condition that caused the Error response to be returned. See Table 1-3 for a description of each error code.

Table 1-3 describes each error code that might be returned in an Error response.

Table 1-3. Error Codes Returned in Error Responses

Error Code	Meaning
IBEX	Extra Block in Command.
IBMS	Missing Block in Command.
ICNV	Command Not Valid (invalid TL1 syntax).
IIAC	Invalid AID Code.
IICM	Invalid Command (invalid command or command with insufficient security clearance).
IICT	Invalid CTAG.
IITA	Invalid Target Identifier.
IPEX	Extra Parameter.
IPMS	Parameter Missing.
IPNV	Parameter Not Valid.
ISCH	Invalid Character, syntax.
ISPC	Invalid Punctuation, syntax.
SDBE	Database Error.
SDNR	Data Not Ready.
SRAC	Requested Access Configuration Not Valid.
SROF	Requested Operation Failed.
SROU	Requested Operation Unnecessary.
SWFA	Working Unit Failed.

In-Process Response

If the TimeProvider cannot send a Normal response or an Error response within two seconds of receipt of a command, it sends an In-Process response. The format of an In-Process response is as follows. Note that `IP` identifies the response as an In-Process response:

```
<cr><lf><lf>
   sid date time<cr><lf>
IP ctag<cr><lf>
<
```

When the TimeProvider finishes processing the original command, the In-Process response is followed with either a Normal or Error response, as is appropriate. Table 1-4 provides a description of each field contained in the In-Process response.

Table 1-4. In-Process Response Fields

Field	Description
sid	The unit's Source Identifier (SID), which identifies the specific TimeProvider unit within the synchronization network. The unit's SID is set using the `SET-SID` TL1 command.
date	The date of the response, in the format *YY-MM-DD*, where *YY* is the 2-digit year, *MM* is the 2-digit representation of the month, and *DD* is the day of the month.
time	The time of the response, in the format *HH:MM:SS*, where *HH* is the hour in 24-hour format, *MM* is the minutes, and *SS* is the seconds.
ctag	The correlation tag that was sent as part of the TL1 command string. If the value for the ctag is null in the command string, the unit returns a zero (0) as the ctag in the response.

Autonomous Messages

In addition to the TL1 responses described above, the TimeProvider might return *Autonomous Messages* to report alarms, configuration changes, or condition changes. Frequently, an Autonomous Message is returned at approximately the same time as the TL1 response that is associated with a command, because the command happens to cause a change in the unit's state. Autonomous Messages are not directly correlated with commands and they do not contain correlation tags (ctags). They should, however, have an <atag>, which increments by one (from 1 to 999999) for each autonomous event.

> **Note:** By default, Autonomous Messages are displayed in the user's session. The display of Autonomous Messages can be enabled or disabled using the `ED-EQPT` TL1 command with the `AOMERGE` keyword.

Autonomous Messages can be generated by the unit at any time, whether to report that a user-initiated change has occurred to some setting within the unit, to report that an active alarm condition has cleared, etc. The format of an Autonomous Message is as follows. Note that REPT identifies the response as an Autonomous Message: EVT for an event and ALM for an alarm.

Event Response Format:

```
<cr><lf><lf>
    sid date time<cr><lf>
alrmcde atag REPT EVT [AIDTYPE]<cr><lf>
    "aid,aidtype:condtype,condeff,ocrdat,ocrtim,,,,:condscr"<cr lf>
;
```

Alarm Response Format:

```
<cr><lf><lf>
    sid date time<cr><lf>
alrmcde atag REPT ALM [AIDTYPE]<cr><lf>
    "aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtim,,:condscr"<cr lf>
;
```

Table 1-5 explains each field that is contained in an Autonomous Message.

Table 1-5. Autonomous Message Fields

Field	Description
sid	The unit's Source Identifier (SID), which identifies the specific TimeProvider unit within the synchronization network. The unit's SID is set using the SET-SID TL1 command.
date	The date of the message, in the format *YY-MM-DD*, where *YY* is the 2-digit year, *MM* is the 2-digit representation of the month, and *DD* is the day of the month.
time	The time of the message, in the format *HH:MM:SS*, where *HH* is the hour in 24-hour format, *MM* is the minutes, and *SS* is the seconds.
almcde	The alarm code, which can be one of the following: *C - The event being reported is a critical alarm. ** - The event being reported is a major alarm. * - The event being reported is a minor alarm. A - The event being reported is a non-alarm event.
atag	The Autonomous Message tag, which is a number up to six digits long which is increased by one each time an event is generated. It wraps back to 1 after reaching 999999.
reptype	The type of report. It can be either EVT (the event is a non-alarm event), or ALM (the event is an alarm event).
aid	The access identifier, which denotes the system component that the reported alarm or event applies to.

Table 1-5. Autonomous Message Fields (Continued)

Field	Description
aidtype	The aid type. It can be EQPT (the aid is associated with the internal operation of the system) or T1 (the aid is external to the system or facility, for example, an input or output). **Note:** The *aidtype* that follows the *reptype* in the Autonomous Message is included only if the *reptype* is ALM.
ntfcncde	The notification code for the alarm or event. The notification code can be CR (a critical alarm), MJ (a major alarm), MN (a minor alarm), CL (a cleared alarm), or NA (a non-alarm event).
condtype	The condition type, which is the TL1 code that is associated with the alarm or event. Table 1-6 shows all of the possible TimeProvider event condition types, and Table 1-7 shows all of the possible TimeProvider alarm condition types.
condeff	This defines an event's effect on the system: CL indicates clearing of a standing condition, SC indicates a standing condition is raised, and TC indicates a transition of a condition. **Note:** All events listed in Table 1-6 set CONDEFF to TC. If alarms listed in Table 1-7 are provisioned as Not Alarmed (NA), CONDEFF is set to SC when the alarm becomes active and CL when the alarm becomes inactive.
srveff	Whether the alarm or event is service affecting (SA) or non-service affecting (NSA).
ocrdat	The date the alarm or event occurred, in the format *YY-MM-DD*.
ocrtim	The time that the alarm or event occurred, in the format *HH*:*MM*:*SS*.
condscr	The condition string, which is a description of the alarm or event. It is a quoted text string, preceded with the "\" escape character. Table 1-6 shows all of the possible TimeProvider event condition strings, and Table 1-7 shows all of the possible TimeProvider alarm and clearing alarm condition strings.

Table 1-6 shows all of the possible event condition types (condtypes) and event condition strings (condscrs) that might be returned by the TimeProvider in an Autonomous Message.

Table 1-6. Event Code Conditional Descriptions

Event ID	Event Conditional Description
	IMC Event Conditions
ACCLVL	USER ACCESS LEVEL HAS CHANGED
ACO	AUDIO ALARM IS DEACTIVATED
ALMCHG	ALARM PARAMETER HAS CHANGED, <keyword>,<alarm>
AOMERGE	AUTONOMOUS EVENT REPORTING HAS CHANGED, <state>
BAUD	SERIAL BAUDRATE HAS CHANGED, <value>

Table 1-6. Event Code Conditional Descriptions (Continued)

Event ID	Event Conditional Description
CMDCHG	COMMAND ACCESS LEVEL HAS CHANGED, <command>
ECHO	SERIAL PORT ECHO MODE HAS CHANGED, <state>
FLOW	SERIAL FLOW CONTROL HAS CHANGED, <state>
FWFAIL	FIRMWARE UPGRADE UNSECCESSFUL
FWOK	FIRMWARE UPGRADE SUCCESSFUL
FWLOAD	BEGINNING FIRMWARE UPGRADE
IMCBIST	BUILT-IN SELF TEST, <value>
INITLOG	EVENT LOG HAS CLEARED
IPADDR	IP ADDRESS HAS CHANGED, <value>
IPGATE	GATEWAY IP ADDRESS HAS CHANGED, <value>
IPHOST1	HOST IP HAS CHANGED, <value>
IPHOST2	HOST IP HAS CHANGED, <value>
IPHOST3	HOST IP HAS CHANGED, <value>
IPHOST4	HOST IP HAS CHANGED, <value>
IPSUB	SUBNET MASK IP ADDRESS HAS CHANGED, <value>
ISDIFF	CONFIGURATION IMAGES ARE DIFFERENT
ISEQ	CONFIGURATION IMAGES ARE THE SAME
LOGIN	USER LOGGED IN, <username>
LOGOUT	USER LOGGED OUT, <username>
PIDCHG	USER PASSWORD HAS CHANGED
RESET	MODULE HAS BEEN RESET
SIDCHG	SYSTEM'S SOURCE ID HAS CHANGED, <value>
USRADD	USER HAS BEEN ADDED
USRDEL	USER HAS BEEN DELETED
USRDEL	NO USERS DEFINED
XFERFAIL	CONFIGURATION TRANSFER FAILED, <fromdev>,<todev>
XFEROK	CONFIGURATION TRANSFER SUCCESSFUL, <fromdev>,<todev>
GPS Event Conditions	
CKTIDCHG	GPS CIRCUIT ID HAS CHANGED <cktid>

Table 1-6. Event Code Conditional Descriptions (Continued)

Event ID	Event Conditional Description
MODE	GPS ANTENNA MODE, <mode>
POS	GPS ANTENNA POSITION, <pos>
ELEVMASK	GPS ELEVATION MASK, <value>
IOC Event Conditions	
CCALIGN	COMPOSITE CLOCK ALIGNMENT
CLKTYPE	CLOCK TYPE HAS CHANGED, <state>
FWFAIL	FIRMWARE UPGRADE UNSECCESSFUL
FWOK	FIRMWARE UPGRADE SUCCESSFUL
FWLOAD	BEGINNING FIRMWARE UPGRADE
IOCMODE	IOC MODE IS. <mode>
IOCSTATE	IOC STATE HAS CHANGED, <state>
RESET	MODULE HAS BEEN RESET
IOC Clock Event Conditions	
CLKFSTLK	CLOCK ENTERED FAST-LOCK MODE
CLKLOCK	CLOCK ENTERED LOCK MODE
SCAVAIL	SMARTCLOCK ALGORITHM, <value>
IOC Input Event Conditions	
CKTIDCHG	INPUT CIRCUIT ID HAS CHANGED <cktid>
CRCENA	INPUT CRC HAS CHANGED, <value>
FRMTYPE	INPUT FRAMING TYPE HAS CHANGED, <value>
INSTATE	INPUT STATE HAS CHANGED, <value>
PRIORITY	PRIORITY HAS CHANGED, <value>
RQLEVEL	RECEIVED QUALITY LEVEL HAS CHANGED, <old quality value>, <new quality value>
QLEVEL	USER ASSIGNED QUALITY LEVEL HAS CHANGED, <value>
SPANTYPE	INPUT SPAN TYPE HAS CHANGED, <value>
SSMBIT	E1 SSM BIT HAS CHANGED, <bit position>
SSMENA	INPUT READING OF SSM HAS CHANGED, <value>
THRCHG	PM THRESHOLD HAS CHANGED,<PM type>, <value>

Table 1-6. Event Code Conditional Descriptions (Continued)

Event ID	Event Conditional Description
IOC Output Event Conditions	
CKTIDCHG	OUTPUT CIRCUIT ID HAS CHANGED <cktid>
FREEFLT	FREE-RUN OUTPUT FAULT STRATEGY HAS CHANGED, <state>
FRMTYPE	OUTPUT FRAMING TYPE HAS CHANGED, <value>
HOLDFLT	HOLDOVER OUTPUT FAULT STRATEGY HAS CHANGED, <state>
OUTSTATE	OUTPUT GROUP STATE HAS CHANGED, <value>
OUTMODE	OUTPUT FAULT MODE HAS CHANGED, <value>
SYS Event Conditions	
BRDGTIM	BRIDGING TIME HAS CHANGED, <value>
CLRDELAY	INPUT CLEAR DELAY HAS CHANGED, <value>
DATCHG	SYSTEM DATE HAS CHANGED, <date>
ELEVTIME	ALARM ELEVATION TIME HAS CHANGED, <state>
FACTORY	PROVISIONED TO FACTORY DEFAULTS
FLTDELAY	INPUT FAULT DELAY HAS CHANGED, <value>
INACTTIME	COMMUNICATION TIMEOUT HAS CHANGED, <value>
INPREF	SYSTEM REFERENCE INPUT HAS CHANGED, <selected reference>
LOCTIM	SYSTEM'S LOCAL TIME OFFSET HAS CHANGED, <time offset>
LOGECHO	RECORD LOGIN EVENT,<value>
REFMODE	SYSTEM REFERENCE MODE HAS CHANGED, <mode>
TIMCHG	SYSTEM TIME HAS CHANGE, <time>
SYSMODE	SYSTEM MODE OF OPERATION HAS CHANGED, <state>
UTC	GPS HAS SET SYSTEM TIME TO UTC, <UTC date, UTC time>
RTM Event Conditions	
CKTIDCHG	RETIMER CIRCUIT ID HAS CHANGED <cktid>
FREEFLT	FREE-RUN RETIMER FAULT STRATEGY HAS CHANGED, <state>
HOLDFLT	HOLDOVER RETIMER FAULT STRATEGY HAS CHANGED, <state>
RTMLBO	PORT LBO HAS CHANGED, <value>
RTMSTATE	PORT STATE HAS CHANGED, <value>

Table 1-6. Event Code Conditional Descriptions (Continued)

Event ID	Event Conditional Description
SLPCHG	SLIP THRESHOLD HAS CHANGED, <value>
SLIPCLR	SLIP COUNTER HAS BEEN CLEARED

Table 1-7 shows all of the possible alarm condition types (condtypes) and alarm condition strings (condscrs) that might be returned by the TimeProvider in an Autonomous Message.

Table 1-7. Alarm Code Conditional Descriptions

Alarm ID	Set Alarm Conditional Description	Clear Alarm Conditional Description
SYS Alarm Conditions		
COMPAT	System components are incompatible	System components are compatible
EXPFAIL	Alarm deprecated. See EXPNEQPT	
EXTALM1	External alarm 1 set	External alarm 1 cleared
EXTALM2	External alarm 2 set	External alarm 2 cleared
EXPNEQPT	Expansion Panel is unequipped	Expansion Panel is equipped
IOC1EQPT	IOC1 is unequipped	IOC1 is equipped
IOC2EQPT	IOC2 is unequipped	IOC2 is equipped
OUTAEQPT	Output module A is unequipped	Output module A is equipped
OUTBEQPT	Output module B is unequipped	Output module B is equipped
OUTCEQPT	Output module C is unequipped	Output module C is equipped
OUTDEQPT	Output module D is unequipped	Output module D is equipped
PWRA	Power A failed	Power A restored
PWRB	Power B failed	Power B restored
RTMAEQPT	Retimer module A is unequipped	Retimer module A is equipped
RTMBEQPT	Retimer module B is unequipped	Retimer module B is equipped
RTMCEQPT	Retimer module C is unequipped	Retimer module C is equipped
RTMDEQPT	Retimer module D is unequipped	Retimer module D is equipped
IMC Alarm Conditions		
IMCFAIL	IMC BIST fault	IMC BIST fault cleared
IOC1COMM	IMC to IOC 1 communication failed	IMC to IOC 1 communication established
IOC2COMM	IMC to IOC 2 communication failed	IMC to IOC 2 communication established

Table 1-7. Alarm Code Conditional Descriptions (Continued)

Alarm ID	Set Alarm Conditional Description	Clear Alarm Conditional Description
IOC Alarm Conditions		
BTBCKUP	BesTime backup references disqualified	BesTime backup references qualified
CLKBRDG	Clock entered Bridging mode	Clock exited Bridging mode
CLKFREE	Clock entered Free-run mode	Clock exited Free-run mode
CLKHOLD	Clock entered Holdover mode	Clock exited Holdover mode
CLKWARM	Clock entered Warm-up mode	Clock exited Warm-up mode
IMC1COMM	IOC1 to IMC communication failed	IOC1 to IMC communication established
IMC2COMM	IOC2 to IMC communication failed	IOC2 to IMC communication established
IOC1TO2 COMM	IOC1 TO IOC2 communication failed	IOC1 to IOC2 communication established
IOC2TO1 COMM	IOC2 TO IOC1 communication failed	IOC2 to IOC1 communication established
IOCFAIL	IOC BIST fault	IOC BIST fault cleared
IOC1 Alarm Conditions		
IOCSTATE	IOC state has changed, unequipped	IOC state has changed, equipped
SYNTHEOR	Output generator exceeded pull-in range	Output generator within pull-in range
IOC2 Alarm Conditions		
IOCSTATE	IOC state has changed, unequipped	IOC state has changed, equipped
SYNTHEOR	Output generator exceeded pull-in range	Output generator within pull-in range
GPS Alarm Conditions		
ANTCOMM	GPS antenna communications fault	GPS antenna communications fault cleared
EXDSC	Excessive discontinuity fault	Excessive discontinuity cleared
FFOFF	FFOFF threshold exceeded	FFOFF within threshold
GPSPOS	GPS antenna position unknown	GPS antenna position known
GPSPWR	GPS power fault	GPS power fault cleared
GPSSYS	GPS system fault	GPS system OK
GPSTRK	GPS is not tracking satellites	GPS is tracking satellites
INPDISQ	Input disqualified as possible reference	Input qualified as possible reference
INPLOS	LOS fault	LOS fault cleared
INPPHASE	Phase error exceeded threshold	Phase error within threshold

Table 1-7. Alarm Code Conditional Descriptions (Continued)

Alarm ID	Set Alarm Conditional Description	Clear Alarm Conditional Description
MTIE	MTIE threshold exceeded	MTIE within threshold
TPIUSIG	TPIU signal fault	TPIU signal fault cleared

PRS Alarm Conditions

Alarm ID	Set Alarm Conditional Description	Clear Alarm Conditional Description
EXDSC	Excessive discontinuity fault	Excessive discontinuity cleared
FFOFF	FFOFF threshold exceeded	FFOFF within threshold
INPDISQ	Input disqualified as possible reference	Input qualified as possible reference
INPFRQ	Frequency threshold exceeded	Frequency within threshold
INPLOS	LOS fault	LOS fault cleared
INPPHASE	Phase error exceeded threshold	Phase error within threshold
MTIE	MTIE threshold exceeded	MTIE within threshold

INP[p] Alarm Conditions

Alarm ID	Set Alarm Conditional Description	Clear Alarm Conditional Description
EXDSC	Excessive discontinuity fault	Excessive discontinuity cleared
FFOFF	FFOFF threshold exceeded	FFOFF WITHIN THRESHOLD
INPDISQ	Input disqualified as possible reference	Input qualified as possible reference
INPAIS	AIS fault	AIS fault cleared
INPFRQ	Frequency threshold exceeded	Frequency within threshold
INPLOS	LOS fault	LOS fault cleared
INPOOF	OOF fault	OOF fault cleared
INPPHASE	Phase error exceeded threshold	Phase error within threshold
INPQL	Quality Level (SSM) exceeded threshold	Quality Level (SSM) within threshold
INPTRR	Tip/Ring connections reversed	Tip/Ring connections correct
MTIE	MTIE threshold exceeded	MTIE within threshold

RTMg[-p] Alarm Conditions

Alarm ID	Set Alarm Conditional Description	Clear Alarm Conditional Description
S1LOS	Side 1 LOS fault	Side 1 LOS fault cleared
S2LOS	Side 2 LOS fault	Side 2 LOS fault cleared
EXSLIP	Slip rate threshold exceeded	Slip rate within threshold
RTMFAULT	Retimer module has a fault	Retimer module fault has cleared

Command Security

To protect system resources and information from unauthorized access, the TimeProvider implements the concept of *access levels* for commands.

When security is enabled on the TimeProvider, most of the unit's TL1 commands require that users be logged into the system in order to access them. Each user in the system has a user access level assigned to them, and it is their user access level that determines which commands they can use.

> **Caution:** Security is initially not enabled on the TimeProvider. With security not enabled, anyone can execute any of the unit's TL1 commands, severely compromising the integrity of the system.
>
> Security is activated as soon as an initial user is entered into the system with a user access level of SECURITY. Symmetricom strongly recommends that an initial Security-level user be defined in the system as soon as the system is installed. Refer to the *TimeProvider User Guide* (097-58001-02) for information on defining the first user.

Each of the TimeProvider's TL1 commands have one of the following four access levels assigned to them by default:

- **NONE** – When a given command is assigned an access level of NONE, anyone with access to the unit's Serial or Ethernet ports can execute the command. A user doesn't even have to be logged into the system to use commands that have an assigned access level of NONE.

- **USER** – When a given command is assigned USER access level, any valid system user having a user access level of either USER, ADMIN, or SECURITY can execute the command after logging into the system.

- **ADMIN** – When a given command is assigned ADMIN access level, any valid system user having a user access level of either ADMIN or SECURITY can execute the command after logging into the system.

- **SECURITY** – When a given command is assigned SECURITY access level, only valid system users having a user access level of SECURITY can execute the command after logging into the system.

> **Note:** The factory default access level can be changed for most of the TimeProvider TL1 commands, however, the access level for the following commands is fixed and cannot be changed: ACT-USER, CANC-USER, ED-CMD-SECU, ED-USER-SECU, and ENT-USER-SECU.

Table 1-8 lists each of the TimeProvider's TL1 commands in alphabetical order. The command type and default (factory set) access level is included in Table 1-8 for each command.

Table 1-8. TimeProvider TL1 Command Types and Access Levels

Command Name	Command Type	Factory Set Access Level
Activate Software Download Mode (ACT-SWDL)	Administrative	ADMIN
Activate User (ACT-USER)	Session	NONE
Cancel User (CANC-USER)	Session	USER
Copy Memory (CPY-MEM)	System	ADMIN
Delete Performance Monitoring Data (DLT-PM-DATA)	System	USER
Delete Security (DLT-SECU)	Administrative	SECURITY
Delete User Security (DLT-USER-SECU)	Administrative	SECURITY
Edit Circuit Identifier (ED-CKTID)	System	ADMIN
Edit Command Security (ED-CMD-SECU)	Administrative	ADMIN
Edit Date (ED-DAT)	System	ADMIN
Edit Equipment (ED-EQPT)	System	ADMIN
Edit Password (ED-PID)	Administrative	USER
Edit Sync (ED-SYNC)	System	ADMIN
Edit User Security (ED-USER-SECU)	Administrative	SECURITY
Enter Password (ENT-PID)	Administrative	SECURITY
Enter User Security (ENT-USER-SECU)	Administrative	SECURITY
Initialize Event Log (INIT-LOG)	System	ADMIN
Initialize System (INIT-SYS)	System	ADMIN
Operate Alarm Cutoff (OPR-ACO-ALL)	System	USER
Ping (PING)	Session	USER
Remove Equipment (RMV-EQPT)	System	USER
Retrieve Alarm Condition (RTRV-ALM)	System	USER
Retrieve Attribute (RTRV-ATTR)	System	USER
Retrieve BesTime Status (RTRV-BESTIME-STAT)	System	USER
Retrieve Built-In Self Test (RTRV-BIST)	System	USER
Retrieve Circuit Identifier (RTRV-CKTID)	System	USER

Table 1-8. TimeProvider TL1 Command Types and Access Levels (Continued)

Command Name	Command Type	Factory Set Access Level
Retrieve Command Security (RTRV-CMD-SECU)	Administrative	ADMIN
Retrieve Condition (RTRV-COND)	System	USER
Retrieve Craft Data (RTRV-CRAFT)	System	USER
Retrieve Date (RTRV-DAT)	System	USER
Retrieve Equipment (RTRV-EQPT)	System	USER
Retrieve GPS Status (RTRV-GPS-STAT)	System	USER
Retrieve Header (RTRV-HDR)	System	NONE
Retrieve Inventory (RTRV-INV)	System	USER
Retrieve LED Status (RTRV-LED)	System	USER
Retrieve Log (RTRV-LOG)	System	USER
Retrieve Network Equipment Type (RTRV-NETYPE)	System	NONE
Retrieve Sync (RTRV-SYNC)	System	USER
Retrieve Performance Monitoring Data (RTRV-PM)	System	USER
Retrieve System Mode (RTRV-SYS-MODE)	System	USER
Retrieve Threshold (RTRV-TH)	System	USER
Retrieve User (RTRV-USER)	Session	USER
Retrieve User Security (RTRV-USER-SECU)	Administrative	SECURITY
Set Attribute (SET-ATTR)	System	ADMIN
Set Source Identifier (SET-SID)	System	ADMIN
Set System Mode (SET-SYS-MODE)	System	ADMIN
Set Threshold (SET-TH)	System	ADMIN

Chapter 2 TL1 Command Syntax and Description

This chapter describes each of the TimeProvider's TL1 commands in detail.

In This Chapter

- TL1 Syntax Conventions
- Command Descriptions

TL1 Syntax Conventions

Table 2-1 describes the syntax used for commands and responses in this manual.

Table 2-1. TL1 Syntax Conventions

Symbol	Description
<cr>	Carriage return character (ASCII 0x0D).
<lf>	Line-feed character (ASCII 0x0A).
[...]	Indicates the command parameter or data is optional.
< ... >	Indicates a variable. The variable's value is actually sent in the command or returned in the response.
(...)	Indicates numeric data that can be either positive or negative.

In addition, the following general rules apply to the TL1 syntax and command entry:

- Adjacent colons indicate unused fields. If an unused field is the last parameter in the command string, for example the General Block or Parameter Block is the last block and is unused, you can omit the colons and simply enter the semicolon terminating character to execute the command.

- The TimeProvider ignores extra spaces in the TL1 command line.

- TL1 commands are not case sensitive unless specified as such.

Command Descriptions

The TL1 commands that are included in the TimeProvider's command set comprise the remainder of this chapter. An entry is included for each command, and the entries are organized in alphabetical order by verb-modifier command code. Each command entry is comprised of the following parts:

- A descriptive title for the command entry, followed by the command's verb-modifier command code enclosed in parentheses.

- A brief description of the command, and the command's default access level.

- The command syntax, which is followed by the parameters and keywords that can be used with the command.

- Further explanation follows the parameters, keywords, and values where necessary.

- An example of how to use the command completes each command entry.

Activate Software Download Mode (ACT-SWDL)

This command places the information management card (IMC) in the firmware download mode prior to a firmware download. IOC or IMC firmware can be transferred from a users system to the TimeProvider using the Ymodem protocol, and the command also allows firmware transfers directly from a specified IOC module to a redundant IOC module.

This command has a default access level of ADMIN.

Syntax

```
ACT-SWDL:[<tid>]:<aid>:[<ctag>];
```

Parameter	Value	Description
<aid>	IMC	The Information Management Card (IMC) is placed in firmware download mode to download firmware to the IMC module using the Ymodem file receiver.
	IOC	The Information Management Card (IMC) is placed in firmware download mode to download firmware to the Input/Output Card (IOC) module using the Ymodem file receiver. **Note:** In systems that have redundant IOC modules, both IOC modules should be operating with the same version of firmware. The system automatically ensures that both IOC modules receive the same version of firmware.
	IOC*m*	The Information Management Card (IMC) is placed in firmware download mode to download firmware to the Input/Output Card (IOC) module and ***does not*** use the Ymodem file receiver. If a new IOC is installed into a system (or if one IOC card has a previous version of firmware), the active IOC can be used to transfer its version of firmware to the target IOC. *m* is "1" for the slot marked "IOC 1" on top of the shelf. *m* is "2" for the slot marked "IOC 2" on top of the shelf.

The Firmware Download Process

Caution: When the IMC module is in firmware download mode, most commands are not executable because all users are logged off of the system; however, commands with an access level of NONE are executable. Furthermore, if security is not enabled, for example if no users are assigned, any command is executable.

To avoid interfering with the firmware download process, do not send commands to the TimeProvider during the download process.

Notes: Firmware upgrade files are periodically available from Symmetricom. Contact Symmetricom Global Services for information on firmware upgrades that are available for the TimeProvider.

Refer to the *TimeProvider User Guide* (097-58001-02) for more complete firmware upgrade information.

The ACT-SWDL command places either the IMC or IOC module (depending on the specified AID) in the firmware download mode so that firmware upgrades can be downloaded to the modules. If IOC*m* (*m* = 1 or 2) is the specified AID, firmware is transferred from the specified IOC to the redundant IOC.

Note: Firmware transfer between IOCs is not allowed if the destination IOC is active.

Firmware download to the IMC or IOC module

When the TimeProvider receives the ACT-SWDL command for either the IMC or IOC module, it automatically logs all users off of the system and locks the system against new logins. The system then disconnects TL1 from the connection that sent the ACT-SWDL command and starts the TimeProvider's internal Ymodem file receiver on that connection.

Note: The Ymodem file receiver *is not* used in IOC to IOC firmware transfers.

A Ymodem file sender utility, for example SynCraft and HyperTerminal, is required for firmware downloads and it is this file sender utility that initiates the file transfer. If the file transfer is not initiated by a Ymodem file sender within approximately 60 seconds of the ACT-SWDL command being sent, the unit returns an error response and the module returns to normal operation. If the file transfer is initiated within 60 seconds, the transfer of the file to the module takes place.

After the file transfer completes, the IMC module validates the file (the system remains locked against logins at this point). If the file is not validated, the unit returns an error response and the IMC module returns to normal operation.

If the file is validated, the next step depends on which module is receiving the upgrade.

If the upgrade file applies to the IMC module

If the upgrade file that was downloaded is valid and is for the IMC module, the flash memory on the IMC module is reprogrammed and the IMC module is rebooted using the new firmware.

The system outputs are not interrupted when the IMC module is upgraded. If the process fails at any time, the upgrade process aborts and the IMC module returns to normal operation using the existing version of firmware.

If the upgrade file applies to the IOC modules

If the upgrade file that was downloaded is valid and is for the IOC modules, the system checks the following criteria to determine how to proceed with the upgrade process:

- It checks if the shelf contains two installed and communicating IOC modules.

