TimeProvider 1000 and 1100 Node Clock

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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). Chapter A, TL1 Command by Function is a list of commands grouped by task (security and administration, system performance, and performance monitoring). Chapter B, Alarms and Chapter 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 Command 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's Guide*, part number 097-58001-02

- Software Release Notice, part number 097-58001-20 or 097-58001-21

- TimePictra management software – See the User's manual provided on the system CD

- *SynCraft* management software – Help files within the application

> **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 information for the following commands.

- RTRV-ALM: added RTM <aid>, added E422 <aid>

- RTRV/SET-ATTR: added RTM <aid>, added E422gEQPT, added Equipped/Unequipped alarm settings for RTMg, OUTg, and E422g

- RTRV-COND: replaced EXPFAIL with EXPNEQPT, added E422 <aid>

- RTRV/ED-CKTID: added E422 <aid>

- RTRV-CRAFT: added Retimer fault strategies, replaced EXPSTATUS with EXPNEQPT, added E422 and NTP information

- RTRV/ED-EQPT: for NTP, RTM, and E422 parameters

- RTRV-INV: added E422 information

- RTRV-LOG: added a starting index count, added RTM <aid>, added E422 <aid>

- RTRV-LED: added Antenna Power and Antenna Signal LED descriptions and response

- SET-ATTR: added E422 fault

Revision C also includes the following new TL1 commands and alarms:

- ACT-FEATURE command, to activate the NTP feature

- RTRV/ED-CKTID command, to view and change the Circuit ID on inputs and outputs

- RTRV-NTP-PEER command, to display the NTP parameters

- IMCTCPIP alarm, to indicate excessive TCP/IP activity

- CKTIDCHG events, to indicate changes to Circuit ID

- NTP, RTM, and E422 alarms and events

- RMV-EQPT command, to silence equipment alarms after removing hardware

The following commands, alarms, or events have been removed:

- EXPFAIL; was replaced with EXPEQPT

- SPANTYPE

Chapter 1 TL1 Overview

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

In This Chapter

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.


```
        Block                          Terminating
      Separator                         Character
          |                                 |
          |                                 |
   cid:tid:aid:ctag::payload;
   └┬┘ └──────┬──────┘ └──┬──┘
  Command     Staging     Payload
   Code        Block       Block
   Block
```
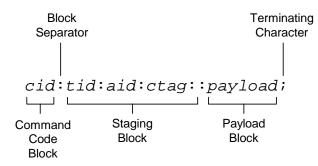
Figure 1-1.   Typical TL1 Command Structure

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 38 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 47 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 4 kBytes of information that the unit returns in response to the command.
LG_textblk	If the unit responds with a message containing more than 4 kBytes of information, the message is divided into records of approximately 4 kBytes, 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.
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

Table 1-3. Error Codes Returned in Error Responses (Continued)

Error Code	Meaning
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.

Table 1-5. Autonomous Message Fields (Continued)

Field	Description
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 that increments 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.
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 C-2 shows all of the possible TimeProvider event condition types, and Table B-2 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 C-2 set CONDEFF to `TC`. If alarms listed in Table B-2 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 C-2 shows all of the possible TimeProvider event condition strings, and Table B-2 shows all of the possible TimeProvider alarm and clearing alarm condition strings.

Table B-2 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 C-2 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.

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 1-6 lists each of the TimeProvider's TL1 commands in alphabetical order. The command type and default (factory set) access level is included in Table 1-6 for each command.

Table 1-6. TimeProvider TL1 Command Types and Access Levels

Command Name	Command Type	Factory-Set Access Level
ACT-FEATURE	Administrative	ADMIN
ACT-SWDL	Administrative	ADMIN
ACT-USER	Session	NONE
CANC-USER	Session	USER
CPY-MEM	System	ADMIN
DLT-PM-DATA	Administrative	USER
DLT-SECU	Administrative	SECURITY
DLT-USER-SECU	Administrative	SECURITY
ED-CKTID	System	USER
ED-CMD-SECU	Administrative	ADMIN
ED-DAT	System	ADMIN
ED-EQPT	System	ADMIN
ED-PID	Administrative	USER
ED-SYNC	System	ADMIN
ED-USER-SECU	Administrative	SECURITY
ENT-PID	Administrative	SECURITY
ENT-USER-SECU	Administrative	SECURITY
INIT-LOG	System	ADMIN
INIT-SYS	System	ADMIN
OPR-ACO-ALL	System	USER
PING	Session	USER
RMV-EQPT	System	USER

Table 1-6. TimeProvider TL1 Command Types and Access Levels (Continued)

Command Name	Command Type	Factory-Set Access Level
RTRV-ALM	System	USER
RTRV-ATTR	System	USER
RTRV-BESTIME-STAT	Administrative	USER
RTRV-BIST	System	USER
RTRV-CKTID	System	USER
RTRV-CMD-SECU	Administrative	ADMIN
RTRV-COND	System	USER
RTRV-CRAFT	System	USER
RTRV-DAT	System	USER
RTRV-EQPT	System	USER
RTRV-GPS-STAT	System	USER
RTRV-HDR	System	NONE
RTRV-INV	System	USER
RTRV-LED	System	USER
RTRV-LOG	Administrative	USER
RTRV-NETYPE	System	NONE
RTRV-NTP-PEER	System	USER
RTRV-PM	System	USER
RTRV-SYNC	System	USER
RTRV-SYS-MODE	System	USER
RTRV-TH	System	USER
RTRV-USER	Session	USER
RTRV-USER-SECU	Administrative	SECURITY
SET-ATTR	System	ADMIN
SET-SID	System	ADMIN
SET-SYS-MODE	System	ADMIN
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 Feature (ACT-FEATURE)

This command enables the specified feature in the TimeProvider. Once the feature has been enabled, it cannot be disabled.

This command has a default access level of ADMIN.

Syntax

```
ACT-FEATURE:[<tid>]:<fid>:[<ctag>]::<key>;
```

Parameter	Value	Description
<fid>	NTP	The name of the feature to be activated.
<key>		The key to enable the feature. This can be up to 20 case-sensitive characters, and must be enclosed in quotes. Contact your Symmetricom representative to obtain the key.

Example

To activate the NTP feature using the Symmetricom-supplied <key> parameter:

Input

```
ACT-FEATURE::NTP:TP1000::"Symmetricom-Key";
```

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:FEATURE,TC,05-02-10,13-35-56,,,,:\"SYSTEM FEATURE HAS BEEN
ACTIVATED, NTP\""
;
```

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* = "1" for the module marked "IOC 1" on the main shelf. ■ *m* = "2" for the module marked "IOC 2" on the main shelf.

The Firmware Download Process

⚠️ **Caution:** To avoid a possible service call, do not issue any additional TL1 commands to the TimeProvider, do not remove power from the TimeProvider, and do not remove an IOC or IMC from the shelf during the firmware upgrade process (minimum 30 minutes). Doing so could corrupt the flash memory in a card, disabling the TimeProvider.

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

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

Refer to the *TimeProvider User's 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 or 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\""
;CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCIP 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\""
;CCCCCCCCCCCCCIP 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. Each session is independent, allowing a user to have multiple sessions with no interaction among sessions (requested data is delivered to the proper session). If a user has a current session active, that user can log in using another user name, which transfers the current session to the new user name. The system records the log-in event, but does not record a log-out event for the previous user. If no users are defined in the system, then the user has access at the Security level.

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 65 for valid password specifications.

The maximum number of sessions is ten.

Note: A Security-level user initially sets up the user list by using the Enter User Security (ENT-USER-SECU) command. Users log in using the ACT-USER command, specifying the user name and password that have been assigned by a Security-level 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:** Users at the Admin or Security level 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 the current session for user "FRED":

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 might 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

   "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. Anyone who logs in to the TimeProvider in this condition has access to all commands.

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

    "IMC,EQPT:USRDEL,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
    "IMC,EQPT:USRDEL,TC,05-02-10,13-35-56,,,,:\"USER HAS BEEN DELETED\""
;
```

Edit Circuit Identifier (ED-CKTID)

This command edits the name of the equipment connected to the input or the output of the TimeProvider.

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

Syntax

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

Parameter	Value	Description
<aid>	GPS, PRS, INP1, INP2, OUT*g[-p]* (g = A|B|C|D, p = 1 to 16), RTM*g[-p]* (g = A|B|C|D, p = 1|2), E422*g[-p]* (g = A|B|C|D, p = 1 to 8)	The command's effect is on the specified input or output. **Note:** See Table 2-3 for <keyword> and <value> descriptions.

Table 2-3. ED-DAT – Keywords and Values for <aid>=SYS

<keyword>	<value>	Description	Default
CKTIDCHG	up to 40 characters	A valid CKTID is up to 40 characters, and must be enclosed in quotes.	N/A

Example
To change the circuit ID on INP1 to ABC123:

Input

```
ED-CKTID::INP1:TP1000::"ABC123";
```

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:CKTIDCHG,TC,05-02-10,13-35-56,,,,:\"INPUT CIRCUIT ID HAS CHANGED, ABC123
13-35-56\""
;
```

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 default 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
    "IMC,EQPT:ACCLVL,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* = the 2-digit year, *mm* = the 2-digit representation of the month, *dd* = the day of the month	N/A
TIMCHG	*hh-mm-ss*	The hours, minutes, and seconds set for the system: *hh* = hour, in 24-hour format, *mm* = minutes, *ss* = seconds	N/A
LOCTIM	*±hh-mm*	The hours and minutes that local time is offset from UTC: *hh* = the local time's hour offset from UTC; ±12 hours, *mm* = 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. To provision NTP parameters, see ED-EQPT for NTP Parameters, on page 53.

This command has a default access level of ADMIN.

Syntax

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

Parameter	Value	Description See Table 2-6 for <keyword> and <value> descriptions.
<aid>	SYS	The command's effect is at the system level.
	COM*p*	The command's effect is on the communication port specified by *p*: ■ *p* = "L" for the local serial port ■ *p* = "R" for the remote serial port ■ *p* = "I" for the IP (Ethernet) port
	IOC*m*	The command's effect is on the IOC module specified by *m*: ■ *m* = "1" for the slot marked "IOC 1" on the main shelf ■ *m* = "2" for the slot marked "IOC 2" on the main shelf
	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 = "1" for the input marked INP 1 on the Input Connector module ■ p = "2" for the input marked INP 2 on the Input Connector module
	OUT*g*	The command's effect is on the output group specified by *g*: ■ *g* = "A" for the group marked "A" on the main shelf ■ *g* = "B" for the group marked "B" on the main shelf ■ *g* = "C" for the group marked "C" on the main shelf ■ *g* = "D" for the group marked "D" on the main shelf
	RTM*g[-p]*	The command's effect is on the Retimer group and port specified by *g[-p]*: ■ *g* = "A" for the group marked "A" on the main shelf ■ *g* = "B" for the group marked "B" on the main shelf ■ *g* = "C" for the group marked "C" on the main shelf ■ *g* = "D" for the group marked "D" on the main shelf ■ *p* = "1" for Port 1 on the Retimer module ■ *p* = "2" for Port 2 on the Retimer module

Parameter	Value	**Description** See Table 2-6 for <keyword> and <value> descriptions.
<aid> cont'd	E422*g*	The command's effect is on the EIA-422 output group specified by *g*: ■ *g* = "A" for the group marked "A" on the main shelf ■ *g* = "B" for the group marked "B" on the main shelf ■ *g* = "C" for the group marked "C" on the main shelf ■ *g* = "D" for the group marked "D" on the main shelf

Table 2-6. ED-EQPT – Keywords and Values

<keyword>	**<value>**	**Description**	**Default**
<aid> = SYS			
INACTTIME	100 – 10000	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 increments 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.	
<aid> = COML | COMR | 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	The TID is not echoed in response messages.	DISABLE
	DISABLE	The TID is echoed in response messages.	

Table 2-6. ED-EQPT – Keywords and Values (Continued)

<keyword>	<value>	Description	Default
<aid> = COML | COMR only			
BAUD	2400	The specified serial port's baud rate is set to 2400 baud.	9600
	9600	The specified serial port's baud rate is set to 9600 baud.	
	19200	The specified serial port's baud rate is set to 19200 baud.	
	28800	The specified serial port's baud rate is set to 28800 baud.	
	38400	The specified serial port's baud rate is set to 38400 baud.	
	57600	The specified serial port's baud rate is set to 57600 baud.	
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.	
<aid> = COMI only **Note:** For valid IP address ranges, refer to RFC1466 and RFC3330. **Note:** To avoid unexpected interruptions in NTP service, you must restart the IMC card after you change either the Subnet Mask or the IP Address when NTP is active.			
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)		Reserved for future use.	
<aid> = IOCm			
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.	

Table 2-6. ED-EQPT – Keywords and Values (Continued)

<keyword>	<value>	Description	Default
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.	

		<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 elevation) using the POS keyword.	
POS **Note:** The position can only be set when MODE = Manual.	LAT	dd-mm-ss.ssN or dd-mm-ss.ssS	N/A
	LONG	dd-mm-ss.ssE or dd-mm-ss.ssW	
	ELEV	±hhhh.h elevation (altitude) in meters	
ELEVMASK	5° to 45°	The specified elevation mask.	10°

Table 2-6. ED-EQPT – Keywords and Values (Continued)

<keyword>	<value>	Description	Default
<aid> = PRS			
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 input is monitored for signal faults and the performance of the input is monitored, but the input cannot be selected as a system reference or used as a BesTime backup reference.	
<aid> = INPp			
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 input is monitored for signal faults and the performance of the input is monitored, but the input cannot be selected as a system reference or used as a BesTime backup reference.	
<aid> = OUTg			
OUTSTATE	ENABLE	The specified output group is enabled.	DISABLE
	DISABLE	The specified output group is disabled.	
<aid> = E422g			
OUTSTATE	ENABLE	The specified EIA-422 output group is enabled.	DISABLE
	DISABLE	The specified EIA-422 output group is disabled.	
<aid> = RTMg[-p]			
RTMSTATE	ENABLE	The specified Retimer group is enabled.	ENABLE
	DISABLE	The specified Retimer output group is disabled.	
SLIPCLR	NA	Clears a current Slip alarm from the specified port.	NA

Note: See Edit Sync (ED-SYNC), on page 57 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\""
;
```

ED-EQPT for NTP Parameters

There are two sets of ED-EQPT commands to set up the NTP option on the TimeProvider:

- Peer Server

- Authentication

These commands have a default access level of ADMIN.

Configuring the Peer Server

When you set the <func> value to ADD or MODIFY, you must include the <keyid>, <minpoll>, <maxpoll> and <preferred> values.

Syntax

```
ED-EQPT:[<tid>]:NTP:[<ctag>]::SERVER,<func>,<serverIP>[,<keyid>,
<minpoll>,<maxpoll>,<preferred>];
```

<keyword>	<value>	Description	Default
FUNC	ADD | DELETE | MODIFY	The SERVERIP address to be added, deleted, or modified.	NA
SERVERIP	1.0.0.1 – 254.255. 255.254	The NTP IP Mask **Note:** If you change this parameter while NTP is functioning, you *must* restart the IMC card (using the INIT-SYS command) to use the new address.	0.0.0.0
KEYID	1 to 65534	The Authentication identification value	0
MINPOLL	16 | 32 | 64 | 128 | 256 | 512 | 1024	The minimum amount of time, in seconds, between Server time requests.	16
MAXPOLL	16 | 32 | 64 | 128 | 256 | 512 | 1024	The maximum amount of time, in seconds, between Server time requests.	1024
PREFERRED	YES | NO	Sets the server to be the Preferred server.	NO

Example

This command adds the server mask of 192.168.10.1, sets the Authentication ID to 1, the max poll to 64, the min poll to 1024, and the preferred to No.

Input

```
ED-EQPT::NTP:TP1000::SERVER,ADD,192.168.10.1,1,64,1024,NO;
```

Normal Response

```
    TP-SSU 03-05-15 10-04-32
A 1166 REPT EVT
    "NTP,EQPT:SERVER,TC,03-05-15 10-04-32,,,,:\NTP SERVER CONFIGURATION HAS
CHANGED,192.168.10.1,0,16,1024,NO"
;
```

Enabling NTP Authentication

This command enables or disables the use of the KeyID/Key pairs.

Syntax

```
ED-EQPT:[<tid>]:NTP:[<ctag>]::AUTHEN=<value>;
```

<keyword>	<value>	Description	Default
AUTHEN	ENABLE | DISABLE	Enable or disable NTP Authentication	DISABLE

Example

To enable NTP authentication:

Input

```
ED-EQPT::NTP:TP1000::AUTHEN=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
    "NTP,EQPT:SERVER,TC,05-02-10,13-35-56,,,,:\"NTP AUTHENTICATION=ENABLE\""
;
```

Configuring NTP Key Generation

This command creates a KeyID and Key pair that can be used to authenticate the NTP timestamp that the TimeProvider sends as the NTP server. You can create up to nine KeyID/Key pairs, and then specify which pair to use when you configure the NTP Server.

> **Note:** To prevent confusion at a later date, be sure to write down and store in a secure place the Key/KeyID pairs you create. There is no provision for displaying the stored Key/KeyID pairs.

> **Note:** The " : and \ characters may not be used in the Key/KeyID pairs.

Syntax

```
ED-EQPT:[<tid>]:NTP:[<ctag>]::KEYGEN,<func>,<keyid>[,<key>];
```

<keyword>	<value>	Description	Default
FUNC	ADD | DELETE | MODIFY	Key to be added, deleted, or modified	NA
KEY	32-character ASCII value	Authentication key	Null
KEYID	1 to 65534	The Authentication identification value	1

Example

To add an NTP authentication key:

Input

```
ED-EQPT::NTP:TP1000::KEYGEN,ADD,ABC...XYZABCDEF,1024;
```

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
   "NTP,EQPT:SERVER,TC,05-02-10,13-35-56,,,,:\"NTP AUTHENTICATION HAS
CHANGED\""
;
```

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 See Table 2-7 for <keyword> and <value> descriptions
<aid>	SYS	The command's effect is on system-level input settings.
	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 = "1" for the input marked INP 1 on the Input Connector module ■ p = "2" for the input marked INP 2 on the Input Connector module
	OUT*g*	The command's effect is on the output group specified by *g*: ■ *g* = "A" for the group marked "A" on the main shelf ■ *g* = "B" for the group marked "B" on the main shelf ■ *g* = "C" for the group marked "C" on the main shelf ■ *g* = "D" for the group marked "D" on the main shelf
	RTM*g[-p]*	The command's effect is on the Retimer group and port specified by *g[-p]*: ■ *g* = "A" for the group marked "A" on the main shelf ■ *g* = "B" for the group marked "B" on the main shelf ■ *g* = "C" for the group marked "C" on the main shelf ■ *g* = "D" for the group marked "D" on the main shelf ■ *p* = "1" for Port 1 on the Retimer module ■ *p* = "2" for Port 2 on the Retimer module
	E422*g*	The command's effect is on the EIA-422 output group specified by *g*: ■ *g* = "A" for the group marked "A" on the main shelf ■ *g* = "B" for the group marked "B" on the main shelf ■ *g* = "C" for the group marked "C" on the main shelf ■ *g* = "D" for the group marked "D" on the main shelf

Table 2-7. ED-SYNC – Keywords and Values

<keyword>	<value>	Description	Default
<aid> = SYS			
CLRDELAY	0 – 1000	The time, in seconds, 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.	5
FLTDELAY	1 – 15	The time, in seconds, that elapses after an LOS, AIS, or OOF fault occurs and before the associated alarm condition is set. This delay helps prevent spurious alarms.	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	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.	
	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.		
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. This is a non-persistent value; when the alignment is complete, the value returns to its previous value.	NA

Table 2-7. ED-SYNC – Keywords and Values (Continued)

<keyword>	<value>	Description	Default
\<aid\> = GPS			
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. The input QLEVEL setting determines 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).	1
	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	1	The priority level of the input is set to 1.	1
	2	The priority level of the input is set to 2.	
	3	The priority level of the input is set to 3.	
	4	The priority level of the input is set to 4.	
Note: If the QLEVEL on all inputs are equal, then the input with the highest PRIORITY is selected. The input PRIORITY settings determine if the switching strategy is revertive or non-revertive. This setting is used when REFMODE is set to AUTO.			
\<aid\> = PRS			
QLEVEL		Refer to the QLEVEL description under the **\<aid\> = GPS** heading in this table.	
PRIORITY		Refer to the PRIORITY description under the **\<aid\> = GPS** heading in this table.	

Table 2-7. ED-SYNC – Keywords and Values (Continued)

<keyword>	<value>	Description	Default
FRMTYPE	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.	
	Note: If the input frequency does not match the FRMTYPE setting, an input loss-of-signal (INPLOS) condition results.		

<div align="center"><aid> = INPp</div>

QLEVEL		Refer to the QLEVEL description under the **<aid> = GPS** heading in this table.	
PRIORITY		Refer to the PRIORITY description under the <**aid> = GPS** heading in this table.	
FRMTYPE **Note:** When the TimeProvider is in Subtending mode, see "Set System Mode (SET-SYS-MODE)" on page 136, 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
	CAS	Specified input frame signal type is CAS.	
	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.	DISABLE
	DISABLE	Disables the use of CRC4 checking on the input.	
	Note: If an input is provisioned to read SSMs (SSMENA=ENABLE), CRC4 must be provisioned first.		

Table 2-7. ED-SYNC – Keywords and Values (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 (CCS) SSM at bit position 4.	8
	5	The specified input is provisioned to read the E1 (CCS) SSM at bit position 5.	
	6	The specified input is provisioned to read the E1 (CCS) SSM at bit position 6.	
	7	The specified input is provisioned to read the E1 (CCS) SSM at bit position 7.	
	8	The specified input is provisioned to read the E1 (CCS) SSM at bit position 8.	

<aid> = OUTg

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.	
	CCS	The framing type generated by the specified output group is provisioned as CCS.	
	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.	

Table 2-7. ED-SYNC – Keywords and Values (Continued)

<keyword>	<value>	Description	Default
FRMTYPE (cont'd)	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.	
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.	
SSMENA	ENABLE	ESF or E1 (CCS) outputs generate SSMs.	ENABLE
	DISABLE	ESF or E1 (CCS) outputs do not generate SSMs.	
SSMBIT	4	The output SSM is placed in bit position 4.	ALL
	5	The output SSM is placed in bit position 5.	
	6	The output SSM is placed in bit position 6.	
	7	The output SSM is placed in bit position 7.	
	8	The output SSM is placed in bit position 8.	
	ALL	The output SSM is placed in all bit positions.	

<div align="center"><aid> =RTMg[-p]</div>

RTMLBO	0	Sets the Line Build-out length to 0 to 133 ft	0
	1	Sets the Line Build-out length to 133 to 266 ft	
	2	Sets the Line Build-out length to 266 to 399 ft	
	3	Sets the Line Build-out length to 399 to 533 ft	
	4	Sets the Line Build-out length to 533 to 650 ft	
FREEFLT	CUTTHRU	Cut-thru mode is engaged when the Local Oscillator enters Free-run mode.	RETIME
	RETIME	Cut-thru mode is not engaged when the Local Oscillator enters Free-run mode.	

Table 2-7. ED-SYNC – Keywords and Values (Continued)

<keyword>	<value>	Description	Default
HOLDFLT	CUTTHRU	Cut-thru mode is engaged when the Local Oscillator enters Holdover mode.	RETIME
	RETIME	Cut-thru mode is not engaged when the Local Oscillator enters Holdover mode.	

<aid> = E422g			
FRMTYPE	1.544M	The framing type generated by the specified EIA-422 output group is provisioned as 1.544 MHz.	1.544M
	2M	The framing type generated by the specified EIA-422 output group is provisioned as 2 MHz.	
FREEFLT	ON	Outputs are generated when the Local Oscillator enters Free-run mode.	SQUELCH
	SQUELCH	Outputs are squelched (turned off) when the Local Oscillator enters Free-run mode.	
HOLDFLT	ON	Outputs are generated when the Local Oscillator enters Holdover mode.	ON
	SQUELCH	Outputs are squelched (turned off) when the Local Oscillator enters Holdover mode.	

Note:
[1] Used only in Japanese version.

Example

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

Input

```
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 2-8 for <keyword> and <value> descriptions.

Table 2-8. ED-USER-SECU – Keyword and Values for <uid>=text string

<keyword>	<value>	Description	Default
ACCLVL	NONE	The specified user is assigned an access level of NONE. **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, and can issue commands having an access level of NONE or USER.	
	ADMIN	The specified user has ADMIN access, and can issue commands having an access level of NONE, USER, or ADMIN.	
	SECURITY	The specified user has SECURITY access, and can issue all commands.	

Example

To change the access level for user "FRED" 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 the password for user "FRED" 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 20 users can be stored in the user database. With no users defined, anyone connecting to the system has access to all commands.

The first user you create *must* be at the Security level. After you create this user, 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 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 long. 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 is assigned an access level of NONE. **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 "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 2-9 for the <keyword> description.
	IMC	The command's effect is on the IMC module. **Note:** See Table 2-9 for the <keyword> description.
	IOC*m*	The command's effect is on the Input/Output Card module specified by *m*: ■ *m* = "1" for the slot marked "IOC 1" on the main shelf ■ *m* = "2" for the slot marked "IOC 2" on the main shelf **Note:** See Table 2-9 for the <keyword> description.

Table 2-9. INIT-SYS Keywords

<keyword>	Description	Default
<aid> = SYS		
FACTORY	Resets system settings to factory default values.	N/A
<aid> = IMC | IOCm		
RESET	Performs a reset (reboot) of the specified card, which reinitializes volatile memory, but does not affect non-volatile (persistent) memory. **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 will squelch 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 user to confirm that a redundant IOC, Output module, Retimer module, Expansion Panel, or TPIU that was connected to the system when it started up has been removed from the system and to clear the associated alarm. The RMV-QEQPT command allows the system to operate alarm-free after you change the hardware configuration. If you replace the hardware while the equipment alarm is active, then the alarm clears automatically.

This command has a default access level of USER.

Syntax

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

<aid>	<keyword>	Description
SYS	IOCm	Clears currently active IOCmEQPT alarms from the Input/Output Card module specified by m, if the module is not to be replaced: ■ m = "1" for the slot marked "IOC 1" on the main shelf ■ m = "2" for the slot marked "IOC 2" on the main shelf
	E422g	Clears currently active E422gEQPT alarms from the E422 Output module specified by g, if the module is not to be replaced: ■ g = "A" for the group marked "A" on the main shelf ■ g = "B" for the group marked "B" on the main shelf ■ g = "C" for the group marked "C" on the main shelf ■ g = "D" for the group marked "D" on the main shelf
	OUTg	Clears currently active OUTgEQPT alarms from the Output module specified by g, if the module is not to be replaced: ■ g = "A" for the group marked "A" on the main shelf ■ g = "B" for the group marked "B" on the main shelf ■ g = "C" for the group marked "C" on the main shelf ■ g = "D" for the group marked "D" on the main shelf
	RTMg	Clears currently active RTMgEQPT alarms from the Retimer module specified by g, if the module is not to be replaced: ■ g = "A" for the group marked "A" on the main shelf ■ g = "B" for the group marked "B" on the main shelf ■ g = "C" for the group marked "C" on the main shelf ■ g = "D" for the group marked "D" on the main shelf
	EXPN	Clears currently active EXPNEQPT alarms if the panel is not to be replaced.
	TPIU	Clears currently active TPIUEQPT alarms if the TPIU is not to be replaced.

Example

To clear the OUTBEQPT alarm after permanently removing the Output module from group B:

Input

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

Response Example

```
   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* = "1" for the slot marked "IOC 1" on the main shelf ■ *m* = "2" for the slot marked "IOC 2" on the main 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 = "1" for the input marked INP 1 on the Input Connector module ■ p = "2" for the input marked INP 2 on the Input Connector module
	RTM*g[-p]*	Retrieves information for all currently active alarms from the specified Retimer module [and port]. ■ *g* = "A" for the group marked "A" on the main shelf ■ *g* = "B" for the group marked "B" on the main shelf ■ *g* = "C" for the group marked "C" on the main shelf ■ *g* = "D" for the group marked "D" on the main shelf ■ p = "1" for Port 1 on the Retimer module ■ p = "2" for Port 2 on the Retimer module

Parameter	Value	Description
<aid> (cont'd)	E422*g*	Retrieves information for all currently active alarms from the specified EIA-422 output module. ■ *g* = "A" for the group marked "A" on the main shelf ■ *g* = "B" for the group marked "B" on the main shelf ■ *g* = "C" for the group marked "C" on the main shelf ■ *g* = "D" for the group marked "D" on the main shelf

Command Output

The following shows the output format of the command, and Table 2-10 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 2-10. 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). If the alarm is set to NA, then this field is empty.
condtype	The TL1 alarm code that is associated with the event or alarm. **Note:** Table B-2 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 B-2 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
   "SYS,EQPT:MJ,EXPFAIL,SA,05-02-10,13-37-39,,:\"EXPANSION CONNECTIVITY FAILED\""
   "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 See Table 2-11 for <keyword> descriptions.
<aid>	ALL (or *null*)	Retrieves the alarm levels set for all alarms in the entire system.
	SYS	Retrieves the alarm level(s) set for all system-level alarms, or for the specified system-level alarm.
	IMC	Retrieves the alarm level(s) set for all Information Management Card (IMC) alarms, or for the specified IMC alarm.
	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* = "1" for the slot marked "IOC 1" on the main shelf ■ *m* = "2" for the slot marked "IOC 2" on the main shelf **Note:** 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.
	PRS	Retrieves the alarm level(s) set for all PRS alarms, or for the specified PRS alarm.
	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 = "1" for the input marked INP 1 on the Input Connector module ■ p = "2" for the input marked INP 2 on the Input Connector module
	RTM*g[-p]*	Retrieves the alarm level(s) set for all alarms related to the specified Retimer module [and port]. ■ *g* = "A" for the group marked "A" on the main shelf ■ *g* = "B" for the group marked "B" on the main shelf ■ *g* = "C" for the group marked "C" on the main shelf ■ *g* = "D" for the group marked "D" on the main shelf ■ p = "1" for Port 1 on the Retimer module ■ p = "2" for Port 2 on the Retimer module

Parameter	Value	Description See Table 2-11 for <keyword> descriptions.
<aid> cont'd	OUT*g*	Retrieves the alarm level(s) set for all alarms related to the specified Output module. ■ *g* = "A" for the group marked "A" on the main shelf ■ *g* = "B" for the group marked "B" on the main shelf ■ *g* = "C" for the group marked "C" on the main shelf ■ *g* = "D" for the group marked "D" on the main shelf
	E422*g*	Retrieves the alarm level(s) set for all alarms related to the specified EIA-422 output module. ■ *g* = "A" for the group marked "A" on the main shelf ■ *g* = "B" for the group marked "B" on the main shelf ■ *g* = "C" for the group marked "C" on the main shelf ■ *g* = "D" for the group marked "D" on the main shelf

Table 2-11. 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 B-1 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 2-12 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 2-12. RTRV-ATTR Output Fields

Field	Description
alarm id	The identifier of the alarm for which the level is displayed. **Note:** See Table B-1 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* = "1" for the slot marked "IOC 1" on the main shelf ■ *m* = "2" for the slot marked "IOC 2" on the main shelf **Note:** See Table 2-13 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 2-13. 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 inp2_wt	Input 1(2) reference weight indicates the amount of influence (weight) the Input 1(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 2-14 for <condscr> descriptions.
	IOC*m*	Displays the currently active faulted built-in self test information for the Information Management Card (IOC). ■ *m* = "1" for the slot marked "IOC 1" on the main shelf ■ *m* = "2" for the slot marked "IOC 2" on the main shelf **Note:** See Table 2-14 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: An asterisk (*) indicates that multiple lines could be listed; all active alarm conditions are shown on separate lines.

Table 2-14. 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
	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 Identification (RTRV-CKTID)

This command retrieves the circuit identification assigned to the designated aid.

This command has a default access level of USER.

Syntax

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

Parameter	Value	Description
<aid>	GPS PRS INP*p* OUT*g[-p]* RTM*g[-p]* E422*g[-p]*	Retrieves the circuit identification (cktid) for the designated aid.

Command Output

The following shows the output format of the command.

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:<cktid>"<cr><lf>
   "OUTD-16:<cktid>"<cr><lf>
   "RTMA-1:<cktid>"<cr><lf>
   "RTMA-2:<cktid>"<cr><lf>
     .
     .
   "RTMD-1:<cktid>"<cr><lf>
   "RTMD-2:<cktid>"<cr><lf>
   "E422A-1:<cktid>"<cr><lf>
   "E422A-2:<cktid>"<cr><lf>
     .
     .
   "E422D-7:<cktid>"<cr><lf>
   "E422D-8:<cktid>"<cr><lf>
;
```

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 2-15 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 2-15. 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 can be one of the following: ■ NONE (command can be issued by all users) ■ USER (command can be issued by users with an access level of USER, ADMIN, or SECURITY) ■ ADMIN (command can be issued by users with an access level of ADMIN or SECURITY) ■ SECURITY (command can be issued by users with an access level of SECURITY)

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* = "1" for the slot marked "IOC 1" on the main shelf ■ *m* = "2" for the slot marked "IOC 2" on the main 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 = "1" for the input marked INP 1 on the Input Connector module ■ p = "2" for the input marked INP 2 on the Input Connector module **Note:** This information is reported by the active IOC.
	OUT*g*	Retrieves status of the output group specified by *g*. ■ *g* = "A" for the group marked "A" on the main shelf ■ *g* = "B" for the group marked "B" on the main shelf ■ *g* = "C" for the group marked "C" on the main shelf ■ *g* = "D" for the group marked "D" on the main shelf **Note:** This information is reported by the active IOC.

Parameter	Value	Description
<aid> (cont'd)	RTM*g*	Retrieves status of the Retimer group specified by *g*. ■ *g* = "A" for the group marked "A" on the main shelf ■ *g* = "B" for the group marked "B" on the main shelf ■ *g* = "C" for the group marked "C" on the main shelf ■ *g* = "D" for the group marked "D" on the main shelf **Note:** This information is reported by the active IOC.
	E422*g*	Retrieves status of the EIA-422 output group specified by *g*. ■ *g* = "A" for the group marked "A" on the main shelf ■ *g* = "B" for the group marked "B" on the main shelf ■ *g* = "C" for the group marked "C" on the main shelf ■ *g* = "D" for the group marked "D" on the main shelf **Note:** This information is reported by the active IOC.

Command Output

The following shows the output format of the command when the "ALL" aid is used, and Table 2-16 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>,<expneqpt>,<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>
   "E422A:<outstatus>"<cr><lf>
   "E422B:<outstatus>"<cr><lf>
   "E422C:<outstatus>"<cr><lf>
   "E422D:<outstatus>"<cr><lf>
;
```

Table 2-16. 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. The possible returned values can be either PWRA(B)-OK (no PWRA(B) alarm is currently active), or PWRA(B)-ALM (a PWRA(B) alarm is currently active).
expneqpt	Indicates if the connection to the expansion output panel was lost. The possible returned values can be either EXP-OK (no EXPFAIL alarm is currently active), or EXP-ALM (an EXPFAIL alarm is currently active).
extalm1 extalm2	Indicates if external equipment is currently generating alarm(s). The possible returned values can be either EXT1(2)-OK (no EXTALM1(2) alarm is currently active), or EXT1(2)-ALM (an EXTALM1(2) alarm is currently active).
ioc1eqpt ioc2eqpt	Indicates if the system is equipped with an IOC module in the specified slot. The possible returned values can be either IOC1(2)-EQPT (an IOC1(2)-EQPT event was received), or IOC1(2)-UNEQPT (no IOC1(2)-EQPT event was received).
sysqlevel	Indicates the system output quality level (1 through 9)
lastdat	The date the system was last provisioned by a user. The format is *YY-MM-DD*.
lasttim	The time the system was last provisioned by a user. The format is *HH*:*MM*:*SS*.
<aid> = IMC	
ioc1comm ioc2comm	Indicates if an IOC1(2) communication alarm currently is active. The possible returned values can be either IOC1(2)COMM-OK (no IOC1(2)COMM alarm is currently active), or IOC1(2)COMM-ALM (an IOC1(2)COMM alarm is currently active).
<aid> = IOC1 | IOC2 **Note:** The following status conditions are reported by the IOC modules, but are stored in the IMC. When you issue the RTRV-COND command, the IMC reports the last status conditions it received from the IOC modules. If a given IOC module is removed or develops a communication problem, the status as reported by the IMC might not be accurate.	
iocstatus	The current status of the specified IOC module. The status can be either OK (no IOC alarms are currently active for the specified module), or ALM (one or more IOC alarms are currently active for the specified module).
ioccomm	Indicates if a communication alarm from the IOC1(2) to the IOC2(1) module is currently active. The returned values can be IOC1(2)TO2(1)COMM-OK (no IOC1(2)TO2(1)COMM alarm is currently active), or IOC1(2)TO2(1)COMM-ALM (an IOC1(2)TO2(1)COMM alarm is currently active).
imccomm	Indicates if a communication alarm from the IMC to the IOC2(1) module currently is active. The returned values can be IMC1(2)COMM-OK (no IMC1(2)COMM alarm is currently active), or IMC1(2)COMM-ALM (an IMC1(2)COMM alarm is currently active).

Table 2-16. RTRV-COND Output Fields (Continued)

Field	Description
<aid> = GPS	
gpsstatus	The current status of the GPS input. The status can be OK (no alarms are currently active for the specified component), ALM (one or more alarms are currently active for the specified component), or UNEQUIPPED (TPIUEQPT connectivity alarm).
<aid> = PRS	
prsstatus	The current status of the PRS input. The status can be OK (no alarms are currently active for the specified component), or ALM (one or more alarms are currently active for the specified component).
<aid> = INP1 | INP2	
inpstatus	The current status of the specified input, output, or system component. The status can be OK (no alarms are currently active for the specified component), or ALM (one or more alarms are currently active for the specified component).
<aid> = OUTA | OUTB | OUTC | OUTD	
outstatus	The current status of the specified output module. The status can be OK (no alarms are currently active for the specified component), ALM (one or more alarms are currently active for the specified component), or UNEQUIPPED (the OUTgEQPT module is removed from the shelf).
<aid> = RTMA | RTMB | RTMC | RTMD	
rtm1status rtm2status	The current status of the indicated port on the specified Retimer module. The status can be OK (no alarms are currently active for the specified component), ALM (one or more alarms are currently active for the specified component), or UNEQUIPPED (the RTMgEQPT module is removed from the shelf).
<aid> = E422A | E422B | E422C | E422D	
outstatus	The current status of the specified EIA-422 output module. The status can be OK (no alarms are currently active for the specified component), ALM (one or more alarms are currently active for the specified component), or UNEQUIPPED (the E422gEQPT module is removed from the shelf).

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:UNEQUIPPED,UNEQUIPPED"
    "RTMB:UNEQUIPPED,UNEQUIPPED"
    "RTMC:UNEQUIPPED,UNEQUIPPED"
    "RTMD:UNEQUIPPED,UNEQUIPPED"
    "E422A:UNEQUIPPED"
    "E422B:UNEQUIPPED"
    "E422C:UNEQUIPPED"
    "E422D:UNEQUIPPED"
;
```

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 2-17 describes 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>,<expeqpt>,<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>,<rqlevel>,<crcena>,
   <ssmena>,<ssmbit>"<cr><lf>
"INP2:<inpstatus>,<inpstate>,<qlevel>,<priority>,<frmtype>,,<rqlevel>,<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-1:<rtmstatus>,<rtmstate>,<rtmlbo>,<freeflt>,<holdflt>,<rtmslip>"<cr><lf>
   "RTMA-2:<rtmstatus>,<rtmstate>,<rtmlbo>,<freeflt>,<holdflt>,<rtmslip>"<cr><lf>
   "RTMB-1:<rtmstatus>,<rtmstate>,<rtmlbo>,<freeflt>,<holdflt>,<rtmslip>"<cr><lf>
```