- It checks if both IOC control loops are locked.

- It checks if both IOC modules are in service.

- It checks if both IOC modules are alarm free.

- It checks if one of the IOC modules is active.

If the system determines that any of the above criteria are false, it reprograms the IOC1 module's flash memory and reboots the module, then reprograms the IOC2 module's flash memory and reboots that module. If the shelf contains only one IOC module, that module's flash memory is reprogrammed and the module is rebooted. In these cases, the system outputs are interrupted for up to 30 minutes until the upgraded IOC module enters Fast-Locked mode.

If the system determines that *all* of the above criteria are true, then the system places the active IOC module in Standby mode, and the IOC module that was in Standby mode is placed into Active mode. The system then reprograms the standby IOC module's flash memory and reboots it. After the module reboots, the system waits up to 30 minutes for its control loop to lock. After its control loop locks, the system places it in Active mode and places the other IOC module in Standby mode. The system then reprograms the standby IOC module's flash memory and reboots it. In this case, the system outputs are not interrupted.

If at any time the above process fails for either IOC module, for example, if an IOC module fails to transition from Standby to Active mode, the upgrade process aborts and the IOC modules return to normal operation using the existing versions of firmware.

Firmware Transfer between two IOC modules

When the TimeProvider receives the ACT-SWDL command, it automatically logs all users off of the system and locks the system against new logins. If the firmware upgrade is an IOC to IOC transfer, and if the target IOC *is not* active, firmware is transferred to the target IOC. The system remains locked against logins at this point. The target IOC reboots after transfer is complete. If the transfer cannot be completed, the unit returns an error response and the IMC module returns to normal operation.

> **Note:** The Ymodem is not used in IOC-to-IOC firmware transfers.

Example 1

In this example, the ACT-SWDL command is issued to download a firmware file to the IMC module, but the firmware download is not initiated within 60 seconds. Notice the *Progress Indicator* that follows the in-process response. The unit returns a string of "C's" (<CCCCCCCCCC), one "C" after approximately every second of wait time, to indicate that the IMC module is waiting for an external Ymodem file sender to initiate the download process:

Input:

```
ACT-SWDL::IMC:TP1000;
```

Response Example:

```
   TP-SSU 05-03-09 14:07:45
A  395 REPT EVT
   "IMC,EQPT:FWLOAD,TC,05-03-09,14-07-45,,,,:\"BEGINNING FIRMWARE UPGRADE\""
;CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCIP TP1000
<

   TP-SSU 05-03-09 14:09:03
M  TP1000 DENY
   SROF
;

   TP-SSU 05-03-09 14:09:03
A 397 REPT EVT
   "IMC,EQPT:FWFAIL,TC,05-03-09,14-09-02,,,,:\"FIRMWARE UPGRADE UNSUCCESSFUL\""
;
```

Example 2

In this example, the ACT-SWDL command is issued to download a firmware file to the IMC module, and the download and upgrade is successful:

Input:

```
ACT-SWDL::IMC:TP1000;
```

Response Example:

```
   TP-SSU 05-03-09 14:11:20
A  400 REPT EVT
   "IMC,EQPT:FWLOAD,TC,05-03-09,14-11-20,,,,:\"BEGINNING FIRMWARE UPGRADE\""
;CCCCCCCCCCCCCCIP TP1000
<

   TP-SSU 05-03-09 14:19:59
M TP1000 COMPLD
;

   TP-SSU 05-03-09 14:19:57
A  401 REPT EVT
   "IMC,EQPT:FWOK,TC,05-03-09,14-19-57,,,,:\"FIRMWARE UPGRADE SUCCESSFUL\""
;
```

Example 3

In this example, the system has redundant IOCs (IOC1 and IOC2) and the ACT-SWDL command is issued to download firmware to the modules (AID is IOC2). IOC2 is active and IOC1 is in standby mode. After the file downloads, IOC1 becomes active and locked and IOC2 goes into standby to receive the firmware file. The download and upgrade is successful for both modules:

Note: Some events in the following example were removed for space considerations.

Input:

```
ACT-SWDL::IOC:TP1000;
```

Response Example:

```
   TP-SSU 05-03-09 20:34:03
A  447 REPT EVT
   "IOC,EQPT:FWLOAD,TC,05-03-09,20-34-03,,,,:\"BEGINNING FIRMWARE UPGRADE\""
;CCCIP 0
<

   TP-SSU 05-03-09 20:36:06
A  448 REPT EVT
   "IOC2,EQPT:IOCMODE,TC,05-03-09,20-36-06,,,,:\"IOC MODE IS, STANDBY\""
;

   TP-SSU 05-03-09 20:36:07
A  449 REPT EVT
   "IOC1,EQPT:IOCMODE,TC,05-03-09,20-36-07,,,,:\"IOC MODE IS, ACTIVE\""
;

   TP-SSU 05-03-09 20:39:26
A  450 REPT EVT
   "IOC2,EQPT:RESET,TC,05-03-09,20-39-26,,,,:\"MODULE HAS BEEN RESET\""
;
```

```
       TP-SSU 05-03-09 21:02:45
A  461 REPT EVT
   "IOC2,EQPT:CLKLOCK,TC,05-03-09,21-02-45,,,,:\"CLOCK ENTERED LOCK MODE\""
;

       TP-SSU 05-03-09 21:02:49
A  462 REPT EVT
   "IOC2,EQPT:IOCMODE,TC,05-03-09,21-02-49,,,,:\"IOC MODE IS, ACTIVE\""
;

       TP-SSU 05-03-09 21:02:49
A  463 REPT EVT
   "IOC1,EQPT:IOCMODE,TC,05-03-09,21-02-49,,,,:\"IOC MODE IS, STANDBY\""
;

       TP-SSU 05-03-09 21:06:06
A  464 REPT EVT
   "IOC,EQPT:FWOK,TC,05-03-09,21-06-06,,,,:\"FIRMWARE UPGRADE SUCCESSFUL\""
;

       TP-SSU 05-03-09 21:06:08
M  0 COMPLD
;

       TP-SSU 05-03-09 21:06:11
A  465 REPT EVT
   "IOC1,EQPT:RESET,TC,05-03-09,21-06-10,,,,:\"MODULE HAS BEEN RESET\""
;
```

Example 4

In this example, the ACT-SWDL command is issued to transfer a firmware file to the IOC1 module from the IOC2 module and the download and upgrade is successful:

Input:

```
ACT-SWDL::IOC1:TP1000;
```

Response Example:

```
ACT-SWDL::IOC1:TP1000;

       TP-SSU 05-03-09 14:36:09
A  15 REPT EVT
   "IOC,EQPT:FWLOAD,TC,05-03-09,14-36-09,,,,:\"BEGINNING FIRMWARE UPGRADE\""
;IP TP1000

       TP-SSU 05-03-09 14:39:35
A  16 REPT EVT
   "IOC1,EQPT:RESET,TC,05-03-09,14-39-34,,,,:\"MODULE HAS BEEN RESET\""
;

TP-SSU 05-03-09 14:39:37
A  18 REPT EVT
   "IOC,EQPT:FWOK,TC,05-03-09,14-39-37,,,,:\"FIRMWARE UPGRADE SUCCESSFUL\""
;

TP-SSU 05-03-09 14:39:38
M  TP1000 COMPLD
;
```

Activate User (ACT-USER)

This command logs the specified existing user onto the system, and begins a user session.

This command has a default access level of NONE. This command's access level cannot be changed.

Syntax

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

Parameter	Value	Description
<uid>	text string	The user name assigned to the user logging on.
<pid>	text string	The password assigned to the user logging on. **Note:** Refer to <newpid>, on page 68 for valid password specifications.

Each user session is independent, thus the same user can be logged into multiple user sessions without interaction between sessions. The maximum number of sessions is ten.

> **Note:** Users are initially set up by the SECURITY user with the command Enter User Security (ENT-USER-SECU), on page 69. Users log in using the ACT-USER command using the user name and password that have been assigned by the SECURITY user.

Example

To log user "FRED" into the TimeProvider system with the password "FRED.1":

Input:

```
ACT-USER::FRED:TP1000::FRED.1;
```

Normal Response:

```
    "TP-SSU" 05-02-10 13:35:56
M   TP1000 COMPLD
;
```

Autonomous Message:

```
    "TP-SSU" 05-02-10,13:35:56
A 2528 REPT EVT
    "IMC,EQPT:LOGIN,TC,05-02-10,13-35-56,,,,:\"USER LOGGED IN, FRED\""
;
```

Cancel User (CANC-USER)

This command terminates the specified user's session, and logs the user out of the system.

This command has a default access level of USER. This command's access level cannot be changed.

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

Parameter	Value	Description
<uid>	text string	The user name assigned to the user whose session is being terminated. **Note:** ADMIN-level users can terminate the active sessions of other users. In such cases, this parameter must be specified. Including the <uid> in the command line is not necessary for users to log themselves out of their own user session.
	(null)	The owner's current user session is terminated.

Example
To terminate user "FRED's" current user session:

Input:
```
CANC-USER::FRED:TP1000;
```

Normal Response:
```
    "TP-SSU" 05-02-10 13:35:56
M   TP1000 COMPLD
;
```

Autonomous Message:
```
    "TP-SSU" 05-02-10 13:35:56
A 2529 REPT EVT
    "IMC,EQPT:LOGOUT,TC,05-02-10,13-35-56,,,,:\"USER LOGGED OUT, FRED\""
;
```

Copy Memory (CPY-MEM)

This command saves a module's Istate (instrument state) in another module's memory. IOC Istate is saved in IMC FLASH and IMC Istate is saved in IOC RAM.

This command has a default access level of ADMIN.

Syntax

`CPY-MEM:[<tid>]::[<ctag>]::<fromdev>,<todev>,<istate>;`

Parameter	Value	Description
<fromdev>	IOC	The specified Istate is copied from the IOC card.
	IMC	The specified Istate is copied from the IMC card.
<todev>	IOC	The specified Istate is copied to the IOC card.
	IMC	The specified Istate is copied to the IMC card.
<istate>	IOC	The IOC Istate is copied.
	IMC	The IMC Istate is copied.

Note: In order to from a valid command line, the `<fromdev>` and `<todev>` parameter values cannot be the same.

The IState

The Istate is a "provisioning configuration file" for the module, and a copy of the Istate from each of the IOC and IMC modules can be stored on each of the other modules.

Use the CPY-MEM command to copy IStates in the following cases:

- *The IMC Module is Replaced* – In this case, before you remove the IMC module, copy the IMC Istate to the active IOC module. Replace the IMC module, then copy the IMC Istate back to the replacement IMC module to provision it with the settings of the IMC module it replaced.

Note: When the IMC Istate is copied from an IOC module to the IMC module, all users are logged out of the system. This happens because the IMC Istate can contain a different user list than the user list in effect before the Istate transfer.

Additionally, other settings can change, including communications parameters, baud rate, and IP address.

> ⚠ **Caution:** If an IMC Istate is copied from an IOC module to the IMC module and that IState contains a different user list, ensure that the <uids> and <pids> are known to avoid being locked out of the system.

- *The IOC Module is Replaced in a Single-IOC System* – In this case, copying the IOC Istate to the IMC module, replacing the IOC module, then copying the IOC Istate back to the replacement IOC module effectively provisions the replacement IOC module with the settings of the IOC module it replaced.

- *Both IOC Modules are Replaced Concurrently* – In this case, copying the IOC Istate from the active IOC module to the IMC module, replacing both IOC modules, then copying the IOC Istate back to the replacement IOC modules effectively provisions the replacement IOC modules with the settings of the IOC modules they replaced.

> **Notes:**
>
> - IOC modules are capable of transferring their Istates to each other automatically. When both IOC modules are to be replaced, it may be desirable to allow this transfer to occur automatically:
> - Replace the IOC module that is in standby mode.
> - Allow the replacement IOC module to reboot and qualify the reference inputs. This provides enough time for the Istate of the active IOC module to automatically transfer to the replacement IOC module.
> - Force the replacement card to the active state.
> - Replace the other IOC module. The Istate transfers automatically to that module.

Example

To copy the IMC Istate from the IMC module to the active IOC module, as a prelude to replacing the IMC module:

Input:

```
CPY-MEM:::TP1000::IMC,IOC,IMC;
```

Normal Response:

```
    "TP-SSU" 05-02-10 13:35:56
M   TP1000 COMPLD
;
```

Autonomous Message:

```
    "TP-SSU" 05-02-10 13:35:56
A   314 REPT EVT EQPT

    "IMC,EQPT:XFEROK,TC,05-02-10,13-35-56,,,,:\"CONFIGURATION TRANSFER SUCCESSFUL\""
;
```

Delete Performance Monitoring Data (DLT-PM-DATA)

This command deletes the current set of performance monitoring data for one input channel. All Performance Data associated with the specified input is erased.

This command has a default access level of USER.

Syntax

```
DLT-PM-DATA:[<tid>]:[<aid>]:[<ctag>];
```

Aid	Description
IOC[m]-GPS	GPS input on either of the two IOC modules (m = 1 or 2)
IOC[m]-PRS	PRS input on either of the two IOC modules (m = 1 or 2)
IOC[m]-INP[p]	Input 1 or Input 2 on either of the two IOC modules (m = 1 or 2 and p = 1 or 2)

Example

To delete all performance data associated with the specified module:

Input:

```
DLT-PM-DATA:::TP1000;
```

Normal Response:

```
   "TP-SSU" 05-02-10 13:35:56
M  TP1000 COMPLD
;
```

Delete Security (DLT-SECU)

This command deletes all of the information from the user database.

This command has a default access level of SECURITY.

Syntax

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

> **Note:** The DLT-SECU command is typically used only after the initial installation of the TimeProvider. When issued, *all* existing user names and passwords are deleted from the user database.

Example

To delete all information from the user database, which includes three entries in this example:

Input:

```
DLT-SECU:::TP1000;
```

Normal Response:

```
   "TP-SSU" 05-02-10 13:35:56
M  TP1000 COMPLD
;
```

Table 2-2. Delete Security Output Field

Field	Description
USRCLR	All users have been deleted from the database.

Autonomous Message:

```
   "TP-SSU" 05-02-10 13:35:57
A  266 REPT EVT EQPT

   "IMC,EQPT:USRCLR,TC,05-02-10,13-35-57,,,,:\"USER HAS BEEN DELETED\""
;
```

Delete User Security (DLT-USER-SECU)

This command allows a security-level user to delete any user in the user list.

Note: The system ***does not*** allow the last security-level user to be deleted if other users are defined in the system.

This command has a default access level of SECURITY.

Syntax

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

Parameter	Value	Description
<uid>	text string	The user name assigned to the user being deleted.

Example

To delete user "FRED" from the system:

Input:

```
DLT-USER-SECU::FRED:TP1000;
```

Normal Response:

```
   "TP-SSU" 05-02-10 13:35:56
M  TP1000 COMPLD
;
```

Autonomous Message:

```
   "TP-SSU" 05-02-10 13:35:56
A 2533 REPT EVT EQPT
   "IMC,EQPT:USRDEL,TC,05-02-10,13-35-56,,,,:\"USER HAS BEEN DELETED\""
;
```

Edit Circuit Identifier (ED-CKTID)

This command allows you to edit the Circuit Identification associated with each specified Input, Output, or Retimer port. Use the RTRV-CKTID command to read the Circuit Identification assigned to a port.

This command has a default access level of Admin.

Syntax
```
ED-CKTID:[<tid>]::[<ctag>]::"<keyword>=<value>";
```

Parameter	Value	Description
<aid>	GPS	The command's effect is on the GPS input.
	PRS	The command's effect is on the PRS input.
	INP*p*	The command's effect is on the input port specified by *p*: p is "1" for the input marked INP 1 on the Input module. p is "2" for the input marked INP 2 on the Input module.
	OUT*g-p*	The command's effect is on the output group (*g*) and port (*p*): *g* is "A" for the group marked "A" on the main shelf. *g* is "B" for the group marked "B" on the main shelf. *g* is "C" for the group marked "C" on the main shelf. *g* is "D" for the group marked "D" on the main shelf. *p* is 1 to 16 for each possible output port
	RTM*g-p*	The command's effect is on the Retimer module (*g*) and port (*p*). *g* is "A" for the group marked "A" on the main shelf. *g* is "B" for the group marked "B" on the main shelf. *g* is "C" for the group marked "C" on the main shelf. *g* is "D" for the group marked "D" on the main shelf. *p* is 1 or 2 for each possible output port

Table 2-3. ED-CKTID - Keyword and Values for <value>=text string

<keyword>	<value>	Description	Default
CKTIDCHG	text string	Up to 40 characters that define the Circuit ID for the specified <aid>. The characters must be enclosed in quote marks.	N/A

Example

To edit the circuit ID for the GPS input to ANTENNA13:

Input:

```
ED-CKTID::GPS:TP1000::"ANTENNA13";
```

Normal Response:

```
    "TP-SSU" 05-02-10 3:35:56
M   TP1000 COMPLD
;
```

Autonomous Message:

```
    "TP-SSU" 05-02-10 13:35:57
A 2534 REPT EVT
    "GPS,EQPT:CKTIDCHG,TC,05-02-10,13-35-57,,,,:\"GPS CIRCUIT ID HAS CHANGED,
    ANTENNA13\""
;
```

Edit Command Security (ED-CMD-SECU)

This command changes the access level of the specified command.

> **Note:** The access level for the following commands is fixed and cannot be changed: ACT-USER, CANC-USER, ED-CMD-SECU, ED-USER-SECU, and ENT-USER-SECU.

This command has a permanent access level of ADMIN. This command's access level cannot be changed.

Syntax

```
ED-CMD-SECU:[<tid>]:<cid>:[<ctag>][::<keyword>=<value>];
```

Parameter	Value	Description
<cid>	text string	The identifier of the command for which the access level is being changed. The command identifier is the part of the command syntax that appears before the first colon (:). It is not case sensitive. **Note:** See Table 2-4 for <keyword> and <value> descriptions.
	FACTORY	The access levels for all commands are set to their factory-defined values. **Note:** If FACTORY is used, no keyword is required and is ignored if used.

Table 2-4. ED-CMD-SECU - Keyword and Values for <cid>=text string

<keyword>	<value>	Description	Default
ACCLVL	NONE	The specified command allows any user to use it, even if the user is not currently logged on to the system.	N/A
	USER	The specified command allows users with an access level of USER, ADMIN, and SECURITY to use it.	
	ADMIN	The specified command allows users with an access level of ADMIN and SECURITY to use it.	
	SECURITY	The specified command allows users with an access level of SECURITY to use it.	

Example

To change the access level of the Retrieve Log (RTRV-LOG) command to ADMIN:

Input:

```
ED-CMD-SECU::RTRV-LOG:TP1000::ACCLVL=ADMIN;
```

Normal Response:

```
   "TP-SSU" 05-02-10 3:35:56
M  TP1000 COMPLD
;
```

Autonomous Message:

```
   "TP-SSU" 05-02-10 13:35:56
A 2534 REPT EVT EQPT
   "IMC,EQPT:CMDCHG,TC,05-02-10,13-35-56,,,,:\"USER ACCESS LEVEL HAS CHANGED, RTRV-LOG\""
;
```

Edit Date (ED-DAT)

This command changes the system date and time. If the date and time is set by GPS, the date and time cannot be changed. The local time offset can always be changed even after the time is changed by GPS.

This command has a default access level of ADMIN.

Syntax

`ED-DAT:[<tid>]:[<aid>]:[<ctag>]::<keyword>=<value>;`

Parameter	Value	Description
<aid>	SYS	The command's effect is at the system level. **Note:** See Table 2-5 for <keyword> and <value> descriptions.

Table 2-5. ED-DAT - Keywords and Values for <aid>=SYS

<keyword>	<value>	Description	Default
DATCHG	*yy-mm-dd*	The year, month, and day set for the system: *yy* is the 2-digit year, *mm* is the 2-digit representation of the month, *dd* is the day of the month.	N/A
TIMCHG	*hh-mm-ss*	The hours, minutes, and seconds set for the system: *hh* is the hour, in 24-hour format, *mm* is the minutes, *ss* is the seconds.	N/A
LOCTIM	*±hh-mm*	The hours and minutes that local time is offset from UTC: *hh* is the local time's hour offset from UTC; ±12 hours *mm* is the local time's minute offset from UTC.	N/A

Example
To change the system time to 1:56:00 PM:

Input:
`ED-DAT::SYS:TP1000::TIMCHG=13-35-56;`

Normal Response:
```
    "TP-SSU" 05-02-10 13:35:56
M  TP1000 COMPLD
;
```

Autonomous Message:
```
    "TP-SSU" 05-02-10 13:35:56
A 2535 REPT EVT
    "SYS,EQPT:TIMCHG,TC,05-02-10,13-35-56,,,,:\"SYSTEM TIME HAS CHANGED,
13-35-56\""
;
```

Edit Equipment (ED-EQPT)

This command is used to provision equipment parameters.

This command has a default access level of ADMIN.

Syntax

```
ED-EQPT:[<tid>]:<aid>:[<ctag>]::<keyword>[=<value>];
```

Parameter	Value	Description
<aid>	SYS	The command's effect is at the system level. **Note:** See Table 2-6 for <keyword> and <value> descriptions.
	COM*p*	The command's effect is on the comms port specified by *p*: *p* is "L" for the local serial port. *p* is "R" for the remote serial port. *p* is "I" for the IP (Ethernet) port. **Note:** See Table 2-7 for <keyword> and <value> descriptions.
	IOC*m*	The command's effect is on the IOC module specified by *m*: *m* is "1" for the slot marked "IOC 1" on the top of the shelf. *m* is "2" for the slot marked "IOC 2" on the top of the shelf. **Note:** See Table 2-8 for <keyword> and <value> descriptions.
	GPS	The command's effect is on the GPS input. **Note:** See Table 2-9 for <keyword> and <value> descriptions.
	PRS	The command's effect is on the PRS input. **Note:** See Table 2-10 for <keyword> and <value> descriptions.
	INP*p*	The command's effect is on the input port specified by *p*: p is "1" for the input marked INP 1 on the Input module. p is "2" for the input marked INP 2 on the Input module. **Note:** See Table 2-11 for <keyword> and <value> descriptions.
	OUT*g*	The command's effect is on the output group specified by *g*: *g* is "A" for the group marked "A" on the main shelf. *g* is "B" for the group marked "B" on the main shelf. *g* is "C" for the group marked "C" on the main shelf. *g* is "D" for the group marked "D" on the main shelf. **Note:** See Table 2-12 for <keyword> and <value> descriptions.
	RTM*g*[-*p*]	The command's effect is on the Retimer group and port specified by *g* and *p*: *g* is "A" for the group marked "A" on the main shelf. *g* is "B" for the group marked "B" on the main shelf. *g* is "C" for the group marked "C" on the main shelf. *g* is "D" for the group marked "D" on the main shelf. *p* is "1" for the port marked 1 on the Retimer module. *p* is "2" for the port marked 2 on the Retimer module. **Note:** See Table 2-13 for <keyword> and <value> descriptions.

Table 2-6. ED-EQPT - Keywords and Values for <aid>=SYS

<keyword>	<value>	Description	Default
INACTTIME	time	The amount of user command inactivity time to be set. This determines the amount of inactivity time before the user is automatically logged off of the system. The range for *time* is 100 to 10000 in units of 0.1 seconds. A value of 0 disables automatic logoff.	0
LOGECHO	ENABLE	Login and logout events are echoed to the local terminal and stored in the event log.	ENABLE
	DISABLE	Login and logout events are not echoed to the local terminal and are not stored in the event log.	

Table 2-7. ED-EQPT - Keywords and Values for <aid>=COMp

<keyword>	<value>	Description	Default
<aid> = COML, COMR, or COMI			
AOMERGE	ENABLE	Autonomous messages are displayed in the current session.	ENABLE
	DISABLE	Autonomous messages are not displayed in the current session.	
ECHO	ENABLE	Input is echoed to the local terminal.	DISABLE
	DISABLE	Input is not echoed to the local terminal.	
TIDQUIET	ENABLE	TID is not echoed in response messages.	DISABLE
	DISABLE	TID is echoed in response messages.	
<aid> = COML and COMR only			
BAUD	2400 | 9600 | 19200 | 28800 | 38400 | 57600	The specified serial port's baud rate is set to the baud rate in <value>.	9600
FLOW	NONE	No flow control is set on the port.	NONE
	SW	Software flow control (XON/XOFF) is set on the specified port.	
	HW	Hardware flow control (CTS/RTS) is set on the specified port.	
	SWHW	Both software and hardware flow control is set on the specified port.	

Table 2-7. ED-EQPT - Keywords and Values for <aid>=COMp (Continued)

<keyword>	<value>	Description	Default
<aid> = COMI only			
IPGATE	IP dot notation	The IP address of the default gateway. The range is 1.0.0.1 to 254.255.255.254	127.0.0.1
IPADDR	IP dot notation	The IP address of the Network Element. The range is 1.0.0.1 to 254.255.255.254	127.0.0.1
IPSUBNET	IP dot notation	The subnet mask. The range is 1.0.0.1 to 255.255.255.254	255.255.255.0
IPHOST (1, 2, 3, 4)	IP dot notation	The IP address of Element Manager. The range is 1.0.0.1 to 255.255.255.254	127.0.0.1

Table 2-8. ED-EQPT - Keywords and Values for <aid>=IOCm

<keyword>	<value>	Description	Default
IOCMODE	ACTIVE	The specified IOC card is forced to the active state. The other IOC card is set to the standby state.	ACTIVE
	STANDBY	The specified IOC card is forced to the standby state. The other IOC card is set to the active state. **Note:** If only one IOC card is installed, the IOCMODE=STANDBY setting is ignored.	
CLKTYPE	ST2 / TYPEII (Rubidium)	The assumed SSM quality level for the Rubidium IOC card's clock is set to either ANSI stratum 2 traceable (ST2) or ETSI Type 2 (TYPEII) traceable. This value is used for placing SSM bits in the output stream when in Holdover mode. Any input to the unit that is of lesser quality than ST2 / TYPEII is not used as a reference.	TYPEI / TYPEII
	ST3E / TYPEI (Quartz)	The assumed SSM quality level for the Quartz IOC card's clock is set to either ETSI Type 1 (TYPEI) or ANSI (ST3E). This value is used for placing SSM bits in the output stream when in Holdover mode. Any input to the unit that is of lesser quality than TYPEI / ST3E is not used as a reference.	
IOCSTATE	INSRV	The IOC card is placed into service.	INSRV
	OOSRV	The IOC card is taken out of service. **Note:** A module that was taken out of service is not selectable by the system to generate outputs or monitor inputs, and no alarms are generated by the module.	

Table 2-9. ED-EQPT - Keywords and Values for <aid>=GPS

<keyword>	<value>	Description	Default
INSTATE	ENABLE	The specified input is enabled.	DISABLE
	DISABLE	The specified input is disabled.	
	MONITOR	The specified input is in monitor-only mode. **Note:** In monitor-only mode, the performance of the input is monitored and it is monitored for signal faults, but cannot be selected as a system reference.	
MODE	AUTO	The antenna position (latitude, longitude, and height) is automatically computed or re-computed and then set.	AUTO
	MANUAL	The user sets the antenna position (latitude, longitude, and height).	
POS	LAT	dd-mm-ss.ssN or dd-mm-ss.ssS	N/A **Note:** The position can only be set in manual mode.
	LONG	dd-mm-ss.ssE or dd-mm-ss.ssW	
	ELEV	±hhhh.h height in meters	
ELEVMASK	5° to 45°	The specified elevation mask.	10°

Table 2-10. ED-EQPT - Keywords and Values for <aid>=PRS

<keyword>	<value>	Description	Default
INSTATE	ENABLE	The specified input is enabled.	DISABLE
	DISABLE	The specified input is disabled.	
	MONITOR	The specified input is in monitor-only mode. **Note:** In monitor-only mode, the performance of the input is monitored and it is monitored for signal faults, but cannot be selected as a system reference, or used as a BesTime backup reference.	

Table 2-11. ED-EQPT - Keywords and Values for <aid>=INPp

<keyword>	<value>	Description	Default
INSTATE	ENABLE	The specified input is enabled.	ENABLE
	DISABLE	The specified input is disabled.	
	MONITOR	The specified input is in monitor-only mode. **Note:** In monitor-only mode, the performance of the input is monitored for signal faults, but it cannot be selected as a system reference or used as a BesTime backup reference.	

Table 2-12. ED-EQPT - Keywords and Values for <aid>=OUTg

<keyword>	<value>	Description	Default
OUTSTATE	ENABLE	The specified output group is enabled.	DISABLE
	DISABLE	The specified output group is disabled.	

Table 2-13. ED-EQPT - Keywords and Values for <aid>=RTMg{-p]

<keyword>	<value>	Description	Default
RTMSTATE	ENABLE	The specified output group or port is enabled.	ENABLE
	DISABLE	The specified output group or port is disabled.	
SLIPCLR	NA	Clears current Slip alarms from the specified port.	NA

> **Note:** See Edit Sync (ED-SYNC) for more provisioning parameters.

Example

To enable Output Group B:

Input:

```
ED-EQPT::OUTB:TP1000::OUTSTATE=ENABLE;
```

Normal Response:

```
   "TP-SSU" 05-02-10 13:35:56
M  TP1000 COMPLD
;
```

Autonomous Message:

```
   "TP-SSU" 05-02-10 13:35:56
A 2537 REPT EVT
   "OUTB,EQPT:OUTSTATE,TC,05-02-10,13-35-56,,,,:\"OUTPUT GROUP STATE HAS
    CHANGED, ENABLED\""
;
```

Edit Password (ED-PID)

This command allows users to edit their own password in the user database.

This command has a default access level of USER.