```
    "RTMB-2:<rtmstatus>,<rtmstate>,<rtmlbo>,<freeflt>,<holdflt>,<rtmslip>"<cr><lf>
    "RTMC-1:<rtmstatus>,<rtmstate>,<rtmlbo>,<freeflt>,<holdflt>,<rtmslip>"<cr><lf>
    "RTMC-2:<rtmstatus>,<rtmstate>,<rtmlbo>,<freeflt>,<holdflt>,<rtmslip>"<cr><lf>
    "RTMD-1:<rtmstatus>,<rtmstate>,<rtmlbo>,<freeflt>,<holdflt>,<rtmslip>"<cr><lf>
    "RTMD-2:<rtmstatus>,<rtmstate>,<rtmlbo>,<freeflt>,<holdflt>,<rtmslip>"<cr><lf>
    "E422A:<outstatus>,<outstate>,<frmtype>,<freeflt>,<holdflt>"<cr><lf>
    "E422B:<outstatus>,<outstate>,<frmtype>,<freeflt>,<holdflt>"<cr><lf>
    "E422C:<outstatus>,<outstate>,<frmtype>,<freeflt>,<holdflt>"<cr><lf>
    "E422D:<outstatus>,<outstate>,<frmtype>,<freeflt>,<holdflt>"<cr><lf>
    "NTP:AUTHENTICATION,<authen>"<cr><lf>
    "NTP:SERVER,<serveripl>,<keyid>,<minpoll>,<maxpoll>,>preferred>"<cr><lf>
    ...
    "NTP:SERVER,<serveripl>,<keyid>,<minpoll>,<maxpoll>,>preferred>"<cr><lf>
  ;
```

Table 2-17. 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 – no PWRA(B) alarm is currently active ■ PWRA(B)-ALM – a PWRA(B) alarm is currently active
expneqpt	Indicates if the connection to the expansion output panel was lost. ■ EXP-OK – no EXPFAIL alarm is currently active ■ EXP-ALM – an EXPFAIL alarm is currently active
extalm1 extalm2	Indicates if external equipment is currently generating alarm(s). ■ EXT1(2)-OK – no EXTALM1(2) alarm is currently active ■ EXT1(2)-ALM – an EXTALM1(2) alarm is currently active
ioc1eqpt ioc2eqpt	Indicates if the system is equipped with an IOC module in the specified slot. ■ IOC1(2)-EQPT – an IOC1(2)EQPT event was received ■ IOC1(2)-UNEQPT – no IOC1(2)EQPT event was received
sysqlevel	Indicates the system output quality level (1 through 9)
lastdat	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.
lasttim	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.
syncmode	The TimeProvider system's currently provisioned operating mode: SSU | SUB | PRR
refmode	The reference selection mode: AUTO | FORCED
inpref	The input reference selected when the reference mode (REFMODE) is set to FORCED: GPS | PRS | INP1 | INP2 | NONE

Table 2-17. RTRV-CRAFT Output Fields (Continued)

Field	Description
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. 0 | 1 | ... | 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	
ioc1comm ioc2comm	Indicates if an IOC1(2) communication alarm currently is active. ■ IOC1(2)COMM-OK – no IOC1(2)COMM alarm is currently active ■ IOC1(2)COMM-ALM – an IOC1(2)COMM alarm is currently active
<aid> = COML | COMR	
baud	The serial port's baud rate setting. 2400 | 9600 | 19200 | 38400 | 57600 | 115200
flow	The type of serial port flow control set). 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.
echo	Indicates if input is echoed to the local terminal on the port: ENABLE | DISABLE
<aid> = IOC1 | 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 IOC1(2)EQPT = UNEQUIPPED or IOC1(2)COMM = ALM, then IOC data is not displayed.	
iocstatus	The current status of the specified IOC module. OK | ALM
ioccomm	Indicates if a communication alarm from the IOC1(2) to the IOC2(1) module is active. ■ IOC1(2)TO2(1)COMM-OK – no IOC1(2)TO2(1)COMM alarm is currently active ■ IOC1(2)TO2(1)COMM-ALM – an IOC1(2)TO2(1)COMM alarm is currently active

Table 2-17. RTRV-CRAFT Output Fields (Continued)

Field	Description
imccomm	Indicates if a communication alarm from the IMC to the IOC2(1) module is active ■ IMC1(2)COMM-OK – no IMC1(2)COMM alarm is currently active ■ IMC1(2)COMM-ALM – an IMC1(2)COMM alarm is currently active
iocstate	The service mode of the IOC module. INSERV | 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 | TYPEIII
\<aid\> = GPS	
gpsstatus	The current status of the GPS. OK | ALM
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. The format is *HH*:*MM*:*SS*, where *HH* is the hour in 24-hour format, *MM* is the minutes, and *SS* is the seconds.
mode	The user-specified position mode. AUTO | MANUAL
pos	The antenna latitude, longitude, and height setting. The format is *dd-mm-ss.ss* (N or S), *dd-mm.ss.ss* (E or W), +/- *hhhh.hh*, where *dd* is degrees, *mm* is minutes, *ss.ss* is fractional minutes, and *hhhh* is altitude in meters.
elevmask	The current elevation mask, in degrees. 5 | 6 | ... | 45
\<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

Table 2-17. RTRV-CRAFT Output Fields (Continued)

Field	Description
priority	The provisioned priority level for the PRS input. 1 | 2 | 3 | 4
frmtype	The PRS input frequency setting. 2M | 5M | 10M
\<aid\> = INPp	
inpstatus	The current status of the specified input. OK | ALM
instate	The state of the specified input. ENABLE | DISABLE | MONITOR
qlevel	The provisioned quality 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	The specified input is provisioned to utilize CRC4 checking. ENABLE | DISABLE
ssmena	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\> = OUTg	
outstatus	The current status of the specified output group. OK | ALM | UNEQUIPPED
outstate	The state of the specified output group. ENABLE | DISABLE
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

Table 2-17. RTRV-CRAFT Output Fields (Continued)

Field	Description
<aid> = RTMg-p	
rtmstatus	The current status of the specified Retimer group and port. OK | ALM | UNEQUIPPED
rtmstate	The state of the specified Retimer group and port. ENABLE | DISABLE
rtmlbo	The line buildout for the specified Retimer group and port. 0 | 1 | 2 | 3 | 4
freeflt	The type of signal to be generated on the specified Retimer group and port when the Local Oscillator enters Free-run mode. RETIME | CUTTHRU
holdflt	The type of signal to be generated on the specified Retimer group and port when the Local Oscillator enters Holdover mode. RETIME | CUTTHRU
rtmslip	The number of slips permitted in a 24-hour period. 0 | 1 | ... | 255
<aid> = E422g	
outstatus	The current status of the specified EIA-422 output group. OK | ALM | UNEQUIPPED
outstate	The state of the specified EIA-422 output group. ENABLE | DISABLE
frmtype	The framing type that the specified EIA-422 output group is provisioned to generate. 1.544MHz | 2M
freeflt	The type of signal to be generated on the specified EIA-422 output group when the Local Oscillator enters Free-run mode. ON | SQUELCH
holdflt	The type of signal to be generated on the specified EIA-422 output group when the Local Oscillator enters Holdover mode. ON | SQUELCH
<aid> = NTP:AUTHENTICATION	
authen	Displays the NTP configuration. ENABLE | DISABLE
<aid> = NTP:Server	
serverip#	The IP address of NTP server #.
keyid	The Authentication Identification value: 0 | 1 | ... | 32768
minpoll	The minimum time (in seconds) between Server time requests. 16 | 32 | 64 | 128 | 256 | 512 | 1024

Table 2-17. RTRV-CRAFT Output Fields (Continued)

Field	Description
maxpoll	The maximum time (in seconds) between Server time requests. 16 | 32 | 64 | 128 | 256 | 512 | 1024
preferred	The Preferred Server setting. YES | NO

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-1:OK,ENABLE,0,RETIME,RETIME,ON"
   "RTMA-2:OK,ENABLE,0,RETIME,RETIME,ON"
   "RTMB-1:OK,ENABLE,2,RETIME,RETIME,ON"
   "RTMB-2:OK,ENABLE,2,RETIME,RETIME,ON"
   "RTMC-1:UNEQUIPPED,DISABLE,2,CUTTHRU,CUTTHRU,ON"
   "RTMC-2:UNEQUIPPED,DISABLE,2,CUTTHRU,CUTTHRU,ON"
   "RTMD-1:UNEQUIPPED,DISABLE,2,CUTTHRU,CUTTHRU,ON"
   "RTMD-2:UNEQUIPPED,DISABLE,2,CUTTHRU,CUTTHRU,ON"
   "E422A:OK,DISABLE,2M,SQUELCH,ON"
   "E422B:OK,DISABLE,2M,SQUELCH,ON"
   "E422C:OK,DISABLE,2M,SQUELCH,ON"
   "E422D:OK,DISABLE,2M,SQUELCH,ON"
   "NTP:AUTHENTICATION,ENABLE"
   "NTP:SERVER,254.255.255.254,0,16,1024,NO"
;
```

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 2-18 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 2-18. RTRV-DAT Output Fields

Field	Description
date	The currently set system date, in the format *yy-mm-dd*: ■ *yy* = the 2-digit year ■ *mm* = the 2-digit representation of the month ■ *dd* = 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 currently set UTC offset, in the format $\pm$*hh-mm*: ■ *hh* is the local time's hour offset from UTC; $\pm$12 hours ■ *mm* is the local time's minute offset from UTC

Example

To display the currently set 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 Edit Equipment (ED-EQPT), on page 47 for <keywords> and descriptions of their possible <values>.
	COM*p*	Equipment settings for the communication port specified by *p*: ■ *p* = "L" for the local serial port ■ *p* = "R" for the remote serial port ■ *p* = "I" for the IP (Ethernet) port **Note:** See Edit Equipment (ED-EQPT), on page 47 for <keywords> and descriptions of their possible <values>.
	IOC*m*	Equipment settings for the IOC module specified by *m*: ■ *m* = "1" for the slot marked "IOC 1" on the main shelf ■ *m* = "2" for the slot marked "IOC 2" on the main shelf **Note:** See Edit Equipment (ED-EQPT), on page 47 for <keywords> and descriptions of their possible <values>.
	GPS	Equipment settings for the GPS system input. **Note:** See Edit Equipment (ED-EQPT), on page 47 for <keywords> and descriptions of their possible <values>.
	PRS	Equipment settings for the PRS system input. **Note:** See Edit Equipment (ED-EQPT), on page 47 for <keywords> and descriptions of their possible <values>.
	INP*p*	Equipment settings for the input port specified by *p*: ■ p = "1" for the input marked INP 1 on the Input Connector module ■ p = "2" for the input marked INP 2 on the Input Connector module **Note:** See Edit Equipment (ED-EQPT), on page 47 for <keywords> and descriptions of their possible <values>.
	OUT*g*	Equipment settings for the output group specified by *g*: ■ *g* = "A" for the group marked "A" on the main shelf ■ *g* = "B" for the group marked "B" on the main shelf ■ *g* = "C" for the group marked "C" on the main shelf ■ *g* = "D" for the group marked "D" on the main shelf **Note:** See Edit Equipment (ED-EQPT), on page 47 for <keywords> and descriptions of their possible <values>.