Syntax

```
ED-PID:[<tid>]:<uid>:[<ctag>]::<oldpid>,<newpid>;
```

Parameter	Value	Description
<uid>	text string	The user name assigned to the user for which the password is being changed. This must be the <uid> of the user logged into the current session.
<oldpid>	text string	The user's currently existing password. **Note:** This parameter must exactly match the existing password in the user database, or a DENY response is returned.
<newpid>	text string	The user's new password. **Notes:** ■ The password can be up to twenty (20) characters. It must include at least two non-alphabetic characters, and must include at least one special character, which is any printing character other than a letter of the alphabet, a number, a comma, a colon, or a semicolon. ■ To use case-sensitive passwords, <pid> must be enclosed in quotes in the command line.

Example

To change user Fred's password from "FRED.1" to "ETHEL!5":

Input:

```
ED-PID::fred:TP1000::FRED.1,ETHEL!5;
```

Normal Response:

```
   "TP-SSU" 05-02-10 13:35:56
M  TP1000 COMPLD
;
```

Autonomous Message:

```
   "TP-SSU" 05-02-10 13:35:56
A 2538 REPT EVT
   "IMC,EQPT:PIDCHG,TC,05-02-10,13-35-56,,,,:\"USER PASSWORD HAS CHANGED\""
;
```

Edit Sync (ED-SYNC)

This command changes factory settings and input and output port parameter settings that can influence how the system's signal synchronization operates.

This command has a default access level of ADMIN.

Syntax

```
ED-SYNC:[<tid>]:<aid>:[<ctag>]::<keyword>=<value>;
```

Parameter	Value	Description
<aid>	SYS	The command's effect is on system-level input settings. **Note:** See Table 2-14 for <keyword> and <value> descriptions.
	GPS	The command's effect is on the GPS system input. **Note:** See Table 2-15 for <keyword> and <value> descriptions.
	PRS	The command's effect is on the PRS system input. **Note:** See Table 2-16 for <keyword> and <value> descriptions.
	INP*p*	The command's effect is on the input port specified by *p*: p is "1" for the input marked INP 1 on the Input module. p is "2" for the input marked INP 2 on the Input module. **Note:** See Table 2-17 for <keyword> and <value> descriptions.
	OUT*g*	The command's effect is on the output group specified by *g*: *g* is "A" for the group marked "A" on the main shelf. *g* is "B" for the group marked "B" on the main shelf. *g* is "C" for the group marked "C" on the main shelf. *g* is "D" for the group marked "D" on the main shelf. **Note:** See Table 2-18 for <keyword> and <value> descriptions.
	RTM*g*[-*p*]	The command's effect is on the Retimer group (*g*) and port (*p*). *g* is "A" for the group marked "A" on the main shelf. *g* is "B" for the group marked "B" on the main shelf. *g* is "C" for the group marked "C" on the main shelf. *g* is "D" for the group marked "D" on the main shelf. *p* is "1" for the connectors marked "1" on the module *p* is "2" for the connectors marked "2" on the module **Note:** See Table 2-19 for <keyword> and <value> descriptions.

Table 2-14. ED-SYNC - Keywords and Values for <aid>=SYS

<keyword>	<value>	Description	Default
CLRDELAY	time	The time that elapses after a signal fault clears and before the associated alarm condition clears. This delay helps prevent an alarm from clearing before the signal is stable. The range for *time* is 0 to 1000 seconds.	5
FLTDELAY	time	The time that elapses after an LOS, AIS, or OOF fault occurs and before the associated alarm condition is set. This delay helps prevent spurious alarms. The range for *time* is 1 to 15 seconds.	5
REFMODE	AUTO	The system automatically selects the reference input based on the QLEVEL and PRIORITY settings.	AUTO
	FORCED	Input reference selection is determined by the INPREF parameter setting.	
INPREF **Note:** When INPREF is used as a keyword with the RTRV-SYNC command, the input that is currently selected as the system reference is returned.	GPS	The GPS input is selected as the reference when REFMODE=FORCED.	PRS
	PRS	The PRS input is selected as the reference when REFMODE=FORCED.	
	INP1	Input 1 is selected as the reference when REFMODE=FORCED.	
	INP2	Input 2 is selected as the reference when REFMODE=FORCED.	
CCALIGN	NA	Allows the user to clear an INPTRR alarm against the current reference by forcing the CC output into polarity alignment with the reference.	NA

Table 2-15. ED-SYNC - Keywords and Values for <aid>=GPS

<keyword>	<value>	Description	Default
QLEVEL **Note:** QLEVEL is used when an input cannot determine the received quality level. If QLEVEL is provisioned below the quality level of the local oscillator, the input is disqualified. Also, the QLEVEL settings for the inputs determine if the switching strategy is revertive or non-revertive. This setting is used when REFMODE is set to AUTO.	1	The user-assigned quality level of the GPS input is specified as PRC/PRS (primary reference clock/source)	2
	2	The user-assigned quality level of the GPS input is specified as UNK/STU (sync traceability unknown).	
	3	The user-assigned quality level of the GPS input is specified as TYPE II/ST2 (stratum 2).	
	4	The user-assigned quality level of the GPS input is specified as TYPE I.	
	5	The user-assigned quality level of the GPS input is specified as TYPE V/TNC (transit node clock).	
	6	The user-assigned quality level of the GPS input is specified as TYPE III/ST3E (stratum 3E).	
	7	The user-assigned quality level of the GPS input is specified as TYPE IV/ST3 (stratum 3).	
	8	The user-assigned quality level of the GPS input is specified as 811OPT3/SMC (G.811 option 3 SONET minimum clock).	
	9	The user-assigned quality level of the GPS input is specified as DUS (**do not** use for timing synchronization).	
PRIORITY **Note:** When input quality levels on all inputs are equal, then the input with the highest PRIORITY is selected. Also, the PRIORITY settings for the inputs determine if the switching strategy is revertive or non-revertive. This setting is used when REFMODE is set to AUTO.	1	The priority level of the GPS input is set to 1.	1
	2	The priority level of the GPS input is set to 2.	
	3	The priority level of the GPS input is set to 3.	
	4	The priority level of the GPS input is set to 4.	

Table 2-16. ED-SYNC - Keywords and Values for <aid>=PRS

<keyword>	<value>	Description	Default
FRMTYPE **Note:** If the input frequency does not match the FRMTYPE setting, an input loss-of-signal (INPLOS) condition results.	1.544M	The PRS input frequency is provisioned as 1.544 MHz.	2M
	2M	The PRS input frequency is provisioned as 2 MHz (2048 kHz).	
	5M	The PRS input frequency is provisioned as 5 MHz.	
	6.312M	The PRS input frequency is provisioned as 6.312 MHz.	
	10M	The PRS input frequency is provisioned as 10 MHz.	

Table 2-17. ED-SYNC - Keywords and Values for <aid>=INPp

<keyword>	<value>	Description	Default
QLEVEL **Note:** QLEVEL is used when an input cannot determine the received quality level. If QLEVEL is provisioned below the quality level of the local oscillator, the input is disqualified. Also, the QLEVEL settings for the inputs determine if the switching strategy is revertive or non-revertive. This setting is used when REFMODE is set to AUTO.	1	The user-assigned quality level of the specified input is specified as PRC/PRS (primary reference clock/source)	2
	2	The user-assigned quality level of the specified input is specified as UNK/STU (sync traceability unknown).	
	3	The user-assigned quality level of the specified input is specified as TYPE II/ST2 (stratum 2).	
	4	The user-assigned quality level of the specified input is specified as TYPE I.	
	5	The user-assigned quality level of the specified input is specified as TYPE V/TNC (transit node clock).	
	6	The user-assigned quality level of the specified input is specified as TYPE III/ST3E (stratum 3E).	
	7	The user-assigned quality level of the specified input is specified as TYPE IV/ST3 (stratum 3).	
	8	The user-assigned quality level of the specified input is specified as 811OPT3/SMC (G.811 option 3 SONET minimum clock).	
	9	The user-assigned quality level of the specified input is specified as DUS (**do not** use for timing synchronization).	

Table 2-17. ED-SYNC - Keywords and Values for <aid>=INPp (Continued)

<keyword>	<value>	Description	Default
PRIORITY **Note:** When input quality levels on all inputs are equal, then the input with the highest PRIOR-ITY is selected. Also, the PRIORITY settings for the inputs determine if the switching strategy is revertive or non-revertive. This setting is used when REFMODE is set to AUTO.	1	The priority level of the specified input is set to 1.	1 (INP1) 1 (INP2)
	2	The priority level of the specified input is set to 2.	
	3	The priority level of the specified input is set to 3.	
	4	The priority level of the specified input is set to 4.	
FRMTYPE **Note:** When the TimeProvider is in Subtending (SUB) operating mode (see "Set System Mode (SET-SYS-MODE)" on page 144), the frame signal type is automatically set to Composite Clock (CC or JCC) by the system. The Composite Clock FRMTYPE cannot otherwise be selected by the user.	2M	Specified input frame signal type is 2M.	2M ESF
	CCS	Specified input frame signal type is CCS.	
	D4	Specified input frame signal type is D4 (Super Frame).	
	ESF	Specified input frame signal type is ESF (Extended Super Frame).	
	1.544M[1]	Specified input frame signal type is 1.544 MHz.	
	6.312M[1]	Specified input frame signal type is 6.312 MHz.	
	CC	Specified input frame signal type is Composite Clock.	
	JCC[1]	Specified input frame signal type is Japanese Composite Clock.	
	JCC4[1]	Specified input frame signal type is Japanese Composite Clock 400 Hz.	
CRCENA	ENABLE	Enables the use of CRC4 checking on the input. **Note:** If an input is provisioned to read SSMs (SSMENA=ENABLE), CRC4 is automatically enabled.	DISABLE
	DISABLE	Disables the use of CRC4 checking on the input. **Note:** If an input is provisioned to read SSMs (SSMENA=ENABLE), CRC4 checking is automatically enabled.	

Table 2-17. ED-SYNC - Keywords and Values for <aid>=INPp (Continued)

<keyword>	<value>	Description	Default
SSMENA	ENABLE	The input is provisioned to read the received SSM.	DISABLE
	DISABLE	The input is provisioned to *not* read (ignore) the received SSM.	
SSMBIT	4	The specified input is provisioned to read the E1 SSM at bit position 4.	8
	5	The specified input is provisioned to read the E1 SSM at bit position 5.	
	6	The specified input is provisioned to read the E1 SSM at bit position 6.	
	7	The specified input is provisioned to read the E1 SSM at bit position 7.	
	8	The specified input is provisioned to read the E1 SSM at bit position 8.	

Note:
[1] Used only in Japanese version.

Table 2-18. ED-SYNC - Keywords and Values for <aid>=OUTg

<keyword>	<value>	Description	Default
FRMTYPE	8K	The framing type generated by the specified output group is provisioned as 8 kHz.	2M
	1.544M [1]	The framing type generated by the specified output group is provisioned as 1.544 MHz.	
	2M	The framing type generated by the specified output group is provisioned as 2 MHz.	
	6.312M [1]	The framing type generated by the specified output group is provisioned as 6.312 MHz.	
	CAS	The framing type generated by the specified output group is provisioned as CAS.	
	D4	The framing type generated by the specified output group is provisioned as D4 (Super Frame).	
	ESF	The framing type generated by the specified output group is provisioned as ESF (Extended Super Frame).	
	CC	The framing type generated by the specified output group is provisioned as Composite Clock.	
	JCC [1]	The framing type generated by the specified output group is provisioned as Japanese Composite Clock.	
	JCC4 [1]	The framing type generated by the specified output group is provisioned as Japanese Composite Clock 4.	
	ISOLATED_1	The framing type generated by the specified output group is provisioned as an 'isolated one' test pattern.	
FREEFLT	ON	Outputs are generated based on system SSM when the Local Oscillator enters Free-run mode.	SQUELCH
	SQUELCH	Outputs are squelched (turned off) when the Local Oscillator enters Free-run mode.	
	AIS	Outputs generate an AIS signal when the Local Oscillator enters Free-run mode.	

Table 2-18. ED-SYNC - Keywords and Values for <aid>=OUTg (Continued)

<keyword>	<value>	Description	Default
HOLDFLT	ON	Outputs are generated based on system SSM when the Local Oscillator enters Holdover mode.	ON
	SQUELCH	Outputs are squelched (turned off) when the Local Oscillator enters Holdover mode.	
	AIS	Outputs generate an AIS signal when the Local Oscillator enters Holdover mode.	

Note:
[1] Used only in Japanese version.

Table 2-19. ED-SYNC - Keywords and Values for <aid> = RTMg

<keyword>	<value>	Description	Default
RTMLBO	0 = 0 to 133 ft 1 = 133 to 266 ft 2 = 266 to 399 ft 3 = 399 to 533 ft 4 = 533 to 650 ft	Sets the Line Build-out length for the designated module or port	0
FREEFLT	CUTTHRU	No retiming is performed when the LO enters Free-run mode	RETIME
	RETIME	Retiming is performed when the LO enters Free-run mode	
HOLDFLT	CUTTHRU	No retiming is performed when the LO enters Holdover mode	RETIME
	RETIME	Retiming is performed when the LO enters Holdover mode	

Example
To provision the interface type of the inputs as T1 inputs:

```
ED-SYNC::INP1:TP1000::FRMTYPE=D4;
```

Normal Response:
```
    "TP-SSU" 05-02-10 13:35:56
M  TP1000 COMPLD
;
```

Autonomous Message:
```
    "TP-SSU" 05-02-10 13:35:56
A 2556 REPT EVT
    "INP1,T1:FRMTYPE,TC,05-02-10,13-35-56,,,,:\"INPUT FRAMING TYPE HAS
     CHANGED,D4\""
;
```

Edit User Security (ED-USER-SECU)

This command changes the specified user's access level.

This command has a default access level of SECURITY. This command's access level cannot be changed.

Syntax

```
ED-USER-SECU:[<tid>]:<uid>:[<ctag>]::<keyword>=<value>;
```

Parameter	Value	Description
<uid>	text string	The user name assigned to the user for which the access level is being changed. **Note:** See Table 2-20 for <keyword> and <value> descriptions.

Table 2-20. ED-USER-SECU - Keyword and Values for <uid>=text string

<keyword>	<value>	Description	Default
ACCLVL	NONE	The specified user has an access level of NONE assigned. **Note:** With an access level of NONE, users can receive autonomous messages, but have very limited command access.	N/A
	USER	The specified user has USER access, that is, can issue commands having an access level of NONE or USER.	
	ADMIN	The specified user has ADMIN access, that is, can issue commands having an access level of NONE, USER, or ADMIN.	
	SECURITY	The specified user has SECURITY access, that is, can issue all commands.	

Example

To change user "FRED"s access level to ADMIN:

Input:

```
ED-USER-SECU::FRED:TP1000::ACCLVL=ADMIN;
```

Normal Response:

```
    "TP-SSU" 05-02-10 13:35:56
M  TP1000 COMPLD
;
```

Autonomous Message:

```
    "TP-SSU" 05-02-10 13:35:56
A 2562 REPT EVT
    "IMC,EQPT:ACCLVL,TC,05-02-10,13-35-56,,,,:\"USER ACCESS LEVEL HAS CHANGED\""
;
```

Enter Password (ENT-PID)

This command allows a security-level user to edit any user's password in the user database.

This command has a default access level of SECURITY.

Syntax

```
ENT-PID:[<tid>]:<uid>:[<ctag>]::<newpid>;
```

Parameter	Value	Description
<uid>	text string	The user name assigned to the user for which the password is being changed.
<newpid>	text string	The user's new password. **Notes:** ■ The password can be up to twenty (20) characters. It must include at least two non-alphabetic characters, and must include at least one special character, which is any printing character other than a letter of the alphabet, a number, a comma, a colon, or a semicolon. ■ To use case-sensitive passwords, <newpid> must be enclosed in quotes in the command line.

Example

To change user "FRED's" password from "FRED.1" to "D1n0@br":

Input:

```
ENT-PID::FRED:TP1000::D1n0@br;
```

Normal Response:

```
    "TP-SSU" 05-02-10 13:35:56
M   TP1000 COMPLD
;
```

Autonomous Message:

```
   "TP-SSU" 05-02-10 13:35:56
A 174 REPT EVT
   "IMC,EQPT:PIDCHG,TC,05-02-10,13-35-56,,,,:\"USER PASSWORD HAS CHANGED\""
;
```

Enter User Security (ENT-USER-SECU)

This command enters a new user in the user database.

Notes:
- Up to twenty users can be stored.
- With no users defined, anyone connecting to the system has access to all commands.
- The system requires that the initial user to be entered have Security-level access. When this user is created, that user must log into the system using the Activate User (ACT-USER) command to further provision the system.

This command has a default access level of SECURITY. This command's access level cannot be changed.

Syntax

```
ENT-USER-SECU:[<tid>]:<uid>:[<ctag>]::<pid>,<uap>;
```

Parameter	Value	Description
<uid>	text string	The user name for the user being set up. **Note:** The user name can be comprised of up to twenty (20) case-insensitive alphanumeric characters.
<pid>	text string	The password for the user being set up. **Notes:** ■ The password can be up to twenty (20) characters. It must include at least two non-alphabetic characters, and must include at least one special character, which is any printing character other than a letter of the alphabet, a number, a comma, a colon, or a semicolon. ■ To use case-sensitive passwords, <pid> must be enclosed in quotes in the command line.
<uap>	NONE	The specified user has an access level of NONE assigned. **Note:** With an access level of NONE, users can receive autonomous messages, but have very limited command access.
	USER	The user being set up has USER access and is able to issue commands having an access level of NONE or USER.
	ADMIN	The user being set up has ADMIN access and is able to issue commands having an access level of NONE, USER, or ADMIN
	SECURITY	The user being set up has SECURITY access and is able to issue all commands.

Example

To add a user "FRANKJ" to the system, with a case-sensitive password of "GyRo%23" and an access level of USER:

Input:

```
ENT-USER-SECU::FRANKJ:TP1000::"GyRo%23",USER;
```

Normal Response:

```
   "TP-SSU" 05-02-10 13:35:56
M  TP1000 COMPLD
;
```

Autonomous Message:

```
   "TP-SSU" 05-02-10 13:35:56
A 2560 REPT EVT
   "IMC,EQPT:USRADD,TC,05-02-10,13-35-56,,,,:\"USER HAS BEEN ADDED\""
;
```

Initialize Event Log (INIT-LOG)

This command clears the event log on the IMC module.

This command has a default access level of ADMIN.

Syntax

```
INIT-LOG:[<tid>]:<aid>:[<ctag>];
```

Parameter	Value	Description
<aid>	IMC	The command's effect is on the Information Management Card module.

Example

To clear the event log on the IMC module:

Input:

```
INIT-LOG::IMC:TP1000;
```

Normal Response:

```
   "TP-SSU" 05-02-10 13:35:56
M  TP1000 COMPLD
;
```

Autonomous Message:

```
   "TP-SSU" 05-02-10 13:35:56
A 2563 REPT EVT
   "IMC,EQPT:INITLOG,TC,05-02-10,13-35-56,,,,:\"EVENT LOG HAS BEEN CLEARED\""
;
```

Initialize System (INIT-SYS)

This command initializes the specified module, or the system.

⚠️ **Caution:** This command causes the local oscillator in the specified IOC to enter the Warm-up mode; the outputs are squelched until the system enters FAST-LOCK.

After issuing the INIT-SYS command with the SYS aid and FACTORY keyword, all system parameters are reset, including the entire user list. You must therefore create a new security-level user after the user list is reset to avoid a service call. Refer to the section entitled "Defining the First User" in the *TimeProvider User Guide* (097-58001-02) for more information.

This command has a default access level of ADMIN.

Syntax

```
INIT-SYS:[<tid>]:<aid>:[<ctag>]::<keyword>;
```

Parameter	Value	Description
<aid>	SYS	The command's effect is at the system level. **Note:** See Table 2-21 for the <keyword> description.
	IMC	The command's effect is on the Information Management Card module. **Note:** See Table 2-22 for the <keyword> description.
	IOC*m*	The command's effect is on the Input/Output Card module specified by *m*: *m* is "1" for the slot marked "IOC 1" on the top of the shelf. *m* is "2" for the slot marked "IOC 2" on the top of the shelf. **Note:** See Table 2-22 for the <keyword> description.

Table 2-21. INIT-SYS - Keyword for <aid>=SYS

<keyword>	Description	Default
FACTORY	Resets system settings to factory default values.	N/A

Table 2-22. INIT-SYS - Keyword for <aid>=IMC and <aid>=IOCm

<keyword>	Description	Default
RESET	Performs a reset (reboot) of the specified card, which reinitializes volatile memory, but does not affect non-volatile (persistent) memory, which includes the SID setting, communication port parameters, the security parameters, and the alarm integration parameters. **Note:** Prior to resetting an IOC module, all alarms associated with the module are cleared, and if the specified IOC module is the active module, it is placed in Standby mode. Resetting an IOC in a non-redundant system squelches the outputs until the system enters FAST-LOCK.	N/A

Example

To perform a reset on the IOC2 module:

Input:

```
INIT-SYS::IOC2:TP1000::RESET;
```

Normal Response:

```
   "TP-SSU" 05-02-10 13:35:56
M  TP1000 COMPLD
;
```

Autonomous Message:

```
   "TP-SSU" 05-02-10 13:35:56
A  258 REPT EVT

   "IOC2,EQPT:RESET,TC,05-02-10,13-35-56,,,,:\"MODULE HAS BEEN RESET\""
;
```

Operate Alarm Cutoff (OPR-ACO-ALL)

This command deactivates (opens) the minor, major, and critical audible alarm relays.

Note: When you deactivate the audible alarm relays using this command, they reactivate when subsequent alarms occur.

This command has a default access level of USER.

Syntax
```
OPR-ACO-ALL:[<tid>]::[<ctag>];
```

Example
To deactivate the audible alarm relays:

Input:
```
OPR-ACO-ALL:::TP1000;
```

Normal Response:
```
    "TP-SSU" 05-02-10 13:35:56
M   TP1000 COMPLD
;
```

Autonomous Message:
```
    "TP-SSU" 05-02-10 13:35:56
A 2564 REPT EVT
    "IMC,EQPT:ACO,TC,05-02-10,13-35-56,,,,:\"AUDIO ALARM IS DEACTIVATED\""
;
```

Ping (PING)

This command allows the TimeProvider to test (ping) for network connectivity.

This command has a default access level of USER.

Syntax
```
PING:[<tid>]::[<ctag>]::<ipaddr>;
```

Parameter	Value	Description
<ipaddr>	IP dot notation	The IP address of the host system to be pinged from the TimeProvider. The range is 1.0.0.1 to 254.254.254.254.

Example
To ping IP address 198.162.12.10 from the TimeProvider:

Input:
```
PING:::TP1000::192.168.12.10;
```

Response Example:
```
   "TP-SSU" 05-02-10 13:35:56
M  TP1000 COMPLD
"Host 192.168.12.10 is alive. Roundtrip time was 165 milliseconds"
;
```

Autonomous Message:
```
None.
```

Remove Equipment (RMV-EQPT)

This command allows the system to operate alarm-free after the hardware configuration has changed. This command clears any alarms associated with the change in configuration. If you replace the hardware while the equipment alarm is active, the alarm automatically clears.

Use the command to confirm that a redundant IOC, Output module, Retimer module, Expansion Panel, or TPIU that was connected to the system at System Startup has been removed from the system.

This command has a default access level of USER.

Syntax
```
RTRV-EQPT:[<tid>]:<aid>:[<ctag>]::<keyword>;
```

Parameter	Value	Description
<aid>	SYS	The command takes effect at the System level. **Note:** See Table 2-23 for the <keyword> description.

Table 2-23. RMV-EQPT - Keyword for <aid>=SYS

<keyword>	Description
IOC*m*	Clears alarms associated with IOCmEQPT if the module is not to be replaced. *m* is "1" for the slot marked "IOC 1" on top of the shelf. *m* is "2" for the slot marked "IOC 2" on top of the shelf.
OUT*g*	Clears alarms associated with OUTgEQPT if the module is not to be replaced. *g* is "A" for the group marked "A" on the main shelf. *g* is "B" for the group marked "B" on the main shelf. *g* is "C" for the group marked "C" on the main shelf. *g* is "D" for the group marked "D" on the main shelf.
RTM*g*	Clears alarms associated with RTMgEQPT if the module is not to be replaced. *g* is "A" for the group marked "A" on the main shelf. *g* is "B" for the group marked "B" on the main shelf. *g* is "C" for the group marked "C" on the main shelf. *g* is "D" for the group marked "D" on the main shelf.
EXPN	Clears alarms associated with EXPNEQPT if the Expansion Panel is not to be replaced.
TPIU	Clears alarms associated with TPIUEQPT if the TPIU is not to be replaced.

Example

To remove an Output module from slot D:

Input:

```
RMV-EQPT::SYS:TP1000::OUTD;
```

Normal Response:

```
   "TP-SSU" 05-02-10 13:35:56
M  TP1000 COMPLD
;
```

Autonomous Message:

None

Retrieve Alarm Condition (RTRV-ALM)

This command retrieves information on currently active alarms.

This command has a default access level of USER.

Syntax

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

Parameter	Value	Description
<aid>	ALL (or *null*)	Retrieves information for all alarms that are currently active in the entire system.
	SYS	Retrieves information for all currently active system-level alarms.
	IMC	Retrieves information for all currently active alarms from the Information Management Card module.
	IOC*m*	Retrieves information for all currently active alarms from the Input/Output Card module specified by *m*. *m* is "1" for the slot marked "IOC 1" on top of the shelf. *m* is "2" for the slot marked "IOC 2" on top of the shelf.
	GPS	Retrieves information for all currently active alarms from the GPS module.
	PRS	Retrieves information for all currently active alarms from the PRS module.
	INP*p*	Retrieves information for all currently active alarms from the specified input port. *p* is "1" for the input marked INP 1 on the Input module. *p* is "2" for the input marked INP 2 on the Input module.
	OUT*g*	Retrieved information for all currently active alarms from the specified output port: *g* is "A" for the group marked "A" on the main shelf. *g* is "B" for the group marked "B" on the main shelf. *g* is "C" for the group marked "C" on the main shelf. *g* is "D" for the group marked "D" on the main shelf.

Command Output

The following shows the output format of the command, and Table 2-24 explains the various fields in the command output:

Response Format

```
<cr><lf><lf>
   sid date time<cr><lf>
M  ctag COMPLD<cr><lf>
   "<aid>,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtim[:condscr]"<cr><lf>
   "<aid>,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtim[:condscr]"<cr><lf>
     .
     .
     .
   "<aid>,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtim[:condscr]"<cr><lf>
```

Table 2-24. RTRV-ALM Output Fields

Field	Description
aidtype	Specifies if the event is associated with the internal operation of the system (EQPT), or external to the system or facility (T1).
ntfcncde	The notification code for the alarm or event. The notification code can be CR (critical alarm), MJ (major alarm), or MN (minor alarm).
condtype	The TL1 alarm code that is associated with the event or alarm. **Note:** Table 1-7 in Chapter 1 shows all of the possible TimeProvider TL1 alarm codes (condition types).
srveff	Whether the event is service affecting (SA) or non-service affecting (NSA).
ocrdat	The date the event occurred, in the format *YY-MM-DD*.
ocrtim	The time that the event occurred, in the format *HH:MM:SS*.
condscr	The description of the alarm or event. It is a quoted text string, preceded with the "\" escape character. **Note:** Table 1-7 in Chapter 1 shows all of the possible TimeProvider alarm descriptions (condition strings).

Example

To display all currently active alarms from the system:

Input:

```
RTRV-ALM::ALL:TP1000;
```

Response Example:

```
   "TP-SSU" 05-02-10 13:37:39
M  TP1000 COMPLD
   "IOC1,EQPT:MJ,CLKHOLD,SA,05-02-10,13-37-39,,:\"CLOCK ENTERED HOLDOVER
   MODE\""
   "IOC2,EQPT:MJ,CLKHOLD,SA,05-02-10,13-37-39,,:\"CLOCK ENTERED HOLDOVER
   MODE\""
;
```

Autonomous Message:

```
None.
```

Retrieve Attribute (RTRV-ATTR)

This command retrieves the alarm level set for a specified alarm.

This command has a default access level of USER.

Syntax

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

Parameter	Value	Description
<aid>	ALL (or *null*)	Retrieves the alarm levels set for all alarms in the entire system. **Note:** See Table 2-25 for <keyword> descriptions.
	SYS	Retrieves the alarm level(s) set for all system-level alarms, or for the specified system-level alarm. **Note:** See Table 2-25 for <keyword> descriptions.
	IMC	Retrieves the alarm level(s) set for all Information Management Card (IMC) module alarms, or for the specified IMC module alarm. **Note:** See Table 2-25 for <keyword> descriptions.
	IOC*m*	Retrieves the alarm level(s) set for all alarms in the specified Input/Output Card module, or for the specified alarm from the specified Input/Output Card module. *m* is "1" for the slot marked "IOC 1" on top of the shelf. *m* is "2" for the slot marked "IOC 2" on top of the shelf. **Notes:** ■ See Table 2-25 for <keyword> descriptions. ■ Alarm level information is retrieved from the IOC module that is currently active.
	GPS	Retrieves the alarm level(s) set for all GPS alarms, or for the specified GPS alarm. **Note:** See Table 2-25 for <keyword> descriptions.
	PRS	Retrieves the alarm level(s) set for all PRS alarms, or for the specified PRS alarm. **Note:** See Table 2-25 for <keyword> descriptions.
	INP*p*	Retrieves the alarm level(s) set for all alarms related to the specified input port, or for the specified alarm related to the specified input port. *p* is "1" for the input marked INP 1 on the Input module. *p* is "2" for the input marked INP 2 on the Input module. **Note:** See Table 2-25 for <keyword> descriptions.

Parameter	Value	Description
<aid> (continued)	RTM*g*[-*p*]	Retrieves the alarm level(s) set for all alarms related to the specified Retimer port. *g* is "A" for the group marked "A" on the main shelf. *g* is "B" for the group marked "B" on the main shelf. *g* is "C" for the group marked "C" on the main shelf. *g* is "D" for the group marked "D" on the main shelf. *p* is "1" for the port marked 1 on the Retimer module. *p* is "2" for the port marked 2 on the Retimer module. **Note:** See Table 2-25 for <keyword> descriptions.

Table 2-25. RTRV-ATTR - Keywords and Values for all <aids>

<keyword>	Description	Default
Alarm ID	The identifier of the alarm for which the level is to be retrieved. **Notes:** ■ See Table 2-47 for the possible alarm identifiers. ■ This keyword is not valid if the <aid> is ALL or *null*.	N/A
(*null*) or ALL	Retrieves alarm attributes that are associated with all alarms that are related to the specified <aid>.	N/A

Command Output

The following shows the output format of the command, and Table 2-26 explains the various fields in the command output:

Response Format:

```
<cr><lf><lf>
    sid date time<cr><lf>
M   ctag COMPLD<cr><lf>
    "<aid>:alarm id,alarm level"<cr><lf>
    "<aid>:alarm id,alarm level"<cr><lf>
      .
    "<aid>:alarm id,alarm level"<cr><lf>
;
```

Table 2-26. RTRV-ATTR Output Fields

Field	Description
alarm id	The identifier of the alarm for which the level is displayed. **Note:** See Table 2-47 for the possible alarm identifiers.
alarm level	The level for the specified alarm. The alarm level can be CR (critical alarm), MJ (major alarm), MN (minor alarm), NA (non-alarm event), NR (not reported), or CL (clearing event).

Example

To display the current level set for the IMC module's IOC1COMM alarm:

Input:

```
RTRV-ATTR::IMC:TP1000::IOC1COMM;
```

Response Example:

```
   "TP-SSU" 05-02-10 13:37:39
M  TP1000 COMPLD
   "IMC:IOC1COMM,MN"
;
```

Autonomous Message:

```
None.
```

Retrieve BesTime Status (RTRV-BESTIME-STAT)

This command displays the BesTime status; the data indicates predicted BesTime ensemble information.

This command has a default access level of USER.

Syntax
```
RTRV-BESTIME-STAT:[tid]:<aid>:[<ctag>];
```

Parameter	Value	Description
<aid>	IOC*m*	Retrieves the BesTime status of the specified Input/Output Card module. *m* is "1" for the slot marked "IOC 1" on top of the shelf. *m* is "2" for the slot marked "IOC 2" on top of the shelf. **Notes:** See Table 2-27 for output descriptions.

Response Format:
```
<cr><lf><lf>
    sid date time<cr><lf>
M   ctag COMPLD<cr><lf>
    "IOCm-SYS:<tfom>"<cr><lf>
    "IOCm-PRS:<prs_wt>"<cr><lf>
    "IOCm-INP1:<inp1_wt>"<cr><lf>
    "IOCm-INP2:<inp2_wt>"<cr><lf>
    "IOCm-LO:<lo_wt>"<cr><lf>
;
```

Table 2-27. RTRV-BESTIME-STAT Output Fields

Field	Description
<tfom>	Time Figure of Merit, estimated 2-Sigma accuracy of the system 1PPS.
<prs_wt>	PRS Input reference weight indicates the amount of influence (weight) the PRS reference on the system timing when the system is not referenced to GPS. 1.00 = indicates only input being used, 0.00 indicates input not being used at all.
<inp1_wt>	Input 1 reference weight indicates the amount of influence (weight) the Input 1 reference on the system timing when the system is not referenced to GPS. 1.00 = indicates only input being used, 0.00 indicates input not being used at all.
<inp2_wt>	Input 2 reference weight indicates the amount of influence (weight) the Input 2 reference on the system timing when the system is not referenced to GPS. 1.00 = indicates only input being used, 0.00 indicates input not being used at all.
<lo_wt>	LO weight indicates the amount of influence (weight) the LO stability has on the system timing when the system is not referenced to GPS. 1.00 = indicates only input being used, 0.00 indicates input not being used at all.

Example

To display the BesTime status of IOC1:

Input:

```
RTRV-BESTIME-STAT::IOC1:TP1000;
```

Response Example:

```
"TP-SSU" 05-02-04 21:15:00
M  TP1000 COMPLD
   "IOC1-SYS:250ns"
   "IOC1-PRS:0.85"
   "IOC1-INP1:0.00"
   "IOC1-INP2:0.00"
   "IOC1-LO:0.15"
;
```

Autonomous Message:

```
None.
```

Retrieve Built-In Self Test (RTRV-BIST)

This command displays all currently active faulted built-in self test information for either the IMC or IOC or both.

This command has a default access level of USER.

Syntax

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

Parameter	Value	Description
<aid>	IMC	Displays the currently active faulted built-in self test information for the Information Management Card (IMC). **Note:** See Table 2-28 for <condscr> descriptions.
	IOC*m*	Displays the currently active faulted built-in self test information for the Information Management Card (IOC). *m* is "1" for the slot marked "IOC 1" on top of the shelf. *m* is "2" for the slot marked "IOC 2" on top of the shelf. **Notes:** See Table 2-28 for <condscr> descriptions.

Normal Response:

```
IMC
<cr><lf><lf>
   sid date time<cr><lf>
M  ctag COMPLD<cr><lf>
   "IMC BIST"<cr><lf>
   "<IMC condscr>"<cr><lf>*
;
IOC#
<cr><lf><lf>
   sid date time<cr><lf>
M  ctag COMPLD<cr><lf>
   "IOC# BIST"<cr><lf>
   "<IOC# condscr>"<cr><lf>*
;
```

> **Note:** * indicates that multiple lines could be listed, all active alarm conditions are shown on separate lines.

Table 2-28. Retrieve Built-In Self Test Output Fields

Value	Description
IMC condscr	RAM FAULT
	NVRAM FAULT
	GPS 1PPS FAULT (may occur during IOC startup)
	NETWORK FAULT
	SOFTWARE FAULT
	UNKOWN FAULT [fault number]
	NO FAULTS
IOC condscr	OUTPUT GROUP A CALIBRATION FAULT
	OUTPUT GROUP B CALIBRATION FAULT
	OUTPUT GROUP C CALIBRATION FAULT
	OUTPUT GROUP D CALIBRATION FAULT
	OUTPUT GROUP A FAULT
	OUTPUT GROUP B FAULT
	OUTPUT GROUP C FAULT
	OUTPUT GROUP D FAULT
	OUTPUT SYNTHESIZER UNLOCKED
	VCXO CONTROL VOLTAGE FAULT
	OCXO CURRENT LIMIT EXCEEDED
	RUBIDIUM UNLOCKED
	E1 PLL UNLOCKED
	T1 PLL UNLOCKED
	5V POWER SUPPLY FAULT
	3.3V POWER SUPPLY FAULT
	IMC POWER SUPPLY FAULT
	15V POWER SUPPLY FAULT
	1.8V POWER SUPPLY FAULT
	–6V POWER SUPPLY FAULT
	GPS POWER SUPPY FAULT
	FPGA ACCESS FAULT

Table 2-28. Retrieve Built-In Self Test Output Fields (Continued)

Value	Description
IOC condscr (continued)	FPGA 40Hz FAULT
	UNKNOWN FAULT [fault number]
	NO FAULTS

Example

To display the currently active faulted built-in self test information for IOC1:

Input:

```
RTRV-BIST::IOC1:TP1000;
```

Response Example:

```
"TP-SSU" 05-02-10 13:35:56
M   TP1000 COMPLD
    IOC1 BIST
    OUTPUT GROUP A FAULT
    E1 PLL UNLOCKED
    IMC POWER SUPPLY FAULT
;
```

Autonomous Message:

```
None.
```

Retrieve Circuit Identifier (RTRV-CKTID)

This command displays each Circuit Identification associated with the specified Input, Output, or Retimer port. Use the ED-CKTID command to assign a Circuit Identification to a port.

This command has a default access level of USER.

Syntax

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

Parameter	Value	Description
<aid>	null	Retrieves all the circuit identifications.

Command Output

The following shows the output format of the command, and Table 2-29 explains the various fields in the command output:

Response Format:

```
<cr><lf><lf>
   sid date time<cr><lf>
M  ctag COMPLD<cr><lf>
   "GPS:<cktid>"<cr><lf>
   "PRS:<cktid>"<cr><lf>
   "INP1:<cktid>"<cr><lf>
   "INP2:<cktid>"<cr><lf>
   "OUTA-1:<cktid>"<cr><lf>
   "OUTA-2:<cktid>"<cr><lf>
      .
      .
      .
   "OUTD-15"<cr><lf>
   "OUTD-16"<cr><lf>
   "RTMA-1"<cr><lf>
   "RTMA-2"<cr><lf>
      .
      .
   "RTMD-1"<cr><lf>
   "RTMD-2"<cr><lf>
;
```

Example

To display the current circuit identification for all inputs and outputs:

Input:

```
RTRV-CKTID:::TP1000;
```

Response Example:

```
    "TP-SSU" 05-02-10 13:38:14
M  TP1000 COMPLD
    "GPS:ANTENNA_13"
    "PRS:"
    "INP1:SSU_2000"
    "INP2:"
    "OUTA-1:RR104-25PRI"
    "OUTA-2:RR104-26PRI"
    .
    "OUTA-15:RR104-27PRI"
    "OUTA-16:RR104-28PRI"
    "OUTB-1:RR110-9SEC"
    "OUTB-2:RR110-10SEC"
    .
    "OUTB-15:RR110-11SEC"
    "OUTB-16:RR110-12SEC"
    "OUTC-1:RR214-1PRI"
    "OUTC-2:RR214-2PRI"
    .
    "OUTC-15:RR214-3PRI"
    "OUTC-16:RR214-4PRI"
    "OUTD-1:RR028-13SEC"
    "OUTD-2:RR028-14SEC"
    .
    "OUTD-15:RR028-15SEC"
    "OUTD-16:RR028-16SEC"
;
```

Retrieve Command Security (RTRV-CMD-SECU)

This command retrieves the access level set for a specified command, or all commands.

This command has a default access level of ADMIN.

Syntax

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

Parameter	Value	Description
<cid>	text string	Retrieves the access level for the command with this identifier. The command identifier is the part of the command syntax that appears before the first colon (:). It is not case-sensitive.
	ALL	Retrieves the access level for all commands.

Command Output

The following shows the output format of the command, and Table 2-29 explains the various fields in the command output:

Response Format:

```
<cr><lf><lf>
    sid date time<cr><lf>
M   ctag COMPLD<cr><lf>
    "command,access"<cr><lf>
    "command,access"<cr><lf>
      .
      .
    "command,access"<cr><lf>
;
```

Table 2-29. RTRV-CMD-SECU Output Fields

Field	Description
command	The identifier of the command for which the access level is displayed. The command identifier is the part of the command syntax that appears before the first colon (:).
access	The access level for the specified command. The access level is one of the following: ■ NONE (command allows all users to issue it) ■ USER (command allows users with an access level of USER, ADMIN, and SECURITY to issue it) ■ ADMIN (command allows users with an access level of ADMIN and SECURITY to issue it) ■ SECURITY (command allows users with an access level of SECURITY to issue it)

Example

To display the current access level set for all TL1 commands:

Input:

```
RTRV-CMD-SECU::ALL:TP1000;
```

Response Example:

```
   "TP-SSU" 05-02-10 13:37:39
M  TP1000 COMPLD
   "ACT-SWDL,ADMIN"
   "ACT-USER,NONE"
   "CANC-USER,NONE"
   "CPY-MEM,ADMIN"
   "DLT-SECU,SECURITY"
   "DLT-USER-SECU,SECURITY"
   "ED-CMD-SECU,ADMIN"
   "ED-DAT,ADMIN"
   "ED-EQPT,ADMIN"
   "ED-PID,USER"
   "ED-SYNC,ADMIN"
   "ED-USER-SECU,SECURITY"
   "ENT-PID,SECURITY"
   "ENT-USER-SECU,SECURITY"
   "INIT-LOG,ADMIN"
   "INIT-SYS,ADMIN"
   "OPR-ACO-ALL,USER"
   "PING,USER"
   "RTRV-ALM,USER"
   "RTRV-ATTR,USER"
   "RTRV-CMD-SECU,ADMIN"
   "RTRV-COND,USER"
   "RTRV-CRAFT,USER"
   "RTRV-DAT,USER"
   "RTRV-EQPT,USER"
   "RTRV-HDR,NONE"
   "RTRV-INV,USER"
   "RTRV-LED,USER"
   "RTRV-LOG,ADMIN"
   "RTRV-MANF-INFO,SECURITY"
   "RTRV-NETYPE,NONE"
   "RTRV-SYNC,USER"
   "RTRV-SYS-MODE,USER"
   "RTRV-USER,USER"
   "RTRV-USER-SECU,SECURITY"
   "SET-ATTR,ADMIN"
   "SET-SID,ADMIN"
   "SET-SYS-MODE,ADMIN"
;
```

Autonomous Message:

None.

Retrieve Condition (RTRV-COND)

This command retrieves information about the current state and status of system components.

This command has a default access level of USER.

Syntax

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

Parameter	Value	Description
<aid>	(*null*) or ALL	Retrieves all state and status information for the entire system.
	SYS	Retrieves expansion panel connectivity status and any alarm events associated with the expansion panel. **Note:** This information is reported by the active IOC.
	IMC	Retrieves all conditions related to the Information Management Card module.
	IOC*m*	Retrieves current setup and conditions related to the system-level functions of the Input/Output Card module specified by *m*. *m* is "1" for the slot marked "IOC 1" on the top of the shelf. *m* is "2" for the slot marked "IOC 2" on the top of the shelf. **Notes:** ■ If neither IOC is active, the information for the input and output components and some of the system components are determined by the IOC1 module if it is installed, or the IOC2 module if the IOC1 module is not installed. ■ If either an IOC1(2)EQPT or IOC1(2)COMM alarm is active, then no IOC1(2) information is displayed.
	GPS	Retrieves GPS input state and any alarm events associated with the GPS input.
	PRS	Retrieves PRS input state and any alarm events associated with the PRS input.
	INP*p*	Retrieves input state and any alarm events associated with the input specified by *p*. p is "1" for the input marked INP 1 on the Input module. p is "2" for the input marked INP 2 on the Input module. **Note:** This information is reported by the active IOC.
	OUT*g*	Retrieves status of the output group specified by *g*. *g* is "A" for the group marked "A" on the main shelf. *g* is "B" for the group marked "B" on the main shelf. *g* is "C" for the group marked "C" on the main shelf. *g* is "D" for the group marked "D" on the main shelf. **Note:** This information is reported by the active IOC.

Parameter	Value	Description
\<aid\> continued	RTMg	Retrieves status of the specified Retimer and any alarm events associated with both Retimer ports. (Unequipped indicates RTMgEQPT module is removed.) *g* is "A" for the group marked "A" on the main shelf. *g* is "B" for the group marked "B" on the main shelf. *g* is "C" for the group marked "C" on the main shelf. *g* is "D" for the group marked "D" on the main shelf.

Command Output

The following shows the output format of the command when the "ALL" aid is used, and Table 2-30 explains the various fields in the command output:

Response Format:

```
<cr><lf><lf>
    sid date time<cr><lf>
M  ctag COMPLD<cr><lf>
    "SYS:<pwra>,<pwrb>,<expstatus>,<extfault>,<ioc1eqpt>,
<ioc2eqpt>,<sysqlevel> <lastdat>,<lasttim>"<cr><lf>
    "IMC:<ioc1comm>,<ioc2comm>"<cr><lf>
  ["IOC1:<iocstatus>,<ioccomm>,<imccomm>"<cr><lf>]
  ["IOC2:<iocstatus>,<ioccomm>,<imccomm>"<cr><lf>]
    "GPS:<gpsstatus>"<cr><lf>
    "PRS:<prsstatus>"<cr><lf>
    "INP1:<inpstatus>"<cr><lf>
    "INP2:<inpstatus>"<cr><lf>
    "OUTA:<outstatus>"<cr><lf>
    "OUTB:<outstatus>"<cr><lf>
    "OUTC:<outstatus>"<cr><lf>
    "OUTD:<outstatus>"<cr><lf>
    "RTMA:<rtm1status><rtm2status>"<cr><lf>
    "RTMB:<rtm1status><rtm2status>"<cr><lf>
    "RTMC:<rtm1status><rtm2status>"<cr><lf>
    "RTMD:<rtm1status><rtm2status>"<cr><lf>
;
```

Table 2-30. RTRV-COND Output Fields

Field	Description
\<aid\> =SYS	
pwra pwrb	Indicates if the IMC has detected a loss of power at the Power A(B) connection. PWRA(B)-OK | PWRA(B)-ALM
expfail	Indicates if the connection to the Expansion Panel is lost. EXP-OK | EXP-ALM

Table 2-30. RTRV-COND Output Fields (Continued)

Field	Description
extalm1 extalm2	Indicates if external equipment is generating alarm(s). EXT1-OK | EXT1-ALM EXT2-OK | EXT2-ALM
ioc1 ioc2	Indicates if the system is equipped with an IOC module in the specified slot. IOC1-EQPT | IOC1-UNEQPT IOC2-EQPT | IOC2-UNEQPT
system	Indicates the system output quality level (1 through 9)
date	The date the system was last provisioned by a user. The format is *YY-MM-DD*, where *YY* is the 2-digit year, *MM* is the 2-digit representation of the month, and *DD* is the day of the month.
time	The time the system was last provisioned by a user. The format is *HH*:*MM*:*SS*, where *HH* is the hour in 24-hour format, *MM* is the minutes, and *SS* is the seconds.
<aid> =IMC	
ioc1comm ioc2comm	Indicates if an IOC1(2) communication alarm is active. IOC1(2)COMM-OK | IOC1(2)COMM-ALM

<aid> = IOC1 and IOC2

Note: The following status conditions are reported by the IOC modules, but are stored in the IMC module. When the RTRV-COND command is received by the unit, the IMC module reports the last status conditions it received from the IOC modules. If a given IOC module is removed or develops a communication problem, the states as reported by the IMC might not be accurate.

iocstatus	The current status of the specified IOC module: OK | ALM (IOCFAIL).
ioccomm	Indicates if a communication alarm from the IOC1(2) to the IOC2(1) module is active. IOC1TO2COMM-OK | IOC1TO2COMM-ALM IOC2TO1COMM-OK | IOC2TO1COMM-ALM
imc1comm imc2comm	Indicates if a communication alarm from the IMC to the IOC2(1) module is active. IMC1COMM-OK | IMC1COMM-ALM IMC1COMM-OK | IMC1COMM-ALM

<aid> = PRS and INPp

prsstatus inpstatus	The current status of the specified input: OK | ALM

<aid> = GPS

gpsstatus	Indicates the current state of the GPS input, if an alarm is active, and whether the TPIUEQPT alarm is active: OK | ALM | UNEQUIPPED

Table 2-30. RTRV-COND Output Fields (Continued)

Field	Description
<aid> = OUTg	
outstatus	Indicates the current state of the specified output, if an alarm is active, and whether the Output module is installed: OK | ALM | UNEQUIPPED
<aid> = RTMg	
rtm1status rtm2status	Indicates the current state of the specified Retimer, if an alarm is active on the port, and whether the Retimer module is installed: OK | ALM | UNEQUIPPED

Example

To display the current state and status for all AIDs:

Input:

```
RTRV-COND::ALL:TP1000;
```

Response Example:

```
"TP-SSU" 05-02-10 13:37:39
M  TP1000 COMPLD
"SYS:PWRA-OK,PWRB-OK,EXP-OK,EXT1-OK,EXT2-OK,IOC1-EQPT,
IOC2-EQPT,2,05-02-10 13:37:39"
   "IMC:IOC1COMM-OK,IOC2COMM-OK"
   "IOC1:OK,IOC1TO2COMM-OK,IMC1COMM-OK"
   "IOC2:OK,IOC2TO1COMM-OK,IMC2COMM-OK"
   "GPS:OK"
   "PRS:OK"
   "INP1:OK"
   "INP2:OK"
   "OUTA:OK"
   "OUTB:OK"
   "OUTC:OK"
   "OUTD:OK"
   "RTMA:OK"
   "RTMB:OK"
   "RTMC:OK"
   "RTMD:OK"
;
```

Autonomous Message:

```
None.
```

Retrieve Craft Data (RTRV-CRAFT)

This command retrieves information about the system state, clock mode of operation, input provisioning, and output provisioning.

This command has a default access level of USER.

Syntax

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

Notes:

■   The information displayed for the system input, output, and expansion components is reported by the active IOC.

■   If neither IOC is active, the information for the input and output components and some of the system components is determined by the IOC1 module if it is installed, or the IOC2 module if the IOC1 module is not installed.

■   If the IMC module cannot read information from either IOC module, the related information is not displayed in the command output.

■   If either an IOC1(2)EQPT or IOC1(2)COMM alarm is active, then no IOC1(2) information is displayed.

Command Output

The following shows the output format of the command, and Table 2-31 explains the various fields in the command output:

Response Format:

```
<cr><lf><lf>
    sid date time<cr><lf>
M  ctag COMPLD<cr><lf>
    "SYS:<pwra>,<pwrb>,<expfail>,<extalm1>,<extalm2>,<ioc1eqpt>,<ioc2eqpt>,<sysqlevel>,
     <lastdat>,<lasttim>,<syncmode>,<refmode>,<inpref>,<clrdelay>,<fltdelay>,<inacttime>,
     <logecho>"<cr><lf>
    "IMC:<ioc1comm>,<ioc2comm>"<cr><lf>
    "COML:<baud>,<flow>,<echo>"<cr><lf>
    "COMR:<baud>,<flow>,<echo>"<cr><lf>
    "COMI:<ipaddr>,<ipgate>,<ipsubnet>,[<echo>]"<cr><lf>
[   "IOC1:<iocstatus>,<ioccomm>,<imccomm>,<iocstate>,<iocmode>,<clkmode>,
     <clktype>"<cr><lf>]
[   "IOC2:<iocstatus>,<ioccomm>,<imccomm>,<iocstate>,<iocmode>,<clkmode>,<clktype>"<cr><lf>]
    "GPS:<gpsstatus>,<instate>,<qlevel>,<priority>,<utc>,<mode>,<pos>,<elevmask>"<cr><lf>
    "PRS:<prsstatus>,<instate>,<qlevel>,<priority>,<frmtype>"<cr><lf>
    "INP1:<inpstatus>,<instate>,<qlevel>,<priority>,<frmtype>,<crcena>,<ssmena>
    ,<ssmbit>"<cr><lf>
    "INP2:<inpstatus>,<inpstate>,<qlevel>,<priority>,<frmtype>,<crcena>,<ssmena>
    <ssmbit>"<cr><lf>
    "OUTA:<outstatus>,<outstate>,<frmtype>,<freeflt>,<holdflt>"<cr><lf>
    "OUTB:<outstatus>,<outstate>,<frmtype>,<freeflt>,<holdflt>"<cr><lf>
    "OUTC:<outstatus>,<outstate>,<frmtype>,<freeflt>,<holdflt>"<cr><lf>
    "OUTD:<outstatus>,<outstate>,<frmtype>,<freeflt>,<holdflt>"<cr><lf>
    "RTMA:<rtmstatus>,<rtmstate>,<rtmlbo>,<freeflt>,<holdflt>,<rtmslip>"<cr><lf>
    "RTMB:<rtmstatus>,<rtmstate>,<rtmlbo>,<freeflt>,<holdflt>,<rtmslip>"<cr><lf>
    "RTMC:<rtmstatus>,<rtmstate>,<rtmlbo>,<freeflt>,<holdflt>,<rtmslip>"<cr><lf>
    "RTMD:<rtmstatus>,<rtmstate>,<rtmlbo>,<freeflt>,<holdflt>,<rtmslip>"<cr><lf>
;
```

Table 2-31. RTRV-CRAFT Output Fields

Field	Description
<aid> = SYS	
pwra pwrb	Indicates if the IMC has detected a loss of power at the Power A(B) connection. PWRA(B)-OK | PWRA(B)-ALM
expnequip	Indicates if the connection to the Expansion Panel is lost. EXP-EQPT | EXP-UNEQPT
extalm1 extalm2	Indicates if external equipment is generating alarm(s). EXT1(2)-OK | EXT1(2)-ALM
ioc1 ioc2	Indicates if the system is equipped with an IOC module in the specified slot. IOC1-EQPT | IOC1-UNEQPT IOC2-EQPT | IOC2-UNEQPT
sysqlevel	The Output quality level. 1 | 2 | ... | 9
lastdat	The date the system was last provisioned by a user. *YY-MM-DD*, where *YY* = 2-digit year, *MM* = 2-digit month, and *DD* = day
lasttim	The time the system was last provisioned by a user. *HH:MM:SS*, where *HH* is the hour in 24-hour format, *MM* = minutes, *SS* = seconds

Table 2-31. RTRV-CRAFT Output Fields (Continued)

Field	Description
syncmode	The TimeProvider system's currently provisioned operating mode. SSU | SUB | PRR
refmode	The reference selection mode. AUTO | FORCED
inpref	The input reference that is selected when the reference mode (REFMODE) is set to forced. GPS | PRS | INP1 | INP2 | NONE
clrdelay	The time that elapses after a signal fault clears and before the associated alarm condition clears. This delay helps prevent an alarm from clearing before the signal is stable. 0 | 1 | ... | 1000
fltdelay	The time that elapses after an LOS, AIS, or OOF fault occurs and before the associated alarm condition is set. This delay helps prevent spurious alarms. 1 | 2 | ... | 15
inacttime	The amount of user command inactivity time, which determines the amount of inactivity time before the user is automatically logged off of the system. 0 (Disabled) | 100 | 101 | ... | 10000
logecho	Indicates if login and logout events are echoed to the local terminal. ENABLE | DISABLE
<aid> = IMC	
imc1comm imc2comm	Indicates if a communication alarm from the IMC to the IOC2(1) module is active. IMC1COMM-OK | IMC1COMM-ALM IMC1COMM-OK | IMC1COMM-ALM
<aid> = COML and COMR	
baud	The serial port's baud rate setting. 2400 | 9600 | 19200 | 38400 | 57600 | 115200
flow	Indicates the current serial port flow control. NONE | SW | HW | SWHW
echo	Indicates if input is echoed to the local terminal on the port. ENABLE | DISABLE
<aid> = COMI	
ipaddr	The IP address of the Network Element.
ipgate	The IP address of the default gateway.
ipsubnet	The subnet mask (see IPSUBNET, on page 55) for a description of the values that might be returned).
echo	Indicates if input is echoed to the local terminal on the port. ENABLE | DISABLE

Table 2-31. RTRV-CRAFT Output Fields (Continued)

Field	Description
\<aid\> = IOC1 and IOC2	
Note: The following status conditions are reported by the IOC modules, but are stored in the IMC module. When the RTRV-COND command is received by the unit, the IMC module reports the last status conditions it received from the IOC modules. If a given IOC module is removed or develops a communication problem, the states as reported by the IMC might not be accurate.	
iocstatus	The current status of the specified IOC module. OK | ALM (IOCFAIL).
ioccomm	Indicates if a communication alarm from the IOC1(2) to the IOC2(1) module is active. IOC1TO2COMM-OK | IOC1TO2COMM-ALM IOC2TO1COMM-OK | IOC2TO1COMM-ALM
imc1comm imc2comm	Indicates if a communication alarm from the IMC to the IOC2(1) module is active. IMC1COMM-OK | IMC1COMM-ALM IMC1COMM-OK | IMC1COMM-ALM
iocstate	Indicates the service mode of the IOC module. INSRV | OOSRV
iocmode	Indicates if the IOC module is active. ACTIVE | STANDBY
clkmode	The current mode of the local oscillator on the IOC module. WARMUP | FREERUN | FASTLOCK | BRIDGING | HOLDOVER | LOCKED
clktype	The assumed SSM quality level for the IOC module's clock. ST3E | TYPEI | ST2 | TYPEII
\<aid\> = GPS	
gpsstatus	The current status of the GPS. OK | ALM | UNEQUIPPED (TPIUEQPT determines unequipped)
instate	The state of the GPS input. ENABLE | DISABLE | MONITOR
qlevel	The provisioned quality level for the GPS input. 1 | 2 | ... | 9
priority	The provisioned priority level for the GPS input. 1 | 2 | 3 | 4
utc	Universal Coordinated Time setting.
mode	The user-specified position mode. AUTO | MANUAL
pos	The antenna latitude, longitude, and height setting. dd-mm-ff.ff (N or S),dd-mm-ff.ff (E or W),+/-hhhh.hh
elevmask	The current elevation mask. The range is 5 to 45°.