Parameter	Value	Description
<aid> cont'd	NTP	Equipment settings for the NTP: ■ Peer Server ■ Authentication **Note:** See ED-EQPT for NTP Parameters, on page 53 for <keywords> and descriptions of their possible <values>.
	E422*g*	Equipment settings for the EIA-422 output group specified by *g*: ■ *g* = "A" for the group marked "A" on the main shelf ■ *g* = "B" for the group marked "B" on the main shelf ■ *g* = "C" for the group marked "C" on the main shelf ■ *g* = "D" for the group marked "D" on the main shelf **Note:** See Edit Equipment (ED-EQPT), on page 47 for <keywords> and descriptions of their possible <values>.

Normal Retrieve Response

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

Table 2-19. RTRV-EQPT Output Field

Field	Description
<aid>	The access identifier for the equipment component (refer to Edit Equipment (ED-EQPT), on page 47 for valid <aid>).
<keyword>	The specific equipment parameter being requested (refer to Edit Equipment (ED-EQPT), on page 47 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 2-20. RTRV-GPS-STAT Output Fields

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

Command Output

The following shows the output format of the command, and Table 2-20 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 GPS status:

Input

```
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>];
```

Table 2-21. RTRV-INV Output Fields

Field	Description
p/n	The module's part number.
s/n	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.
fw ver	The revision number of the module's firmware.
mac	The media access control (MAC) address that uniquely identifies the Ethernet hardware for the IMC module. The format is `aa-aa-aa-aa-aa-aa`

Command Output
The following shows the output format of the command, and Table 2-21 explains the various fields in the command output:

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>
   "E422A:<p/n>,<s/n>,<clei>,<hw ver>"<cr><lf>
   "E422B:<p/n>,<s/n>,<clei>,<hw ver>"<cr><lf>
   "E422C:<p/n>,<s/n>,<clei>,<hw ver>"<cr><lf>
   "E422D:<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:090-5802x-02,C12345,CLEI012345
   "RTMB:,,,"
   "RTMC:,,,"
   "RTMD:,,,"
   "E422A:090-58071-02,C12345,CLEI012345,A"
   "E422B:,,,"
   "E422C:,,,"
   "E422D:,,,"
;
```

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 module.
	IOC1	Retrieves the status of the LED indicators on the IOC1 module.
	IOC2	Retrieves the status of the LED indicators on the IOC2 module.

Command Output

The following shows the output format of the command, and Table 2-22 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 2-22. 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 and for troubleshooting procedures using the LEDs.

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"
   "IMC:ANTPOWER,GREEN"
   "IMC:ANTSIG,GREEN"
   "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][,[start date],
[stop date]];
```

Parameter	Value	Description See Table 2-23 for <keyword> descriptions.
<aid>	ALL (or *null*)	Retrieves events containing any aid.
	IMC	Retrieves events with an aid field of IMC.
	IOC	Retrieves events with an aid field of IOC.
	IOC*m*	Retrieves events with an aid field of IOC*m*, where: ■ *m* = "1" for the slot marked "IOC 1" on the main shelf ■ *m* = "2" for the slot marked "IOC 2" on the main shelf
	GPS	Retrieves events with an aid field of GPS.
	PRS	Retrieves events with an aid field of PRS.
	INP*p*	Retrieves events with an aid field of INP*p*, where: ■ p = "1" for the input marked INP 1 on the Input Connector module ■ p = "2" for the input marked INP 2 on the Input Connector module
	OUT*g*	Retrieves events with an aid field of OUT*g*, where: ■ *g* = "A" for the group marked "A" on the main shelf ■ *g* = "B" for the group marked "B" on the main shelf ■ *g* = "C" for the group marked "C" on the main shelf ■ *g* = "D" for the group marked "D" on the main shelf
	RTM*g*	Retrieves events with an aid field of RTM*g*, where: ■ *g* = "A" for the group marked "A" on the main shelf ■ *g* = "B" for the group marked "B" on the main shelf ■ *g* = "C" for the group marked "C" on the main shelf ■ *g* = "D" for the group marked "D" on the main shelf
	E422*g*	Retrieves events with an aid field of E422*g*, where: ■ *g* = "A" for the group marked "A" on the main shelf ■ *g* = "B" for the group marked "B" on the main shelf ■ *g* = "C" for the group marked "C" on the main shelf ■ *g* = "D" for the group marked "D" on the main shelf

Table 2-23. 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 value to skip that number of events before displaying data.	1 to 500
count	A specified value to retrieve that number of recent events or alarms.	1 to 500
start date	Start date of the event history to display	YY-MM-DD
stop date	Stop date of the event history to display	YY-MM-DD

Command Output

The following shows the event output format of the command and Table 2-24 explain the various fields in the output. The Alarm format follows this explanation of events and Table 2-25 explains the fields in the alarm output:

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 2-24. 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 C-2 shows all of the possible TimeProvider event codes (event condition types), and Table B-2 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*.

Table 2-24. RTRV-LOG Event Output Fields (Continued)

Field	Description
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 C-2 shows all of the possible TimeProvider event codes (event condition strings), and Table B-2 shows all of the possible TimeProvider alarm condition types.

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 2-25. 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 C-2 shows all of the possible TimeProvider event codes (event condition types), and Table B-2 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*.

Table 2-25. RTRV-LOG Alarm Output Fields (Continued)

Field	Description
condscr	The description of the alarm or event. It is a quoted text string, preceded with the "\" escape character. **Note:** Table C-2 shows all of the possible TimeProvider event descriptions (event condition strings), and Table B-2 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 NTP Information (RTRV-NTP-PEER)

This command retrieves the NTP Peer information for up to 8 peers. The data includes the information server IP address, the stratum level of the server, the server LI (in decimal format), the root dispersion value, and the root delay value.

This command has a default access level of USER.

Syntax

```
RTRV-NTP-PEER:[<tid>]::[<ctag>];
```

Command Output

The following shows the event output format of the command. Table 2-26 describes the fields in the response.

Event Response Format

```
<cr><lf><lf>
   sid date time<cr><lf>
M  ctag COMPLD<cr><lf>
   "<ip1>,<stratum>,<status>,<precision>,<delay>,<offset>,<dispersion>,
    <jitter>"<cr><lf>
   "<ip2>,<stratum>,<status>,<precision>,<delay>,<offset>,<dispersion>,
    <jitter>"<cr><lf>
     .
     .
     .
   "<ip8>,,<stratum>,<status>,<precision>,<delay>,<offset>,<dispersion>,
    <jitter>"<cr><lf>
;
```

Table 2-26. RTRV-NTP-PEER Output Fields

Field	Description
ip	The IP address of the NTP server.
stratum	The stratum level of the NTP server.
status	The status of the NTP server, as described in RFC 1305 Appendix B.
precision	The precision value of the NTP server.
delay	The client's calculated root delay value for the NTP server.
offset	The client's calculated time offset value for the NTP server.
dispersion	The client's calculated root dispersion value for the NTP server.
jitter	The client's calculated network jitter.

Example

To retrieve the NTP peer information from the TimeProvider:

Input

```
RTRV-NTP-PEER:::TP-1100;
```

Normal Response

```
TP-1100 06-02-14 11:01:01
M  0 COMPLD
   "172.16.21.35,1,reject,-23,3.951,4000.230,0.015,2618.640"
   "172.16.21.54,16,reject,-16,0.000,0.000,0.000,4000.000"
   "172.16.21.198,16,reject,-16,0.000,0.000,0.000,4000.000"
```

Autonomous Message

None

Retrieve PM (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 2-27. 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 1 ns resolution.
MTIE24	MTIE measurement over the previous 24-hour period of 1 ns resolution data.
PHASE	1 second phase data for the current 60 seconds of 100 ps resolution data.
PHASE1S	1 second phase data reported up to 24 hours of 1 ns resolution data.
PHASE1M	1 minute phase data reported up to 10800 minutes of 1 ns resolution data.
TDEV24	TDEV measurement over the previous 24-hour period, displayed in ns as a decimal value.

Table 2-28. 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 2-29. 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 not 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:

> **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.

Input

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

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:

> **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 1 nS.
>
> The first line of the record has the first measurement requested, the
> timestamp (<sampletim>, <sampledat>) are associated with this
> measurement.

Input

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

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:

> **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` or `starttim` combination is null or outside of the
> previous 24 hour window, the current 1-Hour 1-Second 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.

Input

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

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:

> **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` or `starttim` 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.