Table 2-31. RTRV-CRAFT Output Fields (Continued)

Field	Description
\<aid> = PRS	
prsstatus	The current status of the PRS. OK | ALM
instate	The state of the PRS input. ENABLE | DISABLE | MONITOR
qlevel	The provisioned quality level for the PRS input. 1 | 2 | ... | 9
priority	The provisioned priority level for the PRS input. 1 | 2 | 3 | 4
frmtype	The PRS input frequency setting. 2m | 5M | 10M
\<aid> = INP1 and INP2	
inpstatus	The current status of the specified input. OK | ALM
instate	The state of the specified input. ENABLE | DISABLE | MONITOR
qlevel	The provisioned priority level for the specified input. 1 | 2 | ... | 9
priority	The provisioned priority level for the specified input. 1 | 2 | 3 | 4
frmtype	The frame signal type provisioned for the specified input. 2M | CCS | D4 | ESF | CC
rqlevel	The quality level received on the specified input. 1 | 2 | ... | 10
crcena	Indicates if the specified input is provisioned to utilize CRC4 checking. ENABLE | DISABLE
ssmena	Indicates if the specified input is provisioned to read the received SSM. ENABLE | DISABLE
ssmbit	The bit position at which the specified input is provisioned to read SSM. 4 | 5 | 6 | 7 | 8
\<aid> = OUTA, OUTB, OUTC, and OUTD	
outstatus	The current status of the specified output group. OK | ALM | UNEQUIPPED
outstate	The state of the specified output group. ENABLE | DISABLE

Table 2-31. RTRV-CRAFT Output Fields (Continued)

Field	Description
frmtype	The framing type that the specified output group is provisioned to generate. 2M | CAS | D4 | ESF | CC | ISOLATED_1
freeflt	The type of signal to be generated on the specified output group when the Local Oscillator enters Free-run mode. ON | SQUELCH | AIS
holdflt	The type of signal to be generated on the specified output group when the Local Oscillator enters Holdover mode. ON | SQUELCH | AIS
<aid> = RTMA, RTMB, RTMC, RTMD	
rtmstatus	The status of the specified Retimer group or port. OK | ALM | UNEQUIPPED
rtmstate	The status of the specified Retimer group or port. ENABLE | DISABLE
rtmlbo	The Line Build-Out value for the specified Retimer group or port. 0 | 1 | 2 | 3 | 4
freeflt	The type of signal to be generated on the specified Retimer group when the Local Oscillator enters Free-run mode. RETIME | CUTTHRU
holdflt	The type of signal to be generated on the specified Retimer group when the Local Oscillator enters Holdover mode. RETIME | CUTTHRU
rtmslip	The current number of allowed slips in a 24-hour period. 0 | 1 | ... | 255

Example

To display all current state, status, and provisioning information:

Input:

```
RTRV-CRAFT:::TP1000;
```

Response Example:

```
   "TP-SSU" 05-02-10 13:37:39
M  TP1000 COMPLD
"SYS:PWRA-OK,PWRB-OK,EXP-OK,EXT1-OK,EXT2-OK,IOC1-EQPT,IOC2-EQPT,1,05-02-02,15
-53-10,PRR,AUTO,GPS,5,5,0,ENABLE"
   "IMC:IOC1COMM-OK,IOC2COMM-OK"
   "COML:9600,NONE,DISABLE"
   "COMR:9600,NONE,DISABLE"
   "COMI:192.168.21.46,192.168.21.1,255.255.255.0,DISABLE"
   "IOC1:OK,IOC1TO2COMM-OK,IMC1COMM-OK,INSRV,ACTIVE,LOCKED,TYPEI"
   "IOC2:OK,IOC2TO1COMM-OK,IMC2COMM-OK,OOSRV,STANDBY,,ST2"
   "GPS:OK,ENABLE,1,1,05-02-03,17-18-34,AUTO,30-28-8.39N,97-40-35.21W,266.4,10"
   "PRS:OK,ENABLE,2,1,2M"
   "INP1:ALM,ENABLE,2,1,2M,E1,2,DISABLE,DISABLE,8"
   "INP2:ALM,ENABLE,2,1,2M,E1,2,DISABLE,DISABLE,8"
   "OUTA:OK,DISABLE,2M,ON,ON"
   "OUTB:OK,DISABLE,2M,SQUELCH,ON"
   "OUTC:OK,ENABLE,2M,SQUELCH,ON"
   "OUTD:OK,ENABLE,CC,ON,ON"
   "RTMA:OK,DISABLE,2,RETIME,RETIME,4"
   "RTMB:OK,DISABLE,0,RETIME,SQUELCH4"
   "RTMC:OK,ENABLE,4,SQUELCH,RETIME,4"
   "RTMD:OK,ENABLE,4,SQUELCH,RETIME,4"
;
```

Autonomous Message:

```
None.
```

Retrieve Date (RTRV-DAT)

This command retrieves the system date, time, and local offset.

This command has a default access level of USER.

Syntax

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

Parameter	Value	Description
<aid>	SYS	The command's effect is at the system level.

Command Output

The following shows the output format of the command, and Table 2-32 explains the various fields in the command output:

Response Format:

```
<cr><lf><lf>
    sid date time<cr><lf>
M   ctag COMPLD<cr><lf>
    "SYS:date,time,offset"<cr><lf>
;
```

Table 2-32. RTRV-DAT Output Fields

Field	Description
date	The currently set system date, in the format *yy-mm-dd*: *yy* is the 2-digit year, *mm* is the month, *dd* is the day of the month.
time	The currently set system time, in the format *hh-mm-ss*: *hh* is the hour, in 24-hour format, *mm* is the minutes, *ss* is the seconds.
offset	The current local time's offset from UTC , in the format $\pm hh\text{-}mm$: *hh* is the hour offset from UTC; ± 12 hours, *mm* is the minute offset from UTC.

Example

To display the current system date, time, and local offset:

Input:

```
RTRV-DAT::SYS:TP1000;
```

Normal Response:

```
    "TP-SSU" 05-02-10 13:37:39
M   TP1000 COMPLD
    "SYS:05-02-10 13:37:39,00-00"
;
```

Autonomous Message:

```
None.
```

Retrieve Equipment (RTRV-EQPT)

This command retrieves currently provisioned equipment parameters.

This command has a default access level of USER.

Syntax

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

Parameter	Value	Description
<aid>	SYS	Equipment settings for system-level. **Note:** See Table 2-6 for <keywords> and descriptions of the possible <values>.
	COM*p*	Equipment settings for the communication port specified by *p*: *p* is "L" for the local serial port. *p* is "R" for the remote serial port. *p* is "I" for the IP (Ethernet) port. **Note:** See Table 2-7 for <keyword> and <value> descriptions.
	IOC*m*	Equipment settings for the IOC module specified by *m*: *m* is "1" for the slot marked "IOC 1" on the top of the shelf. *m* is "2" for the slot marked "IOC 2" on the top of the shelf. **Note:** See Table 2-8 for <keyword> and <value> descriptions.
	GPS	Equipment settings for the GPS system input. **Note:** See Table 2-9 for <keyword> and <value> descriptions.
	PRS	Equipment settings for the PRS system input. **Note:** See Table 2-10 for <keyword> and <value> descriptions.
	INP*p*	Equipment settings for the input port specified by *p*: *p* is "1" for the input marked INP 1 on the Input module. *p* is "2" for the input marked INP 2 on the Input module. **Note:** See Table 2-11 for <keyword> and <value> descriptions.
	OUT*g*	Equipment settings for the output group specified by *g*: *g* is "A" for the group marked "A" on the main shelf. *g* is "B" for the group marked "B" on the main shelf. *g* is "C" for the group marked "C" on the main shelf. *g* is "D" for the group marked "D" on the main shelf. **Note:** See Table 2-12 for <keyword> and <value> descriptions.
	RTM*g*[-*p*]	Equipment settings for the Retimer module or port specfied by g or p: *g* is "A" for the group marked "A" on the main shelf. *g* is "B" for the group marked "B" on the main shelf. *g* is "C" for the group marked "C" on the main shelf. *g* is "D" for the group marked "D" on the main shelf. *p* is "1" for the port marked 1 on the Retimer module. *p* is "2" for the port marked 2 on the Retimer module. **Note:** See Table 2-13 for <keyword> and <value> descriptions.

Normal Retrieve Response:

```
<cr><lf><lf>
   sid date time<cr><lf>
M  ctag COMPLD<cr><lf>
   ”<aid>:<keyword>,<value>”<cr><lf>
;
```

Table 2-33. RTRV-EQPT Output Field

Field	Description
<aid>	The access identifier for the equipment component (Refer to ED-EQPT command for valid <aid>)
<keyword>	The specific equipment parameter being requested (Refer to ED-EQPT command for valid <keyword>)
<value>	The current setting of the requested equipment parameter

Example

To display the current baud rate setting for the local serial communications (COML) port:

Input:

```
RTRV-EQPT::COML:TP1000::BAUD;
```

Response Example:

```
   "TP-SSU" 05-02-10 13:37:39
M  TP1000 COMPLD
   "COML:BAUD,9600"
;
```

Autonomous Message:

```
None.
```

Retrieve GPS Status (RTRV-GPS-STAT)

This command displays the position of the GPS receiver, UTC time and status information for each of the GPS satellites in view.

This command has a default access level of USER.

Syntax

```
RTRV-GPS-STAT:[<tid>]::[<ctag>];
```

Table 2-34. RTRV-GPS-STAT Output Fields

Field	Description
mode	The GPS Positioning Mode.
pos	dd-mm-ff.ff(N or S),dd-mm-ff.ff(E or W),+/-hhhh.h
sv	Satellite Vehicle Number, 0 through 32
hlth	Satellite Health, OK | UNH
snr	Signal to noise ration, rr
svel	Satellite Elevation, dd (degrees)
svaz	Satellite Azimuth, ddd (degrees)

Command Output

The following shows the output format of the command, and Table 2-34 explains the various fields in the command output:

Response Format

```
<cr><lf><lf>
   sid date time<cr><lf>
M  ctag COMPLD<cr><lf>
   "GPS:<mode>,<pos>"<cr><lf>
   "GPS:<sv>,<hlth>,<snr>,<svel>,<svaz>>"<cr><lf>
;
```

Example

To display the current system inventory:

```
RTRV-GPS-STAT:::TP1000;
```

Response Example:

```
   "TP-SSU" 05-02-10 13:37:39
M  TP1000 COMPLD
   "GPS:AUTO,0-0-0.0N,0-0-0.0E,0.0"
;
```

Autonomous Message:

```
None.
```

Retrieve Header (RTRV-HDR)

This command displays the response header information, which includes the system identifier (<sid>), and the system date and time. It can be used to verify operation of the communication link between the TimeProvider and the computer.

This command has a default access level of NONE.

Syntax

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

Example

To retrieve the response header from the TimeProvider:

Input:

```
RTRV-HDR:::TP1000;
```

Normal Response:

```
   "TP-SSU" 05-02-10 13:37:39
M  TP1000 COMPLD
;
```

Autonomous Message:

```
None.
```

Retrieve Inventory (RTRV-INV)

This command retrieves the system inventory.

This command has a default access level of USER.

Syntax

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

Command Output

The following shows the output format of the command, and Table 2-35 explains the various fields in the command output.

Table 2-35. RTRV-INV Output Fields

Field	Description
part_no	The module's part number.
ser_no	The module's serial number.
clei	The Common Language Equipment Identification (CLEI) code for the module.
hw_ver	The revision number of the module's hardware.

Table 2-35. RTRV-INV Output Fields (Continued)

Field	Description
fw_ver	The revision number of the module's firmware.
mac_adrs (IMC only)	The media access control (MAC) address of the IMC module.

Response Format:

```
<cr><lf><lf>
   sid date time<cr><lf>
M  ctag COMPLD<cr><lf>
   "IMC:<p/n>,<s/n>,<clei>,<hw ver>,<fw ver>,<mac>"<cr><lf>
   "IOC1:<p/n>,<s/n>,<clei>,<hw ver>,<fw ver>"<cr><lf>
   "IOC2:<p/n>,<s/n>,<clei>,<hw ver>,<fw ver>"<cr><lf>
   "RTMA:<p/n>,<s/n>,<clei>,<hw ver>"<cr><lf>
   "RTMB:<p/n>,<s/n>,<clei>,<hw ver>"<cr><lf>
   "RTMC:<p/n>,<s/n>,<clei>,<hw ver>"<cr><lf>
   "RTMD:<p/n>,<s/n>,<clei>,<hw ver>"<cr><lf>
;
```

> **Note:** If an element of a module's inventory is not available, the corresponding field is left blank in the command output.

Example

To display the current system inventory:

Input:

```
RTRV-INV:::TP1000;
```

Response Example:

```
   "TP-SSU" 05-02-10 13:37:39
M  TP1000 COMPLD
   "IMC:,12345,,,1.02.01.build.16,00-60-08-00-A0-6E"
   "IOC1:090-58021-02,C12345,CLEI012345,B,1.02.07"
   "IOC2:090-58022-02,C12345,CLEI012345,B,1.02.07"
   "RTMA:090-58081-02,C12345,CLEI012345,B,1.00.00"
   "RTMB:090-58081-02,C12345,CLEI012345,B,1.00.00"
   "RTMC:090-58081-02,C12345,CLEI012345,B,1.00.00"
   "RTMD:090-58081-02,C12345,CLEI012345,B,1.00.00"
;
```

Autonomous Message:

```
None.
```

Retrieve LED Status (RTRV-LED)

This command retrieves the current state (color) of the various LED indicators that are on the panels of the IMC and IOC modules.

This command has a default access level of USER.

Syntax

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

Parameter	Value	Description
<aid>	(null)	Retrieves the status of all LED indicators.
	IMC	Retrieves the status of the LED indicators on the IMC panel.
	IOC1	Retrieves the status of the LED indicators on the IOC1 panel.
	IOC2	Retrieves the status of the LED indicators on the IOC2 panel.

Command Output

The following shows the output format of the command, and Table 2-36 explains the various fields in the command output:

Response Format:

```
<cr><lf><lf>
   sid date time<cr><lf>
M  ctag COMPLD<cr><lf>
   "<aid>:indicator,state"<cr><lf>
   "<aid>:indicator,state"<cr><lf>
     .
     .
   "<aid>:indicator,state"<cr><lf>
```

Table 2-36. RTRV-LED Output Fields

Field	Description
indicator	The name of the LED indicator for which the state is retrieved. This corresponds to the label on the panel of the unit.
state	The current state of the LED indicator: *OFF* – The indicator is currently not lit. *GREEN* – The indicator is currently lit, and the color is green. *ORANGE* – The indicator is currently lit, and the color is orange. *YELLOW* – The indicator is currently lit, and the color is yellow. *RED* – The indicator is currently lit, and the color is red. *FLASHING_GREEN* – The indicator is currently alternating between OFF and GREEN, at a 0.5 second rate.

> **Note:** Refer to the *TimeProvider User Guide* (097-58001-02) for a
> description of the various LED indicator states.

Example

To display the current state of all IMC and IOC module LED indicators:

Input:

```
RTRV-LED:::TP1000;
```

Response Example:

```
    "TP-SSU" 05-02-10 13:37:39
M   TP1000 COMPLD
    "IMC:POWER,GREEN"
    "IMC:FAIL,OFF"
    "IMC:ALARM,RED"
    "IMC:CRITICAL,RED"
    "IMC:MAJOR,OFF"
    "IMC:MINOR,OFF"
    "IMC:ACO,OFF"
    "IOC1:POWER,GREEN"
    "IOC1:FAIL,OFF"
    "IOC1:ALARM,RED"
    "IOC1:ACTIVE,GREEN"
    "IOC1:HOLDOVER,OFF"
    "IOC1:GPS,RED"
    "IOC1:PRS-Q,RED"
    "IOC1:PRS-A,OFF"
    "IOC1:INP1-Q,OFF"
    "IOC1:INP1-A,OFF"
    "IOC1:INP2-Q,OFF"
    "IOC1:INP2-A,OFF"
    "IOC2:POWER,GREEN"
    "IOC2:FAIL,OFF"
    "IOC2:ALARM,RED"
    "IOC2:ACTIVE,OFF"
    "IOC2:HOLDOVER,OFF"
    "IOC2:GPS,RED"
    "IOC2:PRS-Q,RED"
    "IOC2:PRS-A,OFF"
    "IOC2:INP1-Q,OFF"
    "IOC2:INP1-A,OFF"
    "IOC2:INP2-Q,OFF"
    "IOC2:INP2-A,OFF"
;
```

Autonomous Message:

```
None.
```

Retrieve Log (RTRV-LOG)

This command displays all events in the event log in chronological order (first in, first out). The event log contains the last 500 alarmed and non-alarmed events.

> **Note:** Alarms with an alarm level set to NONE are not stored in the event log.

This command has a default access level of USER.

Syntax

```
RTRV-LOG:[<tid>]:[<aid>]:[<ctag>][::<keyword>,[index],[,count],[startdate],
[stopdate]];
```

Command Output

The following shows the event output format of the command and Table 2-39 explain the various fields in the output. The Alarm format follows this explanation of events and Table 2-39 explains the fields in the alarm output.

Parameter	Value	Description
<aid>	ALL (or *null*)	Retrieves events containing any aid. **Note:** See Table 2-37 for <keyword> descriptions.
	IMC	Retrieves events with an aid field of IMC. **Note:** See Table 2-37 for <keyword> descriptions.
	IOC	Retrieves events with an aid field of IOC. **Note:** See Table 2-37 for <keyword> descriptions.
	IOC*m*	Retrieves events with an aid field of IOC*m*, where: *m* is "1" for the slot marked "IOC 1" on top of the shelf. *m* is "2" for the slot marked "IOC 2" on top of the shelf. **Note:** See Table 2-37 for <keyword> descriptions.
	GPS	Retrieves events with an aid field of GPS. **Note:** See Table 2-37 for <keyword> descriptions.
	PRS	Retrieves events with an aid field of PRS. **Note:** See Table 2-37 for <keyword> descriptions.
	INP*p*	Retrieves events with an aid field of INP*p*, where: p is "1" for the input marked INP 1 on the Input module. p is "2" for the input marked INP 2 on the Input module. **Note:** See Table 2-37 for <keyword> descriptions.
	OUT*g*	Retrieves events with an aid field of OUT*g*, where: *g* is "A" for the group marked "A" on the main shelf. *g* is "B" for the group marked "B" on the main shelf. *g* is "C" for the group marked "C" on the main shelf. *g* is "D" for the group marked "D" on the main shelf. **Note:** See Table 2-37 for <keyword> descriptions.

Table 2-37. RTRV-LOG - Keywords for all <aids>

<keyword>	Description	Value
ALL (or *null*)	Retrieves both alarmed and non-alarmed events for the specified aid.	N/A
EVT	Retrieves non-alarmed events for the specified aid.	N/A
ALM	Retrieves alarmed events for the specified aid.	N/A
index	A specified number of events to skip before displaying events	1 to 500
count	The number of recent events or alarms to display.	1 to 500
startdate	Start date of the event history to be displayed	YY-MM-DD
stopdate	Stop date of the event history to be displayed	YY-MM-DD

Event Response Format:

```
<cr><lf><lf>
    sid date time<cr><lf>
alrmcde atag REPT EVT [AIDTYPE]<cr><lf>
    "aid,aidtype:condtype,condeff,ocrdat,ocrtim,,,,:condscr"<cr lf>
    "aid,aidtype:condtype,condeff,ocrdat,ocrtim,,,,:condscr"<cr lf>
       .
    "aid,aidtype:condtype,condeff,ocrdat,ocrtim,,,,:condscr"<cr lf>
    ;
```

Table 2-38. RTRV-LOG Event Output Fields

Field	Description
aidtype	Specifies if the event is associated with the internal operation of the system (EQPT), or external to the system or facility (T1).
ntfcncde	The notification code for the alarm or event. The notification code can be CR (critical alarm), MJ (major alarm), MN (minor alarm), CL (clearing event), or NA (non-alarmed event or report).
condtype	The TL1 alarm or event code that is associated with the event or alarm. **Note:** Table 1-6 shows all of the possible TimeProvider event codes (event condition types), and Table 1-7 shows all of the possible TimeProvider alarm condition types.
condeff	Defines the effect of the event on the system: CL indicates clearing of a standing condition, SC indicates a standing condition is raised, and TC indicates a transition of a condition.
ocrdat	The date the event occurred, in the format *YY-MM-DD*.
ocrtim	The time that the event occurred, in the format *HH*:*MM*:*SS*.
condscr	The description of the alarm or event. It is a quoted text string, preceded with the "\" escape character. **Note:** Table 1-6 shows all of the possible TimeProvider event descriptions (event condition strings), and Table 1-7 shows all of the possible TimeProvider alarm and clearing alarm condition strings.

Input:

```
RTRV-LOG:::IOC1:TP1000::EVT;
```

Event Response Example:

```
   "TP-SSU" 05-02-10 13:37:39
M  TP1000 COMPLD
   "IOC1,EQPT:BTBCKUP,SC,05-02-10,13-37-39,,,,:\"BESTIME BACKUP REFERENCES DISQUALIFIED\""
   "IOC1,EQPT:CLKTYPE,TC,05-02-10,13-35-56,,,,:\"CLOCK TYPE HAS CHANGED\""
```

Alarm Response Format:

```
<cr><lf><lf>
    sid date time<cr><lf>
M   ctag COMPLD<cr><lf>
    "<aid>,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtim[:condscr]"<cr><lf>
    "<aid>,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtim[:condscr]"<cr><lf>
      .
      .
    "<aid>,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtim[:condscr]"<cr><lf>
;
```

Table 2-39. RTRV-LOG Alarm Output Fields

Field	Description
aidtype	Specifies if the event is associated with the internal operation of the system (EQPT), or external to the system or facility (T1).
ntfcncde	The notification code for the alarm or event. The notification code can be CR (critical alarm), MJ (major alarm), MN (minor alarm), CL (clearing event), or NA (non-alarmed event or report).
condtype	The TL1 alarm or event code that is associated with the event or alarm. **Note:** Table 1-6 shows all of the possible TimeProvider event codes (event condition types), and Table 1-7 shows all of the possible TimeProvider alarm condition types.
srveff	Whether the event is service affecting (SA) or non-service affecting (NSA).
ocrdat	The date the event occurred, in the format *YY-MM-DD*.
ocrtim	The time that the event occurred, in the format *HH*:*MM*:*SS*.
condscr	The description of the alarm or event. It is a quoted text string, preceded with the "\" escape character. **Note:** Table 1-6 shows all of the possible TimeProvider event descriptions (event condition strings), and Table 1-7 shows all of the possible TimeProvider alarm and clearing alarm condition strings.

Example

To retrieve all alarmed and non-alarmed events which have an aid field of IOC1:

Input:

```
RTRV-LOG:::IOC1:TP1000::ALL;
```

Response Example:

```
    "TP-SSU" 05-02-10 13:37:39
M  TP1000 COMPLD
    "IOC1,EQPT:MN,CLKWARM,SA,05-02-10,12-00-10:\"CLOCK ENTERED WARM-UP MODE\""
    "IOC1,EQPT:CL,CLKWARM,SA,05-02-10,12-07-37:\"CLOCK EXITED WARM-UP MODE\""
    "IOC1,EQPT:MJ,CLKFREE,SA,05-02-10,12-07-37:\"CLOCK ENTERED FREE-RUN MODE\""
    "IOC1,EQPT:NA,IOCMODE,NSA,05-02-10,12-07-40:\"IOC MODE IS, ACTIVE\""
    "IOC1,EQPT:MJ,CLKFREE,SA,05-02-10,12-00-01:\"CLOCK ENTERED FREE-RUN MODE\""
    "IOC1,EQPT:CL,CLKFREE,SA,05-02-10,12-00-01:\"CLOCK EXITED FREE-RUN MODE\""
    "IOC1,EQPT:CR,CLKFREE,SA,05-02-10,12-00-01:\"CLOCK ENTERED FREE-RUN MODE\""
;
```

Autonomous Message:

```
    None.
```

Retrieve Network Equipment Type (RTRV-NETYPE)

This command retrieves the network equipment (NE) type from the unit, in this case, "TimeProvider."

This command has a default access level of NONE.

Syntax

```
RTRV-NETYPE:::[<ctag>];
```

Example

To retrieve the NE type from the TimeProvider:

Input:

```
RTRV-NETYPE:::TP1000;
```

Normal Response:

```
   "TP-SSU" 05-02-10 13:37:39
M  TP1000 COMPLD
   "TimeProvider"
;
```

Autonomous Message:

None.

Retrieve Sync (RTRV-SYNC)

This command retrieves equipment parameters associated with provisioning of the synchronization interfaces for the system inputs and outputs.

This command has a default access level of USER.

Syntax

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

Parameter	Value	Description
<aid>	SYS	The command's effect is on system-level input settings. **Note:** See Table 2-14 for <keyword> and <value> descriptions.
	GPS	The command's effect is on the GPS system input. **Note:** See Table 2-15 for <keyword> and <value> descriptions.
	PRS	The command's effect is on the PRS system input. **Note:** See Table 2-16 for <keyword> and <value> descriptions.
	INP*p*	The command's effect is on the input port specified by *p*: p is "1" for the input marked INP 1 on the Input module. p is "2" for the input marked INP 2 on the Input module. **Note:** See Table 2-17 for <keyword> and <value> descriptions.
	OUT*g*	The command's effect is on the output group specified by *g*: *g* is "A" for the group marked "A" on the main shelf. *g* is "B" for the group marked "B" on the main shelf. *g* is "C" for the group marked "C" on the main shelf. *g* is "D" for the group marked "D" on the main shelf. **Note:** See Table 2-18 for <keyword> and <value> descriptions.
	RTM*g*[-*p*]	The command's effect is on the Retimer module or port specfied by g or p: *g* is "A" for the group marked "A" on the main shelf. *g* is "B" for the group marked "B" on the main shelf. *g* is "C" for the group marked "C" on the main shelf. *g* is "D" for the group marked "D" on the main shelf. *p* is "1" for the port marked 1 on the Retimer module. *p* is "2" for the port marked 2 on the Retimer module. **Note:** See Table 2-19 for <keyword> and <value> descriptions.

Normal Retrieve Response:

```
<cr><lf><lf>
    sid date time<cr><lf>
M   ctag COMPLD<cr><lf>
    "<aid>:<keyword>,<value>"<cr><lf>
;
```

Table 2-40. RTRV-SYNC Output Field

Field	Description
<aid>	The access identifier for the equipment component (Refer to Edit Sync (ED-SYNC) for valid <aid>)
<keyword>	The specific equipment parameter being requested (Refer to Edit Sync (ED-SYNC) for valid <keyword>)
<value>	The current setting of the requested equipment parameter

Example

To retrieve the current priority setting for input reference 2:

Input:

```
RTRV-SYNC::INP2:TP1000::PRIORITY;
```

Response Example:

```
    "TP-SSU" 05-02-10 13:37:39
M   TP1000 COMPLD
    "INP2:PRIORITY,3"
;
```

Autonomous Message:

```
None.
```

Retrieve Performance Monitoring Data (RTRV-PM)

This command displays the current set of performance monitoring data for one input channel.

This command has a default access level of USER.

Syntax

```
RTRV-PM:[<tid>]:<aid>:[<ctag>]::<keyword>
[,[<startdat>][,<starttim>],[<stopdat>],[<stoptim]];
```

Parameter	Value	Description
<aid>	IOC[m]-GPS	GPS input on either of the two IOC modules.
	IOC[m]-PRS	PRS input on either of the two IOC modules.
	IOC[m]-INP[p]	INP input on either of the two IOC modules.

Table 2-41. RTRV-PM - Keywords for all <aids>

<keyword>	Description
FFOFF-60	1-Minute measurements of Fractional Frequency Offset stored for 24-hours.
MTIE	MTIE measurements for the current 600-second observation window, displayed in 1ns resolution.
MTIE24	MTIE measurement over the previous 24-hour period of 1ns resolution data.
PHASE	1-second phase data for the current 60 seconds of 100ps resolution data.
PHASE1S	1-second phase data reported up to 24 hours of 1ns resolution data.
PHASE1M	1-minute phase data reported up to 10800 minutes of 1ns resolution data.
TDEV24	TDEV measurement over the previous 24-hour period, displayed in nanoseconds as a decimal value.

Table 2-42. RTRV-PM Keyword Modifier Fields

Field	Description
<startdat>	Starting date for data sample.
<starttim>	Starting time for data sample.
<stopdat>	Stopping date for data sample.
<stoptim>	Stopping time for data sample.

Table 2-43. RTRV-PM Output Fields

Field	Value	Description
<aid>		Specified AID used in the command.
<monval>		The requested performance data (an absolute value).
<vldty>	COMPL NA OFF	Indicates if the data sample is considered a valid measurement by the system. COMPL – Data is valid over specified time period NA – Data is no available OFF – Port is disabled
<sampledat>		For Phase and FFOFF data the date represents the date of the first data sample of the data set. For MTIE and TDEV data the date represents the last date the data was calculated.
<sampletim>		For Phase and FFOFF data the time represents the time of the first data sample of the data set. For MTIE and TDEV data the time represents the last time the data was calculated.
<.>		A value that indicates the difference or delta from the <monval>

Example

To retrieve FFOFF data:

Input:

```
RTRV-PM::IOC1-GPS:TP1000::FFOFF-60;
```

Notes:
- To select a specific set of accumulated FFOFF-60 data from the previous 24 hours, enter the start date (`startdat`), start time (`starttim`), stop date (`stopdat`), and stop time (`stoptim`).
- If any `startdat` or `starttm` combination is null or outside of the previous 24-hour window, the current 1-Hour 1-Minute Fractional Frequency Offset data is displayed.
- The first line of the record has the first measurement requested, the timestamp (`<sampletim>`, `<sampledat>`) is associated with this measurement.

Response Format

```
<cr><lf><lf>
    sid date time<cr><lf>
M   ctag COMPLD<cr><lf>
    "IOCm-INPp:FFOFF-60,<monval>,<vldty>,<sampledat>,<sampletim>,<cr><lf>
    "<.>,<.>,<.>,<.>,<.>,<.>,<.>,<.>,<.>,<.>"<cr><lf>
    "<.>,<.>,<.>,<.>,<.>,<.>,<.>,<.>,<.>,<.>"<cr><lf>
```

Response Example:

```
TIMEPROVIDER 05-02-10 13:37:39
M TP1000 COMPLD
"IOC1-GPS:FFOFF-60,-59,COMPL,05-02-03,19-00-32"
   "10,-26,83,-101,-7,25,-31,-47,-32,183"
   "-129,-64,-51,-27,52,-41,70,-14,-7,63"
   "18,-89,-12,58,40,-101,-27,103,-4,10"
   "-1,-21,-12,-4,-4,-7,15,-19,113,-66"
   "42,10,-52,70,-94,22,87,-16,-74,113"
   "-16,75,-51,-11,-112,220,-212,-84,107,"
;
```

Example

To retrieve MTIE data:

Input:

```
RTRV-PM::IOC1-INP-2:TP1000::MTIE;
```

Response Format

```
   <sid> <date> <time><cr><lf>
M  <ctag> COMPLD<cr><lf>
   "IOCm-INPp:MTIE-a,<monval>,<vldty>,<sampledat>,<sampletim>"<cr><lf>
   "IOCm-INPp:MTIE-a,<monval>,<vldty>,<sampledat>,<sampletim>"<cr><lf>
```

Response Example:

```
TIMEPROVIDER 05-02-10 13:37:39
M TP1000 COMPLD
"IOC1-INP2:MTIE-1,1,COMPL,05-02-10,12-00-00"
"IOC1-INP2:MTIE-5,3,COMPL,05-02-10,12-00-00"
"IOC1-INP2:MTIE-10,6,COMPL,05-02-10,12-00-00"
"IOC1-INP2:MTIE-50,7,COMPL,05-02-10,12-00-00"
"IOC1-INP2:MTIE-100,8,COMPL,05-02-10,12-00-00"
"IOC1-INP2:MTIE-500,10,COMPL,05-02-10,12-00-00"
"IOC1-INP2:MTIE-1000,15,COMPL,05-02-10,12-00-00"
"IOC1-INP2:MTIE-5000,15,COMPL,05-02-10,12-00-00"
"IOC1-INP2:MTIE-10000,15,COMPL,05-02-10,12-00-00"
"IOC1-INP2:MTIE-50000,20,COMPL,05-02-10,12-00-00"
"IOC1-INP2:MTIE-86400,25,COMPL,05-02-10,12-00-00"
;
```

Example

To retrieve PHASE data:

Input:

```
RTRV-PM::IOC1-GPS:TP1000::PHASE;
```

> **Notes:**
> - This data record provides the most recent 60 seconds of phase data. The data resolution is 100pS resolution. PHASE1S and PHASE1M data record resolution is 1nS.
> - The first line of the record has the first measurement requested, the timestamp (<sampletim>, <sampledat>) are associated with this measurement.

Response Format

```
<cr><lf><lf>
   sid date time<cr><lf>
M  ctag COMPLD<cr><lf>
   "IOCm-INPp:PHASE,<monval>,<vldty>,<sampledat>,<sampletim>"<cr><lf>
   "<.>,<.>,<.>,<.>,<.>,<.>,<.>,<.>,<.>,<.>"<cr><lf>
   "<.>,<.>,<.>,<.>,<.>,<.>,<.>,<.>,<.>,<.>"<cr><lf>
```

Response Example:

```
TIMEPROVIDER 05-02-10 13:37:39
M TP1000 COMPLD
   "IOC1-GPS:PHASE,93.7,COMPL,05-02-03,20-15-32"
   "1.8,0.8,-1.4,-1.9,-0.1,-1.8,-2.1,0.8,1.5,0.9"
   "0.4,1.4,1.1,-2.1,-1.9,0.1,-1.9,-2.0,0.6,0.6"
   "-0.2,0.2,1.5,1.1,0.9,1.8,1.0,0.3,0.2,0.0"
   "-0.6,0.1,0.0,0.5,1.4,0.2,-0.2,0.0,-0.9,-1.1"
   "-0.6,-0.3,-0.6,-0.9,-0.9,-0.9,-0.8,-1.2,-0.6,4.1"
   "2.9,-0.2,1.7,1.8,-0.8,-1.7,-1.3,-1.5,-1.5,0.2"
;
```

Example

To retrieve PHASE1S data:

Input:

```
RTRV-PM::IOC1-GPS:TP1000::PHASE1S;
```

Notes:

- To select a specific set of accumulated phase data from the previous 24 hours, enter the start date (startdat), start time (starttim), stop date (stopdat), and stop time (stoptim).
- If any startdat / starttm combination is null or outside of the previous 24 hour window, the current 1-Hour 1-Second Phase data (1nS resolution) is displayed.
- The first line of the record has the first measurement requested, the timestamp (<sampletim>, <sampledat>) are associated with this measurement.

Response Format

```
<cr><lf><lf>
   sid date time<cr><lf>
M  ctag COMPLD<cr><lf>
   "IOCm-INPp:PHASE1S,<manval>,<vldty>,<sampledat>,<sampletim>,<cr><lf>
   "<.>,<.>,<.>,<.>,<.>,<.>,<.>,<.>,<.>,<.>"<cr><lf>
   "<.>,<.>,<.>,<.>,<.>,<.>,<.>,<.>,<.>,<.>"<cr><lf> <cr><lf><lf>
```

Response Example:

```
TIMEPROVIDER 05-02-03 20:20:51
M  TP1000 RTRV
   "IOC1-GPS:PHASE1S,80,COMPL,05-02-03,19-20-42"
   "0,-3,-2,-1,-1,1,2,3,1,2"
   "2,-1,-2,-2,0,-3,0,1,3,1"
   "2,1,0,0,-2,0,-1,-1,-2,0"
   "1,2,0,1,1,0,-3,-2,-1,-1"
   "-1,-2,2,2,2,0,2,2,0,-1"
   "-1,0,-1,-1,-2,-1,0,1,3,2"
   "2,2,1,0,-2,-1,0,-2,-1,0"
   "0,-1,-1,-1,0,-2,0,-1,0,-1"
   "0,0,1,3,3,3,3,2,0,-1"
   "-1,-1,-1,-1,0,0,0,0,1,0"
   "-1,0,0,0,-1,0,0,0,0,0"
   "0,1,0,1,1,0,0,1,1,0"
   "-3,-1,-2,-3,-2,-1,0,0,1,0"
   "1,1,2,2,2,-1,-2,-2,-2,-2"
   "-1,1,1,3,2,1,1,2,-1,-3"
   "-2,0,-1,-1,1,3,2,0,-2,-1"
   "-1,-1,-1,1,1,2,-1,-1,-2,0"
   "0,0,2,3,3,0,-1,-1,-1,-2"
   "0,0,0,0,0,0,0,1,3,0"
>
```

```
TIMEPROVIDER 05-02-03 20:20:56
M  TP1000 RTRV
   "0,-1,0,2,0,-2,-1,1,0,-1"
   "1,4,0,-1,0,3,0,-2,0,3"
   "1,-3,0,2,0,-3,0,2,0,-3"
   "0,1,0,-2,0,2,0,-2,-1,0"
   "2,0,0,2,4,1,-2,-1,0,0"
   "-3,0,3,1,-1,0,0,0,-3,0"
   "3,1,-1,-1,0,0,-3,0,2,1"
   "-2,0,0,-1,-3,0,3,2,-1,0"
   "1,1,-2,0,3,2,-3,-1,2,0"
   "-3,-1,2,1,-2,0,2,1,-1,0"
   "3,1,-2,0,0,-2,-2,1,1,-1"
   "0,3,0,-2,0,4,1,-2,0,1"
   "-1,-3,0,1,0,-1,0,-2,-2,1"
   "2,0,2,2,-1,-2,0,2,-1,0"
   "1,-1,-1,-2,-2,-2,1,1,0,2"
   "3,0,-2,0,-1,-1,1,3,0,2"
   "1,0,0,-1,-2,-1,0,0,-1,0"
   "0,-1,0,0,0,0,-1,0,-1,0"
   "0,0,0,0,0,0,0,0,0,0"
   "0,0,0,0,0,0,0,0,0,0"
>

TIMEPROVIDER 05-02-03 20:20:58
M  TP1000 COMPLD
   "0,0,0,0,0,1,0,0,0,0"
;
```

Example

To retrieve PHASE1M data:

Input:

```
RTRV-PM::IOC1-GPS:TP1000::PHASE1M;
```

Notes:

- To select a specific set of accumulated phase data from the previous 7 days, enter the start date (`startdat`), start time (`starttim`), stop date (`stopdat`), and stop time (`stoptim`).
- If any `startdat` / `starttm` combination is null or outside of the previous 24 hour window, the current 24-Hour 1-Minute Phase data (1 nS resolution) is displayed.
- The first line of the record has the first measurement requested, the timestamp (`<sampletim>`, `<sampledat>`) are associated with this measurement.

Response Format

```
<cr><lf><lf>
   sid date time<cr><lf>
M  ctag COMPLD<cr><lf>
   "IOCm-INPp:PHASE1M,<monval>,<vldty>,<sampledat>,<sampletim>,<cr><lf>
   "<.>,<.>,<.>,<.>,<.>,<.>,<.>,<.>,<.>,<.>"<cr><lf>
   "<.>,<.>,<.>,<.>,<.>,<.>,<.>,<.>,<.>,<.>"<cr><lf>
```

Response Example:

```
TIMEPROVIDER 05-02-03 20:34:20
M   TP1000 COMPLD
    "IOC1-GPS:PHASE1M,84,COMPL,05-02-03,19-33-32"
    "-1,1,0,-3,0,1,0,1,0,1"
    "-1,0,1,-1,1,3,0,-1,2,0"
    "0,-2,1,0,1,-5,5,2,0,-1"
    "-1,2,0,-2,0,-1,2,0,0,-3"
    "3,1,5,-1,4,0,-1,-2,1,1"
    "1,-1,-1,1,1,-2,-4,-3,-2,0"
;
```

Example

To retrieve TDEV24 data:

Input:

```
RTRV-PM::IOC1-INP2:TP1000::TDEV24;
```

Response Format:

```
<cr><lf><lf>
    sid date time<cr><lf>
M   ctag COMPLD<cr><lf>
  "IOCm-INPp:TDEV-a,<monval>,<vldty>,<sampledat>,<sampletim>"
  "IOCm-INPp:TDEV-a,<monval>,<vldty>,<sampledat>,<sampletim>"
;
```

Response Example

```
  TIMEPROVIDER 05-02-03 12:00:23
M CTAG COMPLD
  "IOC2-PRS:TDEV-1,0.9,COMPL,05-02-03,12-00-00"
  "IOC2-PRS:TDEV-5,0.4,COMPL,05-02-03,12-00-00"
  "IOC2-PRS:TDEV-10,0.3,COMPL,05-02-03,12-00-00"
  "IOC2-PRS:TDEV-50,0.8,COMPL,05-02-03,12-00-00"
  "IOC2-PRS:TDEV-100,1.1,COMPL,05-02-03,12-00-00"
  "IOC2-PRS:TDEV-500,1.3,COMPL,05-02-03,12-00-00"
  "IOC2-PRS:TDEV-1000,2.0,COMPL,05-02-03,12-00-00"
  "IOC2-PRS:TDEV-5000,2.2,COMPL,05-02-03,12-00-00"
  "IOC2-PRS:TDEV-7200,1.8,COMPL,05-02-03,12-00-00"
;
```

Autonomous Message:

None.

Retrieve System Mode (RTRV-SYS-MODE)

This command retrieves the TimeProvider's currently provisioned system operating mode. The response is one of the following values:

- *SSU* – The TimeProvider is provisioned in the Synchronization Supply Unit operating mode. In SSU mode, the system provides compliance with G.812, GR1244, and GR-378.

- *SUB* – The TimeProvider is provisioned in the Subtending SSU operating mode. In SUB mode, the system provides composite clock input tracking (phase following) compliant with GR-378.

- *PRR* – The TimeProvider is provisioned in the Primary Reference Receiver operating mode. In PRR mode, the GPS input is the only reference available for the system and the BesTime algorithm is engaged.

This command has a default access level of USER.

Syntax

```
RTRV-SYS-MODE:[<tid>]::[<ctag>];
```

Example

To retrieve the currently provisioned system operating mode:

Input:

```
RTRV-SYS-MODE:::TP1000;
```

Response Example:

```
    "TP-SSU" 05-02-10 13:37:39
M   TP1000 COMPLD
    SYS,EQPT:SYSMODE,SSU
;
```

Autonomous Message:

```
None.
```

Retrieve Threshold (RTRV-TH)

This command displays the alarm level set for a particular alarm. The IOC threshold attribute information is retrieved from the Active IOC.

This command has a default access level of USER.

Syntax

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

Parameter	Value	Description
<aid>	GPS	The command's effect is on the GPS system input.
	PRS	The command's effect is on the PRS system input.
	INP*p*	The command's effect is on the input port specified by *p*: *p* is "1" for the input marked INP 1 on the Input module. *p* is "2" for the input marked INP 2 on the Input module.
	RTM*g*	The command's effect is on the Retimer port specified by *g*: *g* is "A" for the group marked "A" on the main shelf. *g* is "B" for the group marked "B" on the main shelf. *g* is "C" for the group marked "C" on the main shelf. *g* is "D" for the group marked "D" on the main shelf.

Normal Response for Threshold Attributes:

```
<cr><lf><lf>
   sid date time<cr><lf>
M  ctag COMPLD<cr><lf>
   "<aid>:MTIE-1,<alarm threshold>,<pm status>"<cr><lf>*
   "<aid>:MTIE-5,<alarm threshold>,<pm status>"<cr><lf>*
   "<aid>:MTIE-10,<alarm threshold>,<pm status>"<cr><lf>*
   "<aid>:MTIE-50,<alarm threshold>,<pm status>"<cr><lf>*
   "<aid>:MTIE-100,<alarm threshold>,<pm status>"<cr><lf>*
   "<aid>:MTIE-500,<alarm threshold>,<pm status>"<cr><lf>*
   "<aid>:FFOFF-60,<alarm threshold>,<pm status>"<cr><lf>*
;
```

Table 2-44. RTRV-TH - Output Fields

Field	<keyword>	Description	<value>
<aid>		The aid associated with the PM ID	
<alarm threshold>		Performance threshold that generates an alarm. (see SET-ATTR, MTIE | FFOFF)	MTIE = 1 – 100000 FFOF = 1 – 10000000 SLIPCHG = 0 – 255
<pm status>	OK | ALM	PM measurement status. OK = measurement within range ALM = measurement is over threshold	

Example

To retrieve the value set for the performance threshold:

Input:

```
RTRV-TH::PRS:TP1000;
```

Response Example:

```
   "TP-SSU" 05-02-10 13:37:39
M  TP1000 COMPLD
   "MTIE-1,750,OK"
   "MTIE-5,750,OK"
   "MTIE-10,1000,OK"
   "MTIE-50,2000,OK"
   "MTIE-100,2000,OK"
   "MTIE-500,2000,OK"
   "FFOFF-60,2700,OK"
   "INPFREQ,5000000,OK"
   "SLIPCHG,5000000,OK"
;
```

Autonomous Message:

```
None.
```

Retrieve User (RTRV-USER)

This command lists all users that are currently logged onto the TimeProvider.

> **Note:** The TimeProvider supports up to ten simultaneous TCP connections, as well as one local and one remote serial connection.

This command has a default access level of USER.

Syntax

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

Example

To retrieve a listing of all currently logged on users:

Input:

```
RTRV-USER:::TP1000;
```

Response Example:

```
    "TP-SSU" 05-02-10 13:37:39
M   TP1000 COMPLD
    FRANKJ
    FRED
    BILLG
;
```

Autonomous Message:

```
None.
```

Retrieve User Security (RTRV-USER-SECU)

This command displays the access level of the specified user, or the access level of all users.

This command has a default access level of SECURITY.

Syntax

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

Parameter	Value	Description
<uid>	text string	The user name assigned to the user whose access level is retrieved.
	(null)	The access levels of all system users are retrieved.

Command Output

The following shows the output format of the command, and Table 2-45 explains the various fields in the command output:

```
<cr><lf><lf>
   sid date time<cr><lf>
M  ctag COMPLD<cr><lf>
   "username,access"<cr><lf>
   "username,access"<cr><lf>
     .
     .
   "username,access"<cr><lf>
;
```

Table 2-45. RTRV-USER-SECU Output Fields

Field	Description
username	The user name assigned to the user whose access level is displayed.
access	The access level for the specified user. The access level can be one of the following: ■ NONE (user can receive autonomous messages, and has very limited command access) ■ USER (user can issue commands having an access level of NONE or USER) ■ ADMIN (user can issue commands having an access level of NONE, USER, and ADMIN) ■ SECURITY (user can issue all commands)

Example

To display the current access level settings for all users that have been defined in the system:

Input:

```
RTRV-USER-SECU:::TP1000;
```

Response Example:

```
    "TP-SSU" 05-02-10 13:37:39
M   TP1000 COMPLD
    "LEE,SECURITY"
    "FRANKJ,USER"
    "BILLG,SECURITY"
    "BFG,USER"
    "FRED,USER"
    "SVSEC,SECURITY"
    "BSMITH,USER"
;
```

Autonomous Message:

```
None.
```

Set Attribute (SET-ATTR)

This command sets the alarm level that an event generates. Use this command also to reset all alarm levels to factory settings, and to specify whether or not the system escalates alarms.

This command has a default access level of ADMIN.

Syntax

```
SET-ATTR:[<tid>]:<aid>:[<ctag>]::<keyword>[=<value>];
```

Parameter	Value	Description
<aid>	SYS	The command's effect is at the system level. **Note:** See Table 2-46 for <keyword> and <value> descriptions.
	IMC	Sets the alarm level for the specified Information Management Card module alarm to the specified value. **Note:** See Table 2-46 for <keyword> and <value> descriptions.
	IOC*m*	Sets the alarm level for the specified alarm in the specified Input/Output Card module to the specified value. *m* is "1" for the slot marked "IOC 1" on the top of the shelf. *m* is "2" for the slot marked "IOC 2" on the top of the shelf. **Note:** See Table 2-46 for <keyword> and <value> descriptions.
	GPS	Sets the alarm level for the specified GPS alarm to the specified value. **Note:** See Table 2-46 for <keyword> and <value> descriptions.
	PRS	Sets the alarm level for the specified PRS alarm to the specified value. **Note:** See Table 2-46 for <keyword> and <value> descriptions.
	INPp	Sets the alarm level for the alarm related to the specified input port to the specified value. p is "1" for the input marked INP 1 on the Input module. p is "2" for the input marked INP 2 on the Input module. **Note:** See Table 2-46 for <keyword> and <value> descriptions.
	RTM*g*[-*p*]	Equipment settings for the Retimer module or port specfied by g or p: *g* is "A" for the group marked "A" on the main shelf. *g* is "B" for the group marked "B" on the main shelf. *g* is "C" for the group marked "C" on the main shelf. *g* is "D" for the group marked "D" on the main shelf. *p* is "1" for the port marked 1 on the Retimer module. *p* is "2" for the port marked 2 on the Retimer module. **Note:** See Table 2-46 for <keyword> and <value> descriptions.

Table 2-46. SET-ATTR - Keywords and Values for all <aids>

<keyword>	<value>	Description	Default
BRDGTIM	300 to 500000 seconds	In PRR mode, this sets the length of time the system remains in bridging mode. Setting the value to zero disables bridging mode.	900 seconds
ELEVTIME (SYS aid only)	ENABLE	The system has the ability to elevate minor alarms to major, and major alarms to critical after the system elevation time has elapsed. **Note:** The system elevation time is 86400 seconds, and cannot be changed.	DISABLE
	DISABLE	The system does not have the ability to elevate alarms.	
FACTORY (SYS aid only)	(none)	Sets the alarm level for all alarms to their factory settings.	N/A
Alarm ID **Note:** See Table 2-47 for a list of alarm identifiers, and possible alarm levels that can be set.	NR	The alarm level for the specified alarm is set as not-reported.	N/A
	NA	The specified alarm is set as a non-alarm event.	
	MN	The alarm level for the specified alarm is set to "minor."	
	MJ	The alarm level for the specified alarm is set to "major."	
	CR	The alarm level for the specified alarm is set to "critical."	

Table 2-47 lists all of the TimeProvider Alarm Identifiers (Alarm IDs) and provides a brief description of each. The table also shows the possible alarm levels that can be set with the SET ATTR command, whether or not the error delay is editable, and certain other defaults for each Alarm ID.

Table 2-47. Alarm Identifiers

Alarm ID	Description of Alarm Condition	Possible Alarm Levels	Error Delay Default	Error Delay Editable	Default Alarm Level		
					SSU Mode	PRS Mode	SUB Mode
<aid> = SYS							
COMPAT	System components, for example IOC software and hardware, are not compatible.	NR, NA, MN, MJ, CR	IMMED	NO	MJ	MJ	MJ
EXPNEQPT	The Expansion Panel was removed from or installed into the system	NR, NA, MN, MJ, CR	IMMED	NO	MJ	MJ	MJ

Table 2-47. Alarm Identifiers (Continued)

Alarm ID	Description of Alarm Condition	Possible Alarm Levels	Error Delay Default	Error Delay Editable	Default Alarm Level		
					SSU Mode	PRS Mode	SUB Mode
EXTALM1	External alarm 1 used to monitor alarms generated by external equipment.	NR, NA, MN, MJ, CR	IMMED	NO	MJ	MJ	MJ
EXTALM2	External alarm 2 used to monitor alarms generated by external equipment.	NR, NA, MN, MJ, CR	IMMED	NO	CR	CR	CR
IOC1EQPT	IOC1 was removed from or installed into the system	NR, NA, MN, MJ, CR	IMMED	NO	MJ	MJ	MJ
IOC2EQPT	IOC2 was removed from or installed into the system	NR, NA, MN, MJ, CR	IMMED	NO	MJ	MJ	MJ
OUTAEQPT	Output module in Group A was removed from or installed into the system	NR, NA, MN, MJ, CR	IMMED	NO	MJ	MJ	MJ
OUTBEQPT	Output module in Group B was removed from or installed into the system	NR, NA, MN, MJ, CR	IMMED	NO	MJ	MJ	MJ
OUTCEQPT	Output module in Group C was removed from or installed into the system	NR, NA, MN, MJ, CR	IMMED	NO	MJ	MJ	MJ
OUTDEQPT	Output module in Group D was removed from or installed into the system	NR, NA, MN, MJ, CR	IMMED	NO	MJ	MJ	MJ
PWRA	The IMC detected loss of power on the A connection	MN, MJ, CR	IMMED	NO	MJ	MJ	MJ
PWRB	The IMC detected loss of power on the B connection	MN, MJ, CR	IMMED	NO	MJ	MJ	MJ
RTMAEQPT	Retimer A was removed from or installed into the system	NR, NA, MN, MJ, CR	IMMED	NO	MN	MN	MN
RTMBEQPT	Retimer B was removed from or installed into the system	NR, NA, MN, MJ, CR	IMMED	NO	MN	MN	MN
RTMCEQPT	Retimer C was removed from or installed into the system	NR, NA, MN, MJ, CR	IMMED	NO	MN	MN	MN

Table 2-47. Alarm Identifiers (Continued)

Alarm ID	Description of Alarm Condition	Possible Alarm Levels	Error Delay Default	Error Delay Editable	Default Alarm Level		
					SSU Mode	PRS Mode	SUB Mode
RTMDEQPT	Retimer D was removed from or installed into the system	NR, NA, MN, MJ, CR	IMMED	NO	MN	MN	MN
<aid> = IMC							
IMCFAIL	A summary alarm for IMC BIST Faults	MN, MJ, CR	IMMED	NO	MJ	MJ	MJ
IOC1COMM	A communication alarm with IOC 1 module	NR, NA, MN, MJ, CR	IMMED	NO	MN	MN	MN
IOC2COMM	A communication alarm with IOC 2 module	NR, NA, MN, MJ, CR	IMMED	NO	MN	MN	MN
<aid> = IOC1 or IOC2							
BTBCKUP	All BesTime Backup source inputs are unusable to the BesTime engine	NR, NA, MN, MJ, CR	IMMED	NO	__	NA	__
CLKBRDG	The local oscillator on the specified IOC is in Bridging Mode	NR, NA, MN, MJ, CR	FLT DELAY	YES	__	NA	__
CLKFREE	The local oscillator on the specified IOC is in Free-run mode	MN, MJ, CR	IMMED	NO	MJ	MJ	MJ
CLKHOLD	The local oscillator on the specified IOC is in Holdover Mode	MN, MJ, CR	IMMED	NO	MJ	MJ	MJ
CLKWARM	The local oscillator on the specified IOC is in Warm-up mode	MN, MJ, CR	IMMED	NO	MN	MN	MN
IMC1COMM	A communication alarm from IMC module to IOC 1 module	NR, NA, MN, MJ, CR	IMMED	NO	MN	MN	MN
IMC2COMM	A communication alarm from IMC module to IOC 2 module	NR, NA, MN, MJ, CR	IMMED	NO	MN	MN	MN
IOC1TO2COMM	A communication alarm from IOC1 module to IOC2 module	NR, NA, MN, MJ, CR	IMMED	NO	MN	MN	MN

Table 2-47. Alarm Identifiers (Continued)

Alarm ID	Description of Alarm Condition	Possible Alarm Levels	Error Delay Default	Error Delay Editable	Default Alarm Level		
					SSU Mode	PRS Mode	SUB Mode
IOC2TO1COMM	A communication alarm from IOC2 module to IOC1 module	NR, NA, MN, MJ, CR	IMMED	NO	MN	MN	MN
IOCFAIL	A summary alarm for IOC BIST faults	MN, MJ, CR	IMMED	NO	MJ	MJ	MJ
SYNTHEOR	The synthesizer generating the modules stable output frequency has reached the defined End-of-Range for the type of oscillator used on the IOC	MN, MJ, CR	IMMED	NO	MJ	MJ	MJ
SYNTHFAIL	The synthesizer generating the modules stable output frequency has failed	MN, MJ, CR	IMMED	NO	MJ	MJ	MJ
<aid> = GPS							
ANTCOMM	The GPS Antenna communication is not functioning	MN, MJ, CR	FLT DELAY	YES	MN	MN	MN
EXDSC	Input has had excessive discontinuities. More than 3 signals faults of the same type occurred within a 5-minute window. The alarm clears when the 5-minute window contains less than 3 alarms of the same type.	MN, MJ, CR	IMMED	NO	MN	MN	MN
FFOFF	The specified input has exceeded FFOFF threshold	NR, NA, MN, MJ, CR	IMMED	NO	MN	MN	NR
GPSPOS	The GPS Engine's position has not been determined	MN, MJ, CR	FLT DELAY	YES	MN	MN	MN
GPSPWR	TimeProvider power to the GPS interface is either low (shorted) or high (open)	NR, NA, MN, MJ, CR	FLT DELAY	YES	MN	MN	NR

Table 2-47. Alarm Identifiers (Continued)

Alarm ID	Description of Alarm Condition	Possible Alarm Levels	Error Delay Default	Error Delay Editable	Default Alarm Level		
					SSU Mode	PRS Mode	SUB Mode
GPSSYS	The GPS System is in fault due to BIST, TRAIM, and/or UTC/ ephemeris data errors	MN, MJ, CR	FLT DELAY	YES	MN	MN	MN
GPSTRK	The GPS Engine is not tracking any satellites	MN, MJ, CR	FLT DELAY	YES	MN	MN	MN
INPDISQ	The specified input was Disqualified or Qualified as a possible system reference	MN, MJ, CR	FLT DELAY	YES	MN	MN	MN
INPLOS	The GPS 1PPS is not present. When LOS is detected, the input is immediately removed from the possible refer-ence list. The LOS must be continuously present for the Fault Delay Time (FLTDELAY) before dis-qualifying the input as a possible reference. After INPLOS is set, the alarm clears when the input signal is LOS free for the Clear Delay Time (CLRDELAY)	MN, MJ, CR	IMMED	NO	MN	MN	MN
INPPHASE	The specified input port's phase measurement exceeds usable value	MN, MJ, CR	IMMED	NO	MN	MN	MN
MTIE	The specified input has exceeded at least one of the MTIE thresholds	NR, NA, MN, MJ, CR	IMMED	NO	MN	MN	NR
TPIUSIG	The TPIU was removed from or installed in the system	NR, NA, MN, MJ, CR	FLT DELAY	YES	MN	MN	NR

Table 2-47. Alarm Identifiers (Continued)

Alarm ID	Description of Alarm Condition	Possible Alarm Levels	Error Delay Default	Error Delay Editable	Default Alarm Level		
					SSU Mode	PRS Mode	SUB Mode
\<aid\> = PRS							
EXDSC	Input has had excessive discontinuities. More than three signals faults of the same type occurred within a five minute window. The alarm clears when the five minute window contains less than three alarms of the same type.	MN, MJ, CR	IMMED	YES	MN	MN	MN
FFOFF	The specified input has exceeded the FFOFF threshold	NR, NA, MN, MJ, CR	IMMED	NO	MN	MN	NR
INPDISQ	The specified input was Disqualified or Qualified as a possible system reference	MN, MJ, CR	FLT DELAY	YES	MN	MN	MN
INPFRQ	The specified input port's calculated, received frequency exceeds the pull-in range of the local oscillator. The received signal's calculated frequency alarmed condition disqualifies the input as a possible reference. After INPFRQ is set, the alarm clears when the input frequency is within the defined pull-in range limits.	MN, MJ, CR	IMMED	NO	MN	MN	NR
INPPHASE	The specified input port's phase measurement exceeds usable value	MN, MJ, CR	IMMED	NO	MN	MN	MN
MTIE	The specified input has exceeded at least one of the MTIE thresholds	NR, NA, MN, MJ, CR	IMMED	NO	MN	MN	NR

Table 2-47. Alarm Identifiers (Continued)