Input

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

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 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 See Table 2-7 for <keywords> and descriptions of their possible <values>.
<aid>	SYS	The command's effect is on system-level input settings.
	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 = "1" for the input marked INP 1 on the Input Connector module ■ p = "2" for the input marked INP 2 on the Input Connector module
	OUT*g*	The command's effect is on the output group specified by *g*: ■ *g* = "A" for the group marked "A" on the main shelf ■ *g* = "B" for the group marked "B" on the main shelf ■ *g* = "C" for the group marked "C" on the main shelf ■ *g* is "D" for the group marked "D" on the main shelf
	RTM*g[-p]*	The command's effect is on the Retimer group and port specified by *g[-p]*: ■ *g* = "A" for the group marked "A" on the main shelf ■ *g* = "B" for the group marked "B" on the main shelf ■ *g* = "C" for the group marked "C" on the main shelf ■ *g* = "D" for the group marked "D" on the main shelf ■ *p* = "1" for Port 1 on the Retimer module ■ *p* = "2" for Port 2 on the Retimer module
	E422*g*	The command's effect is on the EIA-422 output group specified by *g*: ■ *g* = "A" for the group marked "A" on the main shelf ■ *g* = "B" for the group marked "B" on the main shelf ■ *g* = "C" for the group marked "C" on the main shelf ■ *g* is "D" for the group marked "D" on the main shelf

Normal Retrieve Response

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

Table 2-30. RTRV-SYNC Output Field

Field	Description
<aid>	The access identifier for the equipment component (Refer to Edit Sync (ED-SYNC), on page 57 for valid <aid>)
<keyword>	The specific equipment parameter being requested (Refer to Edit Sync (ED-SYNC), on page 57 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 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* = "1" for the input marked INP 1 on the Input Connector module ■ *p* = "2" for the input marked INP 2 on the Input Connector module
	RTM*g*	The command's effect is on the Retimer module specified by *g*: ■ *g* = "A" for the Retimer module in slot A ■ *g* = "B" for the Retimer module in slot B ■ *g* = "C" for the Retimer module in slot C ■ *g* = "D" for the Retimer module in slot D