Alarm ID	Description of Alarm Condition	Possible Alarm Levels	Error Delay Default	Error Delay Editable	Default Alarm Level		
					SSU Mode	PRS Mode	SUB Mode
INPLOS	The specified input port has a Loss Of Signal. When LOS is detected, the input is immediately removed from the possible reference list. The LOS must be continuously present for the Fault Delay Time (FLTDELAY) before disqualifying the input as a possible reference. After INPLOS is set, the alarm clears when the input signal is LOS free for the Clear Delay Time (CLRDELAY).	MN, MJ, CR	IMMED	NO	MN	MN	MN
<aid> = INP1 or INP2							
EXDSC	Input has had excessive discontinuities. This is indicated when there are more than three signals faults of the same type within a five minute window. The alarm clears when the five minute window contains less than three alarms of the same type.	MN, MJ, CR	IMMED	NO	MN	MN	MN
FFOFF	The specified input has exceeded the FFOFF threshold	NR, NA, MN, MJ, CR	IMMED	NO	MN	MN	NR
INPDISQ	The specified input was Disqualified or Qualified as a possible system reference	MN, MJ, CR	FLT DELAY	YES	MN	MN	MN

Table 2-47. Alarm Identifiers (Continued)

Alarm ID	Description of Alarm Condition	Possible Alarm Levels	Error Delay Default	Error Delay Editable	Default Alarm Level		
					SSU Mode	PRS Mode	SUB Mode
INPAIS	The specified input port is receiving an Alarm Indication Signal. When AIS is detected, the input is immediately removed from the possible reference list. The AIS must be continuously present for the Fault Delay Time (FLTDELAY) before disqualifying the input as a possible reference. After INPAIS is set, the alarm clears when the input signal is AIS free for the Clear Delay Time (CLRDELAY).	MN, MJ, CR	IMMED	NO	MN	MN	MN
INPFRQ	The specified input port's calculated, received frequency exceeds the pull-in range of the local oscillator. The received signal's calculated frequency alarmed condition disqualifies the input as a possible reference. After INPFRQ is set, the alarm clears when the input frequency is within the defined pull-in range limits.	MN, MJ, CR	IMMED	NO	MN	MN	NR
INPPHASE	The specified input port's phase measurement exceeds usable value	MN, MJ, CR	IMMED	NO	MN	MN	MN

Table 2-47. Alarm Identifiers (Continued)

Alarm ID	Description of Alarm Condition	Possible Alarm Levels	Error Delay Default	Error Delay Editable	Default Alarm Level		
					SSU Mode	PRS Mode	SUB Mode
INPLOS	The specified input port has Loss Of Signal. When LOS is detected, the input is immediately removed from the possible reference list. The LOS must be continuously present for the Fault Delay Time (FLTDELAY) before disqualifying the input as a possible reference. After INPLOS is set, the alarm clears when the input signal is LOS free for the Clear Delay Time (CLRDELAY).	MN, MJ, CR	IMMED	NO	MN	MN	MN
INPOOF	The specified input port is receiving an Out Of Frame signal. When OOF is detected, the input is immediately removed from the possible reference list. The OOF must be continuously present for the Fault Delay Time (FLTDELAY) before disqualifying the input as a possible reference. After INPOOF is set, the alarm clears when the input signal is OOF free for the Clear Delay Time (CLRDELAY).	MN, MJ, CR	IMMED	NO	MN	MN	MN
INPQL	Alarm indicating the received SSM is of lesser quality than the provisioned QLEVEL for a specified input. This alarm is also generated if the user provisions the input's QLEVEL below the quality level of the local oscillator.	MN, MJ, CR	IMMED	NO	MN	MN	MN

Table 2-47. Alarm Identifiers (Continued)

Alarm ID	Description of Alarm Condition	Possible Alarm Levels	Error Delay Default	Error Delay Editable	Default Alarm Level		
					SSU Mode	PRS Mode	SUB Mode
INPTRR	The specified input port's CC Tip/Ring connections are indicating a reverse connection	MN, MJ, CR	IMMED	NO	MN	MN	MN
MTIE	The specified input has exceeded at least one of the MTIE thresholds	NR, NA, MN, MJ, CR	IMMED	NO	MN	MN	NR
\<aid\>=RTMg[-p]							
EXSLIP	The specified Retimer port has an excessive slip rate on side 1. Once EXSLIP is set, the alarm clears when the slip rate is within defined limits.	NR, NA, MN, MJ, CR	IMMED	NO	NA	NA	NA
RTMFAULT	The IOC cannot determine the state of the specified Retimer module	NR, NA, MN, MJ, CR	IMMED	YES	NA	NA	NA
S1LOS	The specified Retimer port has Loss Of Signal on Side 1. The LOS must be continuously present for the Fault Delay Time (FLTDE-LAY) before notification. After S1LOS is set, the alarm clears when the input signal is LOS free for the Clear Delay Time (CLRDELAY)	MN, MJ, CR	IMMED	NO	MN	MN	MN
S2LOS	The specified Retimer port has Loss Of Signal on Side 2. The LOS must be continuously present for the Fault Delay Time (FLTDE-LAY) before notification. After S2LOS is set, the alarm clears when the input signal is LOS free for the Clear Delay Time (CLRDELAY).	MN, MJ, CR	IMMED	NO	MN	MN	MN

Example

To set the system-level EXPFAIL event's alarm level to critical:

Input:

```
SET-ATTR::SYS:TP1000::EXPFAIL=CR;
```

Normal Response:

```
   "TP-SSU" 05-02-10 13:35:56
M  TP1000 COMPLD
;
```

Autonomous Message:

```
  "TP-SSU" 05-02-10 13:35:56
A  175 REPT EVT
   "IMC,EQPT:ALMCHG,TC,05-02-10,13-35-56,,,,:\"ALARM PARAMETER HAS CHANGED,
    EXPFAIL,CRITICAL\""
;
```

Set Source Identifier (SET-SID)

This command provisions the TimeProvider system's source identifier (SID). The SID identifies the TimeProvider in the normal and error response messages it sends.

This command has a default access level of ADMIN.

Syntax

```
SET-SID:[<tid>]::[<ctag>]::<keyword>=<value>;
```

Table 2-48. SET-SID - Keyword and Value

<keyword>	<value>	Description	Default
SIDCHG	20 character text string	Sets the TimeProvider's source identifier. **Note:** The SID can be up to twenty (20) printing characters, except for the double-quote (") character. If characters other than alphanumeric characters are used in the SID, the SID appears in double-quotes in response messages.	N/A

Example

To set the system's SID from "BLUE" to "TP-SSU":

Input:

```
SET-SID:::TP1000::SIDCHG=TP-SSU;
```

Normal Response:

```
   "TP-SSU" 05-02-10 13:35:56
M  TP1000 COMPLD
;
```

Autonomous Message:

```
   TP-SSU 05-02-10 13:35:56
A  449 REPT EVT
   "IMC,EQPT:SIDCHG,TC,05-02-10,13-35-56,,,,:\"SYSTEM'S SOURCE ID HAS
CHANGED,TP-SSU\""
;
```

Set System Mode (SET-SYS-MODE)

This command provisions the TimeProvider system's operating mode. The following operating modes are available:

- *SSU* – The TimeProvider is provisioned in the Synchronization Supply Unit operating mode. In SSU mode, the system provides compliance with G.812, GR1244, and GR-378.

- *SUB* – The TimeProvider is provisioned in the Subtending SSU operating mode. In SUB mode, the system provides composite clock input tracking (phase following) compliant with GR-378.

- PRR – The TimeProvider is provisioned in the Primary Reference Receiver operating mode. In PRR mode, the GPS input is the only reference available for the system and the BesTime algorithm is engaged.

This command has a default access level of ADMIN.

Syntax

```
SET-SYS-MODE:[<tid>]::[<ctag>]::<keyword>=<value>;
```

Table 2-49. SET-SYS-MODE - Keyword and Values

<keyword>	<value>	Description	Default
SYSMODE	SSU	The TimeProvider is fully provisionable.	SSU
	SUB	The TimeProvider is provisioned to the SUB operating mode. Selection of this mode places the following restrictions on inputs: ■ The PRS and GPS input can be disabled or placed in monitor mode, but is not selectable as a reference. ■ Framing type for the INP1 and INP2 is set to CC and cannot be changed.	
	PRR	The TimeProvider is provisioned to PRR. The GPS input is enabled as the reference and manual reference selection is disabled.	

Example

To set the system's operating mode to Subtending:

Input:

```
SET-SYS-MODE:::TP1000::SYSMODE=SUB;
```

Normal Response:

```
   "TP-SSU" 05-02-10 13:35:56
M  TP1000 COMPLD
;
```

Autonomous Message:

```
 "TP-SSU" 05-02-10 13:35:56
A  396 REPT EVT
 "SYS,EQPT:SYSMODE,TC,05-02-10,13-35-56,,,,:\"SYSTEM MODE OF OPERATION HAS CHANGED,SUB\""
 ;
```

Set Threshold (SET-TH)

This command sets the alarm threshold for performance monitored data, for example MTIE and Fractional Frequency Offset.

This command has a default access level of ADMIN.

Syntax

```
SET-TH:[<tid>]:<aid>:[<ctag>]::<keyword>[=<value>];
```

Parameter	Value	Description
<aid>	GPS	The command's effect is on the GPS system input. **Note:** See Table 2-50 for <keyword> and <value> descriptions.
	PRS	The command's effect is on the PRS system input. **Note:** See Table 2-50 for <keyword> and <value> descriptions.
	INP*p*	The command's effect is on the INP*p* system input. *p* is "1" for the input marked INP 1 on the Input module. *p* is "2" for the input marked INP 2 on the Input module. **Note:** See Table 2-50 for <keyword> and <value> descriptions.
	RTM*g*[-*p*]	The command's effect is on the Retimer *g* module and *p* side. *g* is "A" for the group marked "A" on the main shelf. *g* is "B" for the group marked "B" on the main shelf. *g* is "C" for the group marked "C" on the main shelf. *g* is "D" for the group marked "D" on the main shelf. *p* is "1" for Side 1 on the Retimer module. *p* is "2" for Side 2 on the Retimer module. Note: See Table 2-52 for <keyword> and <value> descriptions.

Table 2-50. SET-TH - Keywords and Values for GPS, PRS, and INP <aids>

<keyword>	<value>	Description	Default
MASK	GPS–R	Set MTIE-x and FFOFF-60 thresholds to predefined settings.	See Table 2-51
	PRS	Set MTIE-x and FFOFF-60 thresholds to predefined settings	
	DS1	Set MTIE-x and FFOFF-60 thresholds to predefined settings	
	OCN	Set MTIE-x and FFOFF-60 thresholds to predefined settings	
	PRC	Set MTIE-x and FFOFF-60 thresholds to predefined settings	
	TYPEI	Set MTIE-x and FFOFF-60 thresholds to predefined settings	
	TYPEII	Set MTIE-x and FFOFF-60 thresholds to predefined settings	
MTIE-1	1 to 5000000	1-Second MTIE observation threshold defined in nanoseconds	10000
MTIE-5	1 to 5000000	5-Second MTIE observation threshold defined in nanoseconds	50000
MTIE-10	1 to 5000000	10-Second MTIE observation threshold defined in nanoseconds	100000
MTIE-50	1 to 5000000	50-Second MTIE observation threshold defined in nanoseconds	500000
MTIE-100	1 to 5000000	100-Second MTIE observation threshold defined in nanoseconds	1000000
MTIE-500	1 to 5000000	500-Second MTIE observation threshold defined in nanoseconds	5000000
FFOFF-60	100 to 10000000	Set Fractional Frequency Offset threshold for 60 second calculation period, defined in picoseconds per second	10000000

Table 2-51. Mask Table

	MTIE-1	MTIE-5	MTIE-10	MTIE-50	MTIE-100	MTIE-500	FFOFF-60
DEFAULT	10000	50000	100000	500000	1000000	5000000	10000000
GPS-R	150	150	150	150	150	155	50000
PRS	10	10	12	25	39	155	1000
DS1	302	312	325	325	550	1002	12000
OCN	600	1000	1000	1000	1000	1002	370000
PRC	25	25	25	25	39	155	1000
TYPEI	750	750	1000	2000	2000	2000	2900
TYPEII	302	312	325	425	1000	1000	1000

Table 2-52. SET-TH - Keywords and Values for RTM <aid>

<keyword>	<value>	Description	Default
SLIPCHG	0 to 255	Maximum number of slips in a 24-hour period	4

Example

To set the system's operating mode to Subtending:

Input:

```
SET-TH:::TP1000::;
```

Normal Response:

```
   "TP-SSU" 05-02-10 13:35:56
M  TP1000 COMPLD
;
```

Autonomous Message:

```
   "TP-SSU" 05-02-10 13:35:56
A  1166 REPT EVT

   "GPS,EQPT:THRCHG,TC,05-02-10,13-35-56,,,,:\"PM THRESHOLD HAS CHANGED,
    FFOFF-60\""
;
```

Appendix A TL1 Commands by Function

This Appendix provides a list of TL1 commands that are grouped by function: Table A-1 contains security and administrative commands, Table A-2 contains system commands, and Table A-3 contains performance monitoring commands. Refer to Chapter 2, TL1 Command Syntax and Description for detailed information.

Table A-1. Security and Administrative Commands

Command	Description
Activate User (ACT-USER), on page 41	Logs the specified existing user onto the system, and begins a user session
Retrieve User (RTRV-USER), on page 128	Lists all users that are currently logged onto the TimeProvider
Cancel User (CANC-USER), on page 42	Terminates the specified user's session, and logs the user out of the system
Enter Password (ENT-PID), on page 68	Allows a security-level user to edit any user's password in the user database
Edit Password (ED-PID), on page 58	Allows users to edit their own password in the user database
Enter User Security (ENT-USER-SECU), on page 69	Enters a new user in the user database
Retrieve User Security (RTRV-USER-SECU), on page 129	Displays the access level of the specified user, or the access level of all users
Edit User Security (ED-USER-SECU), on page 67	Changes the specified user's access level
Delete Security (DLT-SECU), on page 46	Deletes all of the information from the user database
Delete User Security (DLT-USER-SECU), on page 47	Allows a security-level user to delete any user in the user list
Retrieve Command Security (RTRV-CMD-SECU), on page 90	Retrieves the access level set for a specified command, or all commands
Edit Command Security (ED-CMD-SECU), on page 50	Changes the access level of the specified command
Activate Software Download Mode (ACT-SWDL), on page 35	Places the information management card (IMC) in the firmware download mode prior to a firmware download

Table A-2. System Commands

Command	Description
Copy Memory (CPY-MEM), on page 43	Saves a module's Istate in another module's flash memory
Retrieve Date (RTRV-DAT), on page 103	Retrieves the system date, time, and local offset
Edit Date (ED-DAT), on page 52	Changes the system date and time
Retrieve Equipment (RTRV-EQPT), on page 104	Retrieves currently provisioned equipment parameters
Edit Equipment (ED-EQPT), on page 53	Provisions equipment parameters
Retrieve Sync (RTRV-SYNC), on page 116	Retrieves equipment parameters associated with provisioning of the synchronization interfaces for the system inputs and outputs
Edit Sync (ED-SYNC), on page 59	Changes factory settings and input and output port parameter settings
Retrieve Attribute (RTRV-ATTR), on page 80	Retrieves the alarm level set for a specified alarm
Initialize Event Log (INIT-LOG), on page 71	Clears the event log on the IMC module
Retrieve Log (RTRV-LOG), on page 111	Retrieves all events in the event log
Initialize System (INIT-SYS), on page 72	Initializes the specified module, or the system
Retrieve System Mode (RTRV-SYS-MODE), on page 125	Retrieves the TimeProvider's currently provisioned system operating mode
Set System Mode (SET-SYS-MODE), on page 144	Provisions the TimeProvider system's operating mode to SSU, SUB, or PRR
Operate Alarm Cutoff (OPR-ACO-ALL), on page 74	Deactivates (opens) the minor, major, and critical audible alarm relays
Set Source Identifier (SET-SID), on page 143	Provisions the TimeProvider system's source identifier (SID)
Retrieve Alarm Condition (RTRV-ALM), on page 78	Retrieves information on currently active alarms
Retrieve BesTime Status (RTRV-BESTIME-STAT), on page 83	Displays the BesTime status, the data indicates predicted BesTime ensemble information

Table A-2. System Commands (Continued)

Command	Description
Retrieve Built-In Self Test (RTRV-BIST), on page 85	Displays all currently active faulted built-in self test information for either the IMC or IOC or both
Retrieve Condition (RTRV-COND), on page 92	Retrieves information about the current state and status of system components
Retrieve Craft Data (RTRV-CRAFT), on page 96	Retrieves information about the system state, clock mode of operation, input provisioning, and output provisioning
Retrieve GPS Status (RTRV-GPS-STAT), on page 106	Displays the position of the GPS receiver, UTC time and status information for each of the GPS satellites in view
Retrieve Header (RTRV-HDR), on page 107	Displays the response header information, including the system identifier (<sid>), and the system date and time
Retrieve Inventory (RTRV-INV), on page 107	Retrieves the system inventory
Retrieve LED Status (RTRV-LED), on page 109	Retrieves the current state (color) of the various LED indicators that are on the panels of the IMC and IOC modules
Retrieve Network Equipment Type (RTRV-NETYPE), on page 115	Retrieves the network equipment (NE) type from the unit
Ping (PING), on page 75	Allows the TimeProvider to test (ping) for network connectivity

Table A-3. Performance Monitoring Commands

Command	Description
Retrieve Performance Monitoring Data (RTRV-PM), on page 118	Displays the current set of performance monitoring data for one input channel
Delete Performance Monitoring Data (DLT-PM-DATA), on page 45	Deletes the current set of performance monitoring data for one input channel
Set Threshold (SET-TH), on page 145	Sets the alarm threshold for performance monitored data, for example MTIE and Fractional Frequency Offset
Retrieve Threshold (RTRV-TH), on page 126	Displays the alarm level set for a particular alarm
Set Attribute (SET-ATTR), on page 131	Sets the alarm level that an event generates

Appendix B Alarms

Table B-1 provides a list of all alarm identifiers and a description of the alarm. The AID type indicates if the event occurred in the unit (EQPT) or externally from an input or output (T1). The table also shows if the alarm is service affecting (SA), or non-service affecting (NSA)

Table B-2 is a list of alarm identifiers and conditional descriptions. The set and clear alarm conditional description is the text that appears when the event occurs. In the following example, `INPLOS` is the Alarm ID and `LOS FAULT` is the set condition description.

```
"INP1,T1:CR,INPLOS,NSA,05-01-17,15-10-03,,:\"LOS FAULT\""
```

Table B-1. Alarms

Alarm ID Or CONDTYPE	Alarm Condition Description	AID TYPE	Service Affecting	Error Delay Default	Error Delay Editable	Alarm Default Level		
						SSU	PRS	SUB
<aid> = SYS								
COMPAT	System components (hardware and software) are not compatible	EQPT	NSA	IMMED	NO	MJ	MJ	MJ
EXTALM1	The external alarm used to monitor alarms generated by external equipment.	EQPT	NSA	IMMED	NO	MJ	MJ	MJ
EXTALM2	The external alarm used to monitor alarms generated by external equipment.	EQPT	NSA	IMMED	NO	CR	CR	CR
EXPNEQPT	The Expansion panel was physically inserted or removed from the system.	EQPT	NSA	IMMED	NO	MJ	MJ	MJ
PWRA	The IMC has detected the loss of power on the A connection	EQPT	NSA	IMMED	NO	MJ	MJ	MJ
PWRB	The IMC has detected the loss of power on the B connection.	EQPT	NSA	IMMED	NO	MJ	MJ	MJ
IOC1EQPT	The IOC was physically inserted or removed from the system.	EQPT	NSA	IMMED	NO	MJ	MJ	MJ

Table B-1. Alarms (Continued)

Alarm ID Or CONDTYPE	Alarm Condition Description	AID TYPE	Service Affecting	Error Delay Default	Error Delay Editable	Alarm Default Level		
						SSU	PRS	SUB
IOC2EQPT	The IOC was physically inserted or removed from the system.	EQPT	NSA	IMMED	NO	MJ	MJ	MJ
OUTAEQPT	Output module A was physically inserted or removed from the system.	EQPT	NSA	IMMED	NO	MJ	MJ	MJ
OUTBEQPT	Output module B was physically inserted or removed from the system.	EQPT	NSA	IMMED	NO	MJ	MJ	MJ
OUTCEQPT	Output module C was physically inserted or removed from the system.	EQPT	NSA	IMMED	NO	MJ	MJ	MJ
OUTDEQPT	Output module D was physically inserted or removed from the system.	EQPT	NSA	IMMED	NO	MJ	MJ	MJ
RTMAEQPT	Retimer module A was physically inserted or removed from the system.	EQPT	NSA	IMMED	NO	MJ	MJ	MJ
RTMBEQPT	Retimer module B was physically inserted or removed from the system.	EQPT	NSA	IMMED	NO	MJ	MJ	MJ
RTMCEQPT	Retimer module C was physically inserted or removed from the system.	EQPT	NSA	IMMED	NO	MJ	MJ	MJ
RTMDEQPT	Retimer module D was physically inserted or removed from the system.	EQPT	NSA	IMMED	NO	MJ	MJ	MJ
<aid> = IMC								
IOC1COMM	A communication alarm with either of the IOC1 modules.	EQPT	NSA	IMMED	NO	MN	MN	MN

Table B-1. Alarms (Continued)

Alarm ID Or CONDTYPE	Alarm Condition Description	AID TYPE	Service Affecting	Error Delay Default	Error Delay Editable	Alarm Default Level		
						SSU	PRS	SUB
IOC2COMM	A communication alarm with either of the IOC2 modules.	EQPT	NSA	IMMED	NO	MN	MN	MN
IMCFAIL	A summary alarm of IMC BIST faults	EQPT	SA	IMMED	NO	MJ	MJ	MJ
<aid> = IOC1								
IMC1COMM	A communication alarm with the IMC module and IOC1 module.	EQPT	NSA	IMMED	NO	MN	MN	MN
IOC1TO2 COMM	A communication alarm from IOC1 module to IOC2 module.	EQPT	NSA	IMMED	NO	MN	MN	MN
IOCFAIL	A summary alarm for failures of the IOC hardware that are not specified in other alarms.	EQPT	SA	IMMED	NO	MJ	MJ	MJ
BTBCKUP	All BesTime Backup sources, inputs are unusable to the BesTime engine.	EQPT	NSA	IMMED	NO	__	NA	__
CLKBRDG	The local oscillator on the specified IOC is in Bridging Mode.	EQPT	NSA	IMMED	NO	–	NA	–
CLKHOLD	The local oscillator on the specified IOC is in Holdover Mode.	EQPT	SA	IMMED	NO	MJ	MJ	MJ
CLKFREE	The local oscillator on the specified IOC is in Free-run mode.	EQPT	SA	IMMED	NO	MJ	MJ	MJ
CLKWARM	The local oscillator on the specified IOC is in Warm-up mode.	EQPT	SA	IMMED	NO	MN	MN	MN
SYNTHEOR	The synthesizer generating the modules stable output frequency has reached the defined End-of-Range for the type of oscillator used on the IOC.	EQPT	SA	IMMED	NO	MJ	MJ	MJ

Table B-1. Alarms (Continued)

Alarm ID Or CONDTYPE	Alarm Condition Description	AID TYPE	Service Affecting	Error Delay Default	Error Delay Editable	Alarm Default Level		
						SSU	PRS	SUB
<aid> = IOC2								
IMC2COMM	A communication alarm with the IMC module and IOC2 module.	EQPT	NSA	IMMED	NO	MN	MN	
IOC2TO 1COMM	A communication alarm from IOC2 module to IOC1 module.	EQPT	NSA	IMMED	NO	MN	MN	MN
IOCFAIL	A summary alarm for IOC BIST faults.	EQPT	SA	IMMED	NO	MJ	MJ	MJ
BTBCKUP	All BesTime Backup sources, inputs are unusable to the BesTime engine.	EQPT	NSA	IMMED	NO	–	NA	–
CLKBRDG	The local oscillator on the specified IOC is in Bridging Mode.	EQPT	NSA	FLT DELAY	NO	–	NA	–
CLKHOLD	The local oscillator on the specified IOC is in Holdover Mode.	EQPT	SA	IMMED	NO	MJ	MJ	MJ
CLKFREE	The local oscillator on the specified IOC is in Free-run mode.	EQPT	SA	IMMED	NO	MJ	MJ	MJ
CLKWARM	The local oscillator on the specified IOC is in Warm-up mode.	EQPT	SA	IMMED	NO	MN	MN	MN
SYNTHEOR	The synthesizer generating the modules stable output frequency has reached the defined End-of-Range for the type of oscillator used on the IOC.	EQPT	SA	IMMED	NO	MJ	MJ	MJ
<aid> = GPS								
ANTCOMM	Loss of communications to antenna	EQPT	NSA	IMMED	NO	MN	MN	MN
GPSPOS	The GPS Antenna's position is unknown	EQPT	NSA	FLT DELAY	YES	NA	NA	NA

Table B-1. Alarms (Continued)

Alarm ID Or CONDTYPE	Alarm Condition Description	AID TYPE	Service Affecting	Error Delay Default	Error Delay Editable	Alarm Default Level		
						SSU	PRS	SUB
GPSPWR	TimeProvider power to TPIU is either high or low.	T1	NSA	IMMED	NO	MN	MN	MN
GPSSYS	GPS System is indicating an error with BIST (at startup) TRAIM, and/or UTC/ephemeris data.	EQPT	NSA	FLT DELAY	YES	MN	MN	MN
GPSTRK	The GPS Engine is not tracking any satellites.	EQPT	NSA	FLT DELAY	YES	MN	MN	MN
INPDISQ	The specified input was Disqualified or Qualified as a possible system reference. The fault condition must be continuously present for the Fault Delay Time (FLTDELAY) before disqualifying the input as a possible reference. After INPDISQ is set the alarm clears when the input signal is fault free for the Clear Delay Time (CLRDELAY).	T1	NSA	FLT DELAY	YES	MN	MN	MN
INPLOS	The 1PPS from GPS is LOS. The LOS must be continuously present for the Fault Delay Time (FLTDELAY) before disqualifying the input as a possible reference. After INPLOS is set, the alarm clears when the input signal is LOS free for the Clear Delay Time (CLRDELAY).	T1	NSA	IMMED	NO	MN	MN	MN
INPPHASE	The specified input port has a excessive phase measurement that is disqualifies it from being used.	T1	NSA	IMMED	NO	MN	MN	MN

Table B-1. Alarms (Continued)

Alarm ID Or CONDTYPE	Alarm Condition Description	AID TYPE	Service Affecting	Error Delay Default	Error Delay Editable	Alarm Default Level		
						SSU	PRS	SUB
EXDSC	Input has had excessive discontinuities. This is indicated when there are more than three signals faults of the same type within a five minute window. The alarm clears when the five minute window contains less than three alarms of the same type.	T1	NSA	IMMED	NO	MN	MN	MN
FFOFF	Input has exceeded the Fractional Frequency Offset threshold.	T1	NSA	IMMED	NO	MN	MN	MN
MTIE	Input has exceeded at least one of the MTIE alarm thresholds.	T1	NSA	IMMED	NO	MN	MN	MN
TPIUSIG	TimeProvider Composite Timing Signal interface is not functioning	T1	NSA	IMMED	NO	MN	MN	MN
<aid> = PRS								
INPDISQ	The specified input was Disqualified or Qualified as a possible system reference. The fault condition must be continuously present for the Fault Delay Time (FLTDELAY) before disqualifying the input as a possible reference. After INPDISQ is set, the alarm clears when the input signal is fault free for the Clear Delay Time (CLRDELAY).	T1	NSA	FLT DELAY	YES	MN	MN	MN

Table B-1. Alarms (Continued)

Alarm ID Or CONDTYPE	Alarm Condition Description	AID TYPE	Service Affecting	Error Delay Default	Error Delay Editable	Alarm Default Level		
						SSU	PRS	SUB
INPLOS	The specified input port has Loss Of Signal. When LOS is detected, the input is immediately removed from the possible reference list. The LOS must be continuously present for the Fault Delay Time (FLTDELAY) before disqualifying the input as a possible reference. After INPLOS is set, the alarm clears when the input signal is LOS free for the Clear Delay Time (CLRDELAY).	T1	NSA	IMMED	NO	MN	MN	MN
INPFRQ	The specified input port's calculated received frequency is exceeding the pull-in range of the local oscillator. The received signal's calculated frequency alarmed condition disqualifies the input as a possible reference. After INPFRQ is set, the alarm clears when the input frequency is within the defined pull-in range limits.	T1	NSA	IMMED	NO	MN	MN	NR
INPPHASE	The specified input port has a excessive phase measurement that is disqualifies it from being used.	T1	NSA	IMMED	NO	MN	MN	MN

Table B-1. Alarms (Continued)

Alarm ID Or CONDTYPE	Alarm Condition Description	AID TYPE	Service Affecting	Error Delay Default	Error Delay Editable	Alarm Default Level		
						SSU	PRS	SUB
EXDSC	Input has had excessive discontinuities. This is indicated when there are more than three signal faults of the same type within a five minute window. The alarm clears when the five minute window contains less than three alarms of the same type.	T1	NSA	IMMED	NO	MN	MN	MN
FFOFF	Input has exceeded the Fractional Frequency Offset threshold.	T1	NSA	IMMED	NO	MN	MN	MN
MTIE	Input has exceeded at least one of the MTIE alarm thresholds.	T1	NSA	IMMED	NO	MN	MN	MN
<aid> = INP1 or INP2								
INPDISQ	The specified input was Disqualified or Qualified as a possible system reference. The fault condition must be continuously present for the Fault Delay Time (FLTDELAY) before disqualifying the input as a possible reference. After INPDISQ is set, the alarm clears when the input signal is fault free for the Clear Delay Time (CLRDELAY).	T1	NSA	FLT DLY	YES	MN	MN	MN

Table B-1. Alarms (Continued)

Alarm ID Or CONDTYPE	Alarm Condition Description	AID TYPE	Service Affecting	Error Delay Default	Error Delay Editable	Alarm Default Level		
						SSU	PRS	SUB
INPAIS	The specified input port is receiving an Alarm Indication Signal. When AIS is detected, the input is immediately removed from the possible reference list. The AIS must be continuously present for the Fault Delay Time (FLTDELAY) before disqualifying the input as a possible reference. After INPAIS is set, the alarm clears when the input signal is AIS free for the Clear Delay Time (CLRDELAY).	T1	NSA	IMMED	NO	MN	MN	MN
INPLOS	The specified input port has Loss Of Signal. When LOS is detected, the input is removed from the possible reference list. The LOS must be continuously present for the Fault Delay Time (FLTDELAY) before disqualifying the input as a possible reference. After INPLOS is set, the alarm clears when the input signal is LOS free for the Clear Delay Time (CLRDELAY).	T1	NSA	IMMED	NO	MN	MN	MN

Table B-1. Alarms (Continued)

Alarm ID Or CONDTYPE	Alarm Condition Description	AID TYPE	Service Affecting	Error Delay Default	Error Delay Editable	Alarm Default Level		
						SSU	PRS	SUB
INPOOF	The specified input port is receiving an Out Of Frame signal. When OOF is detected, the input is removed from the possible reference list. The OOF must be continuously present for the Fault Delay Time (FLTDELAY) before disqualifying the input as a possible reference. After INPOOF is set, the alarm clears when the input signal is OOF free for the Clear Delay Time (CLRDELAY).	T1	NSA	IMMED	NO	MN	MN	MN
INPFRQ	The specified input port's calculated received frequency is exceeding the pull-in range of the local oscillator. The received signal's calculated frequency alarmed condition disqualifies the input as a possible reference. After INPFRQ is set, the alarm clears when the input frequency is within the defined pull-in range limits.	T1	NSA	IMMED	NO	MN	MN	NR
INPPHASE	The specified input port has a excessive phase measurement that is disqualifies it from being used.	T1	NSA	IMMED	NO	MN	MN	MN
INPQL	Alarm indicating the received SSM is of lesser quality than the Local Oscillator's QLEVEL for a specified input.	T1	NSA	IMMED	NO	MN	MN	MN

Table B-1. Alarms (Continued)

Alarm ID Or CONDTYPE	Alarm Condition Description	AID TYPE	Service Affecting	Error Delay Default	Error Delay Editable	Alarm Default Level		
						SSU	PRS	SUB
INPTRR	The specified input port has a Tip/Ring reversal on it's connection to the system.	T1	NSA	IMMED	NO	MN	MN	MN
EXDSC	Input has had excessive discontinuities. This is indicated when there are more than three signal faults of the same type within a five minute window. The alarm clears when the five minute window contains less than three alarms of the same type.	T1	NSA	IMMED	NO	MN	MN	MN
MTIE	Input has exceeded at least one of the MTIE alarm thresholds.	T1	NSA	IMMED	NO	MN	MN	MN
<aid> = RTMg[-p]								
S1LOS	LOS on Side 1	T1	NSA	IMMED	NO	MN	MN	MN
S2LOS	LOS on Side 2	T1	NSA	IMMED	NO	NA	NA	NA
EXSLIP	Excessive slip rate	T1	NSA	IMMED	NO	NA	NA	NA
RTMFAULT	The IOC cannot determine if the Retimer is functioning properly.	T1	NSA	IMMED	NO	NA	NA	NA

Table B-2. Alarm Code Conditional Descriptions

Alarm ID	Set Alarm Conditional Description	Clear Alarm Conditional Description
SYS Alarm Conditions		
COMPAT	System components are incompatible	System components are compatible
PWRA	Power A failed	Power A restored
PWRB	Power B failed	Power B restored
EXTALM1	External Alarm 1 set	External Alarm 1 cleared
EXTALM2	External Alarm 2 set	External Alarm 2 cleared

Table B-2. Alarm Code Conditional Descriptions (Continued)

Alarm ID	Set Alarm Conditional Description	Clear Alarm Conditional Description
IOC1EQPT	IOC1 is unequipped	IOC1 is equipped
IOC2EQPT	IOC2 is unequipped	IOC2 is equipped
EXPNEQPT	Expansion panel is unequipped	Expansion panel is equipped
OUTAEQPT	Output module A is unequipped	Output module A is equipped
OUTBEQPT	Output module B is unequipped	Output module B is equipped
OUTCEQPT	Output module C is unequipped	Output module C is equipped
OUTDEQPT	Output module D is unequipped	Output module D is equipped
RTMAEQPT	Retimer module A is unequipped	Retimer module A is equipped
RTMBEQPT	Retimer module B is unequipped	Retimer module B is equipped
RTMCEQPT	Retimer module C is unequipped	Retimer module C is equipped
RTMDEQPT	Retimer module D is unequipped	Retimer module D is equipped

IMC Alarm Conditions

Alarm ID	Set Alarm Conditional Description	Clear Alarm Conditional Description
IOC1COMM	IMC to IOC 1 communication failed	IMC to IOC 1 communication established
IOC2COMM	IMC to IOC 2 communication failed	IMC to IOC 2 communication established
IMCFAIL	IMC BIST fault	IMC BIST fault cleared

IOC Alarm Conditions

Alarm ID	Set Alarm Conditional Description	Clear Alarm Conditional Description
IMC1COMM	IOC1 TO IMC communication failed	IOC1 TO IMC communication established
IMC2COMM	IOC2 TO IMC communication failed	IOC2TO IMC communication established
IOC1TO2 COMM	IOC1 TO IOC2 communication failed	IOC1 TO IOC2 communication established
IOC2TO1 COMM	IOC2 TO IOC1 communication failed	IOC2 TO IOC1 communication established
IOCFAIL	IOC BIST fault	IOC BIST fault cleared
BTBCKUP	BESTIME backup references disqualified	BESTIME backup references qualified
CLKWARM	CLOCK entered Warm-up mode	CLOCK exited Warm-up mode
CLKFREE	CLOCK entered Free-run mode	CLOCK exited Free-run mode
CLKBRDG	CLOCK entered Bridging mode	CLOCK exited Bridging mode
CLKHOLD	CLOCK entered Holdover mode	CLOCK exited Holdover mode

IOC1 Alarm Conditions

Table B-2. Alarm Code Conditional Descriptions (Continued)

Alarm ID	Set Alarm Conditional Description	Clear Alarm Conditional Description
IOCSTATE	IOC state has changed, unequipped	IOC state has changed, equipped
SYNTHEOR	Output generator exceeded pull-in range	Output generator within pull-in range

IOC2 Alarm Conditions

IOCSTATE	IOC state has changed, unequipped	IOC state has changed, equipped
SYNTHEOR	Output generator exceeded pull-in range	Output generator within pull-in range

GPS Alarm Conditions

ANTCOMM	GPS antenna comm fault	GPS antenna comm fault cleared
GPSPOS	GPS antenna position unknown	GPS antenna position known
GPSPWR	GPS power fault	GPS power fault cleared
GPSSYS	GPS system fault	GPS system OK
GPSTRK	GPS is not tracking satellites	GPS is tracking satellites
INPDISQ	Input disqualified as possible reference	Input qualified as possible reference
INPLOS	LOS fault	LOS fault cleared
INPPHASE	Phase error exceeded threshold	Phase error within threshold
EXDSC	Excessive discontinuity fault	Excessive discontinuity cleared
MTIE	MTIE threshold exceeded	MTIE within threshold
FFOFF	FFOFF threshold exceeded	FFOFF within threshold
TPIUSIG	TPIU signal fault	TPIU signal fault cleared

PRS Alarm Conditions

INPDISQ	Input disqualified as possible reference	Input qualified as possible reference
INPLOS	LOS fault	LOS fault cleared
INPFRQ	Frequency threshold exceeded	Frequency within threshold
INPPHASE	Phase error exceeded threshold	Phase error within threshold
EXDSC	Excessive discontinuity fault	Excessive discontinuity cleared
MTIE	MTIE threshold exceeded	MTIE within threshold
FFOFF	FFOFF threshold exceeded	FFOFF within threshold

INP[p] Alarm Conditions

INPDISQ	Input disqualified as possible reference	Input qualified as possible reference

Table B-2. Alarm Code Conditional Descriptions (Continued)

Alarm ID	Set Alarm Conditional Description	Clear Alarm Conditional Description
INPAIS	AIS fault	AIS fault cleared
INPLOS	LOS fault	LOS fault cleared
INPOOF	OOF fault	OOF fault cleared
INPFRQ	Frequency threshold exceeded	Frequency within threshold
INPPHASE	Phase error exceeded threshold	Phase error within threshold
INPQL	Quality level (SSM) exceeded threshold	Quality level (SSM) within threshold
INPTRR	Tip/Ring connections reversed	Tip/Ring connections correct
EXDSC	Excessive discontinuity fault	Excessive discontinuity cleared
MTIE	MTIE threshold exceeded	MTIE within threshold
FFOFF	FFOFF threshold exceeded	FFOFF within threshold
RTMg[-p] Alarm Conditions		
S1LOS	Side 1 LOS fault	Side 1 LOS fault cleared
S2LOS	Side 2 LOS fault	Side 2 LOS fault cleared
EXSLIP	Slip rate threshold exceeded	Slip rate within threshold
FRMFAULT	Retimer module has a fault	Retimer module fault has cleared

Appendix C Events

This Appendix provides a list of all events and a description of the cause. Table C-1 is a list of events and descriptions and Table C-2 is a list of event code conditional descriptions.

Table C-1. Event Identifiers

Event ID or CONDTYPE	Event Description	AID TYPE	Default Value	Value Description
IMC Keywords				
ACCLVL	The user 's system access level has changed in the database	EQPT	SECURITY – when no users have been assigned to the system	NONE – user has no access USER – user can access user level commands ADMIN – user can access admin level commands SECURITY – user can access security level commands
ACO	Audio Alarm was deactivated	EQPT	NA	NA
ALMCHG	The IMC alarm parameters have been changed	EQPT	NA	Alarm Keywords and Values are shown in Appendix B. When a Value is changed, the ALMCHG event is generated and the keyword and value is displayed.
AOMERGE	Enable/Disable autonomous event generation for the current session.	EQPT	ENABLE	ENABLE – Enables the autonomous messages to be displayed in the current session. DISABLE– Disables the autonomous messages from being displayed in the current session.
BAUD	The IMC serial port baud rate has changed	EQPT	9600	2400 | 9600 | 19200 | 38400 | 57600 | 115200
CMDCHG	The command access level was changed	EQPT	ACCLVL=USER	NONE USER ADMIN SECURITY
ECHO	The communication session's echo setting has changed	EQPT	DISABLE	ENABLE – User keystrokes are echoed DISABLE – User keystrokes are not echoed

Table C-1. Event Identifiers (Continued)

Event ID or CONDTYPE	Event Description	AID TYPE	Default Value	Value Description
FLOW	The IMC serial port flow control has changed	EQPT	NONE	NONE – No flow control SW – Software flow control XON/XOFF HW – Hardware flow control CTS/RTS SWHW – Use both types of flow control
FWFAIL	The firmware upgrade of IMC was unsuccessful. The firmware upgrade of the IOC was unsuccessful.	EQPT	NA	NA
FWOK	The firmware upgrade of IMC was successful. The firmware upgrade of the IOC was successful.	EQPT	NA	NA
IMCBIST	The user has requested the IMC to perform a Built-in Self Test.	EQPT	NA	PASSED – test(s) passed FAILED – test(s) failed
INACTTIME	Set the communication inactivity timeout. If no user command is entered within the specified time the user's session is terminated.	EQPT	0 (no timeout)	0 = Disable timeout 100 to 10000 (seconds)
INITLOG	The event log has initialized.	EQPT	NA	NA
IPADDR	The IMC Ethernet address has changed.	EQPT	0.0.0.0	1.0.0.1 to 254.255.255.254
IPGATE	The IMC Ethernet gateway address has changed.	EQPT	0.0.0.0	1.0.0.1 to 254.255.255.254
IPHOST1	The IMC Ethernet address for element manager host has changed.	EQPT	0.0.0.0	1.0.0.1 to 254.255.255.254
IPHOST2	The IMC Ethernet address for element manager host has changed.	EQPT	0.0.0.0	1.0.0.1 to 254.255.255.254

Table C-1. Event Identifiers (Continued)

Event ID or CONDTYPE	Event Description	AID TYPE	Default Value	Value Description
IPHOST3	The IMC Ethernet address for element manager host has changed.	EQPT	0.0.0.0	1.0.0.1 to 254.255.255.254
IPHOST4	The IMC Ethernet address for element manager host has changed.	EQPT	0.0.0.0	1.0.0.1 to 254.255.255.254
IPSUB	The IMC Ethernet subnet mask has changed.	EQPT	255.255.255.0	1.0.0.1 to 254.255.255.254
ISDIFF	The indication that the CRC of two Istates images stored on separate modules are the different.	EQPT	NA	NA
ISEQ	The indication that the CRC of two Istates images stored on separate modules are the equal.	EQPT	NA	NA
LOGECHO	Allows the system to be configured to echo the login or logout events.	EQPT	ENABLE	ENABLE – Echo the login/logout events DISABLE – *Do not* echo the login/logout events
LOGIN	A user has logged into the system	EQPT	NA	NA
LOGOUT	A user has logged out of the system	EQPT	NA	NA
PIDCHG	The user 's password was changed in the database	EQPT	pid	User password – password that can be up to 20 alphanumeric characters
RESET	When the IMC is commanded to reset, it generates an event indicating that it is being restarted.	EQPT	NA	NA
SIDCHG	The system's source identification was changed in the database	EQPT	NA	20 character name used to identify the network element
UIDCHG	The user 's name was changed in the database	EQPT	uid	uid – User name can be up to 20 characters

Table C-1. Event Identifiers (Continued)

Event ID or CONDTYPE	Event Description	AID TYPE	Default Value	Value Description
USRADD	The IMC user database was changed to add a user.	EQPT	uid pid uap	uid – Assigned user name pid – Assigned user password uap – Assigned user access level
USRDEL	The IMC user database was cleared of all users.	EQPT	NA	NA
USRDEL	The IMC user database was changed to delete a user.	EQPT	uid	uid – Username
XFERFAIL	The transfer of the IMC Istate to the IOC was unsuccessful. The transfer of IOC Istate to the IMC was unsuccessful. The transfer of IOC Istate to the redundant IOC was unsuccessful.	EQPT	NA	NA
XFEROK	The transfer of IMC Istate to the IOC was successful. The transfer of IOC Istate to the IMC was successful. The transfer of IOC Istate to the redundant IOC was successful.	EQPT	NA	NA
GPS Keywords				
MODE	User set/request for system position when using GPS or when position is automatically found	EQPT	AUTO	AUTO | MANUAL
POS	User set/request for GPS Antenna Latitude, Longitude, Height	EQPT	dd-mm-ss.ss(N or S) dd-mm-ss.ss(E or W) +/-hhhh.h	dd-mm-ss.ss(N|S). dd-mm-ss.ss(E|W),+/-hhhh.hh
ELEVMASK	User set/request for GPS Elevation Mask	EQPT	dd	5 to 45 (default is 10) degrees

Table C-1. Event Identifiers (Continued)

Event ID or CONDTYPE	Event Description	AID TYPE	Default Value	Value Description
IOC Keywords				
CCALIGN	Allows the user to clear the INPTRR alarm or clear INPTRR and force alignment between the CC output and a CC input.	T1	NA	NA
CLKTYPE	The specified IOC sets the clock type to the specified value. The value is used to define module pull in range and SSM generation during Holdover.	EQPT	TYPEI	ST3E | TYPEI | ST2 |TYPEII
INPREF	The specified input was selected as system reference. The possible references includes PRS, INP1, or INP2. GPS is reference in PRR mode only	EQPT	PRS	GPS, PRS, INP1, INP2
IOCMODE	When an IOC becomes the Active it generates an event.	EQPT	ACTIVE	ACTIVE | STANDBY
IOCSTATE	The specified IOC module was inserted into the system. The module is automatically Placed-In-Service.	EQPT	INSRV	INSRV – In Service
	The User has specified the IOC module be taken "Out of Service". OOSRV prevents the module from generating alarms or being provisioned or queried for provisioned settings, etc.	EQPT	INSRV	OOSRV - Out of Service

Table C-1. Event Identifiers (Continued)

Event ID or CONDTYPE	Event Description	AID TYPE	Default Value	Value Description
RESET	When the IOC is commanded to reset, it generates an event indicating that it is being restarted. Prior to restarting all alarms associated with the specified IOC is cleared. Prior to restarting, if the IOC is the Active IOC it is successfully placed in Standby mode.	EQPT	NA	NA
SYSMODE	Configures the systems mode of operation.	EQPT	SSU	SSU – Sync Supply Unit mode of operation SUB – Subtending TSG mode of operation PRR – Primary Reference Receiver mode of operation
IOC Clock Keywords				
CLKFSTLK	The local oscillator on the specified IOC is in Fast-Lock mode	EQPT	NA	NA
CLKLOCK	The local oscillator on the specified IOC is in Lock mode	EQPT	NA	NA
SCAVAIL	The specified IOC module was tracking a reference for at least 32 Hours, allowing the SmartClock algorithm to be engaged.	EQPT	OFF	ON – SmartClock is available. OFF – SmartClock is not available
IOC Input Keywords				
CKTIDCHG	User modified the Circuit ID for the input.	T1	OUTg[-p]	The Circuit ID can be up to 40 characters in length
CRCENA	Allows the user to provision the E1 (CAS) inputs to enable or disable the use of CRC4 checking. If the E1 input is provisioned to read SSMs, CRC4 is automatically enabled.	T1	DISABLE	ENABLE	DISABLE

Table C-1. Event Identifiers (Continued)

Event ID or CONDTYPE	Event Description	AID TYPE	Default Value	Value Description
FRMTYPE	Allows the user to provision the type of input framing or the input frequency. Allows the user to provision the output framing type.	T1	PRC INPUT = 2M INPUT 1 = 2M INPUT 2 = 2M	1.544M – 1.544MHz 2M – 2.048MHz 5M – 5MHz 6.312M – 6.312MHz 10M – 10MHz CCS – CCS Input D4 – Super Frame Input ESF – Extended Super Frame input CC – Composite Clock Input JCC – G.703 64K/8K JCC4 – G.703 64K/8K/0.4K
INSTATE	The state of the input ports used by the system	T1	ENABLE	DISABLE – Disable inputs, associated active alarms are cleared. ENABLE – Enable inputs, available as system reference. MONITOR – Allows the input to be monitored for performance and signal faults, but cannot be selected as reference input.
PMCLR	Allows the user to Clear the gathered Performance Data that is stored in the IMC module.	EQPT	NA	NA
PRIORITY	Allows the user to provision the priority of the input using	T1	1 (GPS) 1 (PRS) 2 (INP1) 3 (INP2)	1 = Highest 2 3 4 = Lowest
RQLEVEL	The Received Quality Level represents the received SSM on INP1 or INP2, this allows notification of changing SSMs	T1	2	1 = PRC/PRS 2 = UNK/STU 3 = TYPE II/ST2 4 = TYPE I 5 = TYPE V/TNC 6 = TYPE III/ST3E 7 = TYPE IV/ST3 8 = 811OPT3/SMC 9 = DUS

Table C-1. Event Identifiers (Continued)

Event ID or CONDTYPE	Event Description	AID TYPE	Default Value	Value Description
QLEVEL	Allows the user to provision the Quality Level of the input.	T1	2	1 = PRC/PRS 2 = UNK/STU 3 = TYPE II/ST2 4 = TYPE I 5 = TYPE V/TNC 6 = TYPE III/ST3E 7 = TYPE IV/ST3 8 = 811OPT3/SMC 9 = DUS
SPANTYPE (to be deprecated)	Allows the user to provision the system to accept either T1 or E1 inputs on INP1 and INP2	T1	E1	T1 | E1
SSMBIT	Allows the user to provision E1 (CAS) SSM bit position to allow the input to determine to proper bit to read the SSM on.	T1	8	4 | 5 | 6 | 7 | 8
SSMENA	Allows the user to provision the ESF or E1 (CAS) input to read or not to read the received SSM.	T1	DISABLE	ENABLE – Enable the reading of SSM DISABLE – Disable the reading of SSM
THRCHG	PM Threshold has changed.	EQPT	1 through 10000000	1 through 10000000

IOC Output Keywords

Event ID or CONDTYPE	Event Description	AID TYPE	Default Value	Value Description
CKTIDCHG	User modified the Circuit ID for the output.	T1	OUTg[-p]	The Circuit ID can be up to 40 characters in length
FRMTYPE	Allows the user to provision the type of input framing or the input frequency. Allows the user to provision the output framing type.	T1	OUTPUT = 2M	1.544M – 1.544MHz 2M- 2.048MHz 6.312M – 6.312MHz CCS – CCS Input D4 – Super Frame Input ESF – Extended Super Frame input CC – Composite Clock Input ISOLATED_1 – for T1 outputs generate an isolated one test pattern

Table C-1. Event Identifiers (Continued)

Event ID or CONDTYPE	Event Description	AID TYPE	Default Value	Value Description
FREEFLT	Defines if the output fault is set or not set when the LO enters Free-run mode of operation. The output groups are provisioned for fault strategies.	EQPT	SQUELCH	ON – In fault mode generate outputs based upon system SSM AIS – In fault mode generate AIS outputs SQUELCH – In fault mode outputs are turned off.
HOLDFLT	Defines if the output fault are set or not set when the LO enters Holdover mode of operation. The output groups are provisioned for fault strategies.	EQPT	ON	ON – In fault mode generate outputs based upon system SSM AIS – In fault mode generate AIS outputs SQUELCH – In fault mode outputs are turned off.
OUTSTATE	The specified output state has changed	T1	DISABLE	ENABLE – Enable the output to generate the defined signal type DISABLE – Disable the output and clear all active alarms associated with the input
SYS Keywords				
BRDGTIM	Bridging Time, in PRR mode the amount of time the system stays in Bridging Mode	EQPT	900 seconds	300 to 500000 seconds | DISABLE
CLRDELAY	The time, in seconds, before a faulted signal indicates it is valid to be used as a system reference.	EQPT	5 seconds	0 to 1000 seconds
ELEVTIME	The alarm elevation time (1440 minutes) was Enabled or Disabled.	EQPT	DISABLE	ENABLE | DISABLE
FACTORY	When the SYS is commanded to reset to Factory defaults, it generates an event indicating the factory settings are being restored. This resets all modules installed in the system at the time the command is issued.	EQPT	NA	NA

Table C-1. Event Identifiers (Continued)

Event ID or CONDTYPE	Event Description	AID TYPE	Default Value	Value Description
FLTDELAY	The time, in seconds, before a faulted signal indicates it is not valid to be used as a system reference.	EQPT	5 seconds	1 to 15 seconds
INPREF	Indicates when the system automatically selects a new reference input. Allows the user to manually select the input to be used for the system reference. The reference selection mode REFMODE must be set to FORCED.	T1	PRS	PRS – Select PRS input INP1 – Select Input 1 INP2 – Select Input 2 GPS is selected as system reference only in PRR mode of operation.
LOCTIM	The system local time offset was changed.	EQPT	(00)-00	(hh) – Hours offset +/-12 mm – minutes offsegt 00 to 59
REFMODE	Allows the system to automatically select the reference input or allow the user to select the reference.	EQPT	AUTO	AUTO – System uses Qlevel and Priority to select the system reference. FORCED – The user selects the system reference, if the selected reference fails the system reverts to AUTO mode for reference selection.
TIMCHG	The system time was changed.	EQPT	hh-mm-ss	hh – Hours (24 hour clock) mm – Minutes ss – Seconds
UTC	Indicates UTC time was determined by GPS interface.	EQPT	hh-mm-ss	hh-mm-ss
Retimer Keywords				
CKTIDCHG	User modified the Circuit ID for the output.	T1	RTMg[-p]	The Circuit ID can be up to 40 characters in length
FREEFLT	Defines the Retimer mode when the system is in Free-run mode.	T1	SQUELCH	RETIME – In fault mode, retime signals on Retimer module CUTTHRU – In fault mode, Retimer module is in cutthrough mode and signals are not retimed

Table C-1. Event Identifiers (Continued)

Event ID or CONDTYPE	Event Description	AID TYPE	Default Value	Value Description
HOLDFLT	Defines the Retimer mode when the system is in Holdover mode.	T1	SQUELCH	RETIME – In fault mode, retime signals on Retimer module CUTTHRU – In fault mode, Retimer module is in cutthrough mode and signals are not retimed
RTMLBO	The specified Retimer port Line Build-Out has changed.	T1	0	0 = 0 to 133 ft 1 = 133 to 266 ft 2 = 266 to 399 ft 3 = 399 to 533 ft 4 = 533 to 650 ft
RTMSTATE	The specified Retimer port state has changed.	T1	ENABLE	ENABLE – Enables the Retimer port DISABLE – Disables the Retimer port and clears all active alarms associated with the port.
SLIPCHG	The Retimer slip threshold has changed.	T1	4	0 to 255
SLIPCLR	The Retimer slip counter has been cleared	T1	NA	NA

Table C-2. Event Code Conditional Descriptions

Event ID	Event Conditional Description
IMC Event Conditions	
ACCLVL	User access level has changed
ACO	Audio alarm is deactivated
ACCLVL	User access level has changed
ACO	Audio alarm is deactivated
ALMCHG	Alarm parameter has changed, <keyword>,<alarm>
AOMERGE	Autonomous event reporting has changed, <state>
BAUD	Serial baud rate has changed, <value>
CMDCHG	Command access level has changed, <command>
ECHO	Serial port echo mode has changed, <state>
FLOW	Serial flow control has changed, <state>

Table C-2. Event Code Conditional Descriptions (Continued)

Event ID	Event Conditional Description
FWFAIL	Firmware upgrade unsuccessful
FWOK	Firmware upgrade successful
FWLOAD	Beginning firmware upgrade
IMCBIST	Built-in self test, <value>
INITLOG	Event log has been cleared
IPADDR	IP address has changed, <value>
IPGATE	Gateway IP address has changed, <value>
IPHOST1	Host IP has changed, <value>
IPHOST2	Host IP has changed, <value>
IPHOST3	Host IP has changed, <value>
IPHOST4	Host IP has changed, <value>
IPSUB	Subnet mask IP address has changed, <value>
ISDIFF	Configuration images are different
ISEQ	Configuration images are the same
LOGIN	User logged in, <username>
LOGOUT	User logged out, <username>
PIDCHG	User password has changed
RESET	Module has been reset
SIDCHG	System Source ID has changed, <value>
USRADD	User has been added
USRDEL	No users defined
USRDEL	User has been deleted
XFERFAIL	Configuration transfer failed, <fromdev>,<todev>
XFEROK	Configuration transfer successful, <fromdev>,<todev>

GPS Event Conditions

CKTIDCHG	GPS Circuit ID has changed, <cktid>
ELEVMASK	GPS elevation mask, <value>
MODE	GPS antenna mode, <mode>
POS	GPS antenna position, <pos>

Table C-2. Event Code Conditional Descriptions (Continued)

Event ID	Event Conditional Description
IOC Event Conditions	
CCALIGN	Composite Clock alignment
CLKTYPE	Clock type has changed, <state>
FWFAIL	Firmware upgrade unsuccessful
FWOK	Firmware upgrade successful
FWLOAD	Beginning firmware upgrade
IOCMODE	IOC mode is. <mode>
IOCSTATE	IOC state has changed, <state>
RESET	Module has been reset
IOC Clock Event Conditions	
CLKFSTLK	Clock entered fast-lock mode
CLKLOCK	Clock entered lock mode
SCAVAIL	SmartClock algorithm, <value>
IOC Input Event Conditions	
CKTIDCHG	Input Circuit ID has changed, <cktid>
CRCENA	Input CRC has changed, <value>
FRMTYPE	Input framing type has changed, <value>
INSTATE	Input state has changed, <value>
PRIORITY	Priority has changed, <value>
RQLEVEL	Received Quality Level has changed, <old quality value>, <new quality value>
QLEVEL	User assigned Quality Level has changed, <value>
SPANTYPE	Input span type has changed, <value>
SSMBIT	E1 SSM bit has changed, <bit position>
SSMENA	Input reading of SSM has changed, <value>
THRCHG	PM threshold has changed, <PM type>, <value>
IOC Output Event Conditions	
CKTIDCHG	Output Circuit ID has changed, <cktid>
FREEFLT	Free-run output fault strategy has changed, <state>
FRMTYPE	Output framing type has changed, <value>

Table C-2. Event Code Conditional Descriptions (Continued)

Event ID	Event Conditional Description
HOLDFLT	Holdover output fault strategy has changed, \<state>
OUTSTATE	Output group state has changed, < value >
OUTMODE	Output fault mode has changed, < value >

SYS Event Conditions

BRDGTIM	Bridging time has changed, \<value>
CLRDELAY	Input clear delay has changed, \<value>
DATCHG	System date has changed, \<date>
ELEVTIME	Alarm elevation time has changed, \<state>
FACTORY	Provisioned to factory defaults
FLTDELAY	Input fault delay has changed, \<value>
INACTTIME	Communication timeout has changed, \<value>
INPREF	System reference input has changed, \<selected reference>
LOCTIM	System's local time offset has changed, \<time offset>
LOGECHO	Record login event,\<value>
REFMODE	System Reference mode has changed, \<mode>
TIMCHG	System time has changed, \<time>
SYSMODE	System mode of operation has changed, \<state>
UTC	GPS has set System time to UTC, \<UTC date, UTC time>

RTM Event Keywords

CKTIDCHG	Retimer Circuit ID has changed, \<cktid>
FREEFLT	Free-run Retimer fault strategy has changed, \<state>
HOLDFLT	Holdover Retimer fault strategy has changed, \<state>
RTMLBO	Port LBO has changed, \<value>
RTMSTATE	Port state has changed, \<value>
SLIPCHG	Slip threshold has changed, \<value>
SLIPCLR	Slip counter has been cleared

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