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>*
   "<aid>:INPFRQ,5000000,<pm status>"<cr><lf>*
   "<aid>:SLIPCHG,,alarm threshold>,<pm status>"<cr><lf>**
;
```

Table 2-31. RTRV-TH – Output Fields

Field	Value	Description
<aid>		The aid associated with the PM ID
<alarm threshold>	MTIE-### = 1 – 100000 FFOFF-60 = 1 – 10000000 SLIPCHG = 0 – 60	Performance threshold that generates an alarm, see Table 2-33
<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"
   "INPFRQ,2000,OK"
   "SLIPCHG,25,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 2-32 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 2-32. 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 See Table 2-33 for <keyword> and <value> descriptions.
<aid>	SYS	The command's effect is at the system level.
	IMC	Sets the alarm level for the specified Information Management Card module alarm to the specified value.
	IOC*m*	Sets the alarm level for the specified alarm in the specified Input/Output Card module to the specified value. ■ *m* = "1" for the slot marked "IOC 1" on the main shelf ■ *m* = "2" for the slot marked "IOC 2" on the main shelf
	GPS	Sets the alarm level for the GPS alarm to the specified value.
	PRS	Sets the alarm level for the PRS alarm to the specified value.
	OUT*g*	Sets the alarm level on the Output group specified by *g*: ■ *g* = "A" for the group marked "A" on the main shelf ■ *g* = "B" for the group marked "B" on the main shelf ■ *g* = "C" for the group marked "C" on the main shelf ■ *g* = "D" for the group marked "D" on the main shelf
	INP*p*	Sets the alarm level for the alarm related to the specified input port to the specified value. ■ p = "1" for the input marked INP 1 on the Input Connector module ■ p = "2" for the input marked INP 2 on the Input Connector module
	RTM*g*	Sets the alarm level on the Retimer group specified by *g*: ■ *g* = "A" for the group marked "A" on the main shelf ■ *g* = "B" for the group marked "B" on the main shelf ■ *g* = "C" for the group marked "C" on the main shelf ■ *g* = "D" for the group marked "D" on the main shelf
	E422*g*	Sets the alarm level on the EIA-422 output group specified by *g*: ■ *g* = "A" for the group marked "A" on the main shelf ■ *g* = "B" for the group marked "B" on the main shelf ■ *g* = "C" for the group marked "C" on the main shelf ■ *g* = "D" for the group marked "D" on the main shelf

Table 2-33. SET-ATTR – Keywords and Values for all <aids>

<keyword>	<value>	Description	Default
BRDGTIM (SYS aid only)	300 to 500000	In PRR mode, this sets the length of time, in seconds, the system remains in bridging mode.	900 seconds
	DISABLE	Disables the Bridging mode.	
ELEVTIME (SYS aid only)	ENABLE	Minor alarms elevate to Major, and Major alarms elevate to Critical after the system elevation time has elapsed. **Note:** The system elevation time is 86400 seconds (24 hours), and cannot be changed.	DISABLE
	DISABLE	The system does not automatically elevate alarms.	
FACTORY (SYS aid only)	(none)	Sets the alarm level for all alarms to their factory settings.	N/A
Alarm ID	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."	
	Note: See Table B-1 for a list of alarm identifiers, and possible alarm levels that can be set.		

Refer to Table B-1 for a list of all of the TimeProvider Alarm Identifiers (Alarm IDs) and 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.

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 2-34. SET-SID – Keyword and Value

<keyword>	<value>	Description	Default
SIDCHG	20 character text string	The TimeProvider's source identifier. **Note:** The SID can be up to twenty (20) printing characters, including the hyphen (-) character. If the SID contains a hyphen, it does not require quotes.	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 2-35. 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 Subtending 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 as a Primary Reference Receiver. 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 See Table 2-36 for <keyword> and <value> descriptions
<aid>	GPS	The command's effect is on the GPS system input.
	PRS	The command's effect is on the PRS system input.
	INP1	The command's effect is on the INP1 system input.
	INP2	The command's effect is on the INP2 system input.
	RTMg[-p]	The command's effect is on the specified Retimer card [and Port]: ■ *g* = "A" for the group marked "A" on the main shelf ■ *g* = "B" for the group marked "B" on the main shelf ■ *g* = "C" for the group marked "C" on the main shelf ■ *g* = "D" for the group marked "D" on the main shelf ■ *p* = "1" for Port 1 on the Retimer module ■ *p* = "2" for Port 2 on the Retimer module

Table 2-36. SET-TH – Keywords and Values for all <aids>

<keyword>	<value>	Description	Default
MASK	GPS–R	PRS	DS1	OCN	PRC	TYPEI	TYPEII	Set MTIE-x and FFOFF-60 thresholds to predefined settings.	See Table 2-37
MTIE-1	1 to 5000000	1-Second MTIE observation threshold defined in ns	10 000
MTIE-5	1 to 5000000	5-Second MTIE observation threshold defined in ns	50 000
MTIE-10	1 to 5000000	10-Second MTIE observation threshold defined in ns	100 000
MTIE-50	1 to 5000000	50-Second MTIE observation threshold defined in ns	500 000
MTIE-100	1 to 5000000	100-Second MTIE observation threshold defined in ns	1 000 00
MTIE-500	1 to 5000000	500-Second MTIE observation threshold defined in ns	5 000 000

Table 2-36. SET-TH – Keywords and Values for all <aids> (Continued)

<keyword>	<value>	Description	Default
FFOFF-60	100 to 10000000 (ps/s)	Fractional Frequency Offset threshold for 60 second calculation period, defined in ps per s	10 000 000
SLIPCHG	0 to 255	Maximum number of slips that can occur in a 24-hour period	4

Table 2-37. Mask Table

	MTIE-1	MTIE-5	MTIE-10	MTIE-50	MTIE-100	MTIE-500	FFOFF-60
DEFAULT	10 000	50 000	100 000	500 000	1 000 000	5 000 000	10 000 000
GPS-R	150	150	150	150	150	155	50 000
PRS	10	10	12	25	39	155	1000
DS1	302	312	325	325	550	1002	12 000
OCN	600	1000	1000	1000	1000	1002	370 000
PRC	25	25	25	25	39	155	1000
TYPEI	750	750	1000	2000	2000	2000	2900
TYPEII	302	312	325	425	1000	1000	1000

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 Command 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 Feature (ACT-FEATURE), on page 29	Activates the NTP feature in the TimeProvider
Activate User (ACT-USER), on page 36	Logs the specified existing user onto the system, and begins a user session
Retrieve User (RTRV-USER), on page 130	Lists all users that are currently logged onto the TimeProvider
Cancel User (CANC-USER), on page 37	Terminates the specified user's session, and logs the user out of the system
Enter Password (ENT-PID), on page 65	Allows a security-level user to edit any user's password in the user database
Edit Password (ED-PID), on page 56	Allows users to edit their own password in the user database
Enter User Security (ENT-USER-SECU), on page 66	Enters a new user in the user database
Retrieve User Security (RTRV-USER-SECU), on page 131	Displays the access level of the specified user, or the access level of all users
Edit User Security (ED-USER-SECU), on page 64	Changes the specified user's access level
Delete Security (DLT-SECU), on page 41	Deletes all of the information from the user database
Delete User Security (DLT-USER-SECU), on page 42	Allows a security-level user to delete any user in the user list
Retrieve Command Security (RTRV-CMD-SECU), on page 87	Retrieves the access level set for a specified command, or all commands
Edit Command Security (ED-CMD-SECU), on page 44	Changes the access level of the specified command
Activate Software Download Mode (ACT-SWDL), on page 30	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 38	Saves a module's Istate in another module's flash memory
Retrieve Date (RTRV-DAT), on page 101	Retrieves the system date, time, and local offset
Edit Date (ED-DAT), on page 46	Changes the system date and time
Retrieve Equipment (RTRV-EQPT), on page 103	Retrieves currently provisioned equipment parameters
Edit Equipment (ED-EQPT), on page 47	Used to provision equipment parameters
Retrieve Sync (RTRV-SYNC), on page 125	Retrieves equipment parameters associated with provisioning of the synchronization interfaces for the system inputs and outputs
Edit Sync (ED-SYNC), on page 57	Changes factory settings and input and output port parameter settings
Retrieve Circuit Identification (RTRV-CKTID), on page 86	Retrieves the circuit ID for the specified input or output
Edit Circuit Identifier (ED-CKTID), on page 43	Changes the circuit ID for the specified input or output
Retrieve Attribute (RTRV-ATTR), on page 78	Retrieves the alarm level set for a specified alarm
Initialize Event Log (INIT-LOG), on page 68	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 69	Initializes the specified module, or the system
Retrieve System Mode (RTRV-SYS-MODE), on page 127	Retrieves the TimeProvider's currently provisioned system operating mode
Set System Mode (SET-SYS-MODE), on page 136	Provisions the TimeProvider system's operating mode to SSU, SUB, or PRR
Operate Alarm Cutoff (OPR-ACO-ALL), on page 71	Deactivates (opens) the minor, major, and critical audible alarm relays
Set Source Identifier (SET-SID), on page 135	Provisions the TimeProvider system's source identifier (SID)
Retrieve Alarm Condition (RTRV-ALM), on page 75	Retrieves information on currently active alarms

Table A-2. System Commands (Continued)

Command	Description
Retrieve BesTime Status (RTRV-BESTIME-STAT), on page 81	Displays the BesTime status, the data indicates predicted BesTime ensemble information
Retrieve Built-In Self Test (RTRV-BIST), on page 83	Displays all currently active faulted built-in self test information for either the IMC or IOC or both
Retrieve Condition (RTRV-COND), on page 89	Retrieves information about the current state and status of system components
Retrieve Craft Data (RTRV-CRAFT), on page 94	Retrieves information about the system state, clock mode of operation, input provisioning, and output provisioning
Retrieve GPS Status (RTRV-GPS-STAT), on page 105	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 106	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
Retrieve NTP Information (RTRV-NTP-PEER), on page 116	Retrieves information about the NTP peer server
Remove Equipment (RMV-EQPT), on page 73	Allows the TimeProvider to test (ping) for network connectivity

Table A-3. Performance Monitoring Commands

Command	Description
Retrieve PM (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 40	Deletes the current set of performance monitoring data for one input channel
Set Threshold (SET-TH), on page 138	Sets the alarm threshold for performance monitored data, for example MTIE and Fractional Frequency Offset
Retrieve Threshold (RTRV-TH), on page 128	Displays the alarm level set for a particular alarm
Set Attribute (SET-ATTR), on page 133	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 (for example IOC software and hardware) 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
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	IOC1EQPT indicates that 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	IOC2EQPT indicates that the IOC was physically inserted or removed from the system.	EQPT	NSA	IMMED	NO	MJ	MJ	MJ
EXPNEQPT	The Expansion Panel 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
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
IMCTCPIP	TCP/IP activity is excessive; a DoS attack could be in progress	EQPT	SA	IMMED	NO	MN	MN	MN
<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	NA	NA
CLKBRDG	The local oscillator on the specified IOC is in Bridging Mode.	EQPT	NSA	IMMED	NO	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
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> = 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	NA	NA
CLKBRDG	The local oscillator on the specified IOC is in Bridging Mode.	EQPT	NSA	FLT DELAY	NO	NA	NA	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

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
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	T1	NSA	IMMED	NO	MN	MN	MN
GPSPOS	The GPS Antenna's position is unknown	T1	NSA	IMMED	YES	NA	NA	NA
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.	T1	NSA	IMMED	YES	MN	MN	MN
GPSTRK	The GPS Engine is not tracking any satellites.	T1	NSA	IMMED	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

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 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 disqualifies it from being used.	T1	NSA	IMMED	NO	MN	MN	MN
EXDSC	Input has had excessive discontinuities. This is indicated when there are more than 3 signals faults of the same type within a 5-minute window. The alarm clears when the 5-minute window contains less than 3 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

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> = 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
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

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
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
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
EXDSC	Input has had excessive discontinuities. This is indicated when there are more than 3 signal faults of the same type within a 5-minute window. The alarm clears when the 5-minute window contains less than 3 alarms of the same type.	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
<aid> = INP1 | 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
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

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 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
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
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
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
INPTRR	The specified CC 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 3 signal faults of the same type within a 5-minute window. The alarm clears when the 5-minute window contains less than 3 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> = E422A | E422B | E422C | E422D								
E422FAULT	The EIA-422 Output module is not functioning.	T1	NSA	IMMED	NO	NA	NA	NA
<aid> = RTMA[-p] | RTMB[-p] | RTMC[-p]. | RTMD[-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 Retimer module is not functioning properly	T1	NSA	IMMED	NO'	NA	NA	NA

Table B-2. Alarm Code Condition Descriptions

Alarm ID	Set Alarm Condition Description	Clear Alarm Condition Description
SYS Alarm Conditions		
COMPAT	System components are incompatible	System components are compatible
EXPFAIL	See EXPNEQPT alarm	
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
IOC1EQPT	IOC1 is Unequipped	IOC1 is Equipped
IOC2EQPT	IOC2 is Unequipped	IOC2 is Equipped
EXPNEQPT	Expansion Panel is Unequipped	Expansion Panel is Equipped
IMC Alarm Conditions		
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
IMCTCPIP	IMC TCP/IP Activity is Excessive	IMC TCP/IP Activity is Normal
IOC Alarm Conditions		
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

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

Alarm ID	Set Alarm Condition Description	Clear Alarm Condition Description
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 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

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

Alarm ID	Set Alarm Condition Description	Clear Alarm Condition Description
INP[p] Alarm Conditions		
INPDISQ	Input Disqualified as Possible Reference	Input Qualified as Possible Reference
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
E422g Alarm Conditions		
E422EQPT	EIA-422 Module is Unequipped	EIA-422 Module is Equipped
E422FAULT	EIA-422 Module has a Fault	EIA-422 Module Fault Cleared
OUTg Alarm Conditions		
OUTEQPT	Output Module is Unequipped	Output Module is Equipped
RTMg[-p] Alarm Conditions		
RTMEQPT	Retimer Module is Unequipped	Retimer Module is Equipped
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 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 Event Codes				
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
FEATURE	A System feature has been enabled	EQPT	NTP	The NTP feature has been enabled.

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
IPSUB	The IMC Ethernet subnet mask has changed.	EQPT	255.255.255.0	1.0.0.1 to 254.255.255.254
ISDIFF	Indicates that the CRC of two Istates images stored on separate modules are different.	EQPT	NA	NA
ISEQ	Indicates that the CRC of two Istate images stored on separate modules are equal.	EQPT	NA	NA

Table C-1. Event Identifiers (Continued)

Event ID or CONDTYPE	Event Description	AID TYPE	Default Value	Value Description
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
NTP	A user has changed the NTP configuration	EQPT	NA	NA
PIDCHG	The user 's password was changed in the database	EQPT	pid	User password – 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
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	No users defined in the user database.	EQPT	NA	NA
USRDEL	The 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

Table C-1. Event Identifiers (Continued)

Event ID or CONDTYPE	Event Description	AID TYPE	Default Value	Value Description
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 Event Codes				
CKTIDCHG	A user has modified the Circuit ID for the GPS input.	T1	GPS	The ID can be up to 40 characters in length.
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
RESET	GPS power has been reset.	EQPT	NA	NA
IOC Event Codes				
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

Table C-1. Event Identifiers (Continued)

Event ID or CONDTYPE	Event Description	AID TYPE	Default Value	Value Description
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
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

Table C-1. Event Identifiers (Continued)

Event ID or CONDTYPE	Event Description	AID TYPE	Default Value	Value Description
IOC Clock Event Codes				
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
Input Event Codes				
CKTIDCHG	A user has modified the Circuit ID for the input.	T1	GPS	The ID can be up to 40 characters in length.
CRCENA	Allows the user to provision the E1 (CAS/CCS) 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
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 – 1.544 MHz 2M – 2.048 MHz 5M – 5 MHz 6.312M – 6.312 MHz 10M – 10 MHz CAS – CAS Input 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

Table C-1. Event Identifiers (Continued)

Event ID or CONDTYPE	Event Description	AID TYPE	Default Value	Value Description
INSTATE	The state of the input ports used by the system	T1	ENABLE	■ DISABLE – Disabled inputs, associated active alarms are cleared. ■ ENABLE – Enabled inputs, are 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
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
SSMBIT	Allows the user to provision E1 (CAS/CCS) SSM bit position to allow the input to determine to proper bit to read the SSM on.	T1	8	4 | 5 | 6 | 7 | 8

Table C-1. Event Identifiers (Continued)

Event ID or CONDTYPE	Event Description	AID TYPE	Default Value	Value Description
SSMENA	Allows the user to provision the ESF or E1 (CAS/CCS) 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
Output Event Codes				
CKTIDCHG	A user has modified the Circuit ID for the output.	T1	GPS	The ID can be up to 40 characters in length.
CRCENA	Allows the user to provision E1 outputs to enable CRC	T1	ENABLE	ENABLE | DISABLE
FRMTYPE	Allows the user to provision the type of output framing or the output frequency. Allows the user to provision the output framing type.	T1	OUTPUT = 2M	1.544M – 1.544 MHz 2M – 2.048 MHz 6.312M – 6.312 MHz CAS – CAS Output CCS – CCS Output D4 – Super Frame Output ESF – Extended Super Frame Output CC – Composite Clock Output ISOLATED_1 – for T1 outputs, generate an isolated 1 test pattern
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.	T1	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.	T1	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

Table C-1. Event Identifiers (Continued)

Event ID or CONDTYPE	Event Description	AID TYPE	Default Value	Value Description
SSMBIT	Allows the user to provision E1 bit position and generate SSMs on the specified bit position. CRC must be enabled to allow SSM generation.	T1	ALL	4 | 5 | 6 | 7 | 8 | ALL
EIA-422 Output Event Codes				
CKTIDCHG	A user has modified the Circuit ID for the output.	T1	GPS	The 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 = 1.544M	1.544M – 1.544 MHz 2M – 2.048 MHz
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.	T1	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.	T1	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
NTP Event Codes				
AUTHEN	Allows the user to enable or disable NTP Authentication. This parameter applies to both Server and Peer.	EQPT	DISABLE	■ ENABLE – NTP Authentication is enabled ■ DISABLE – NTP Authentication is disabled

Table C-1. Event Identifiers (Continued)

Event ID or CONDTYPE	Event Description	AID TYPE	Default Value	Value Description
KEYGEN	Indicated that the Authentication Key table is being generated	EQPT	NA	NA
SERVER	Indicates that a user has changed the NTP Peer Server parameters.	EQPT	NA	NA
SYS Event Codes				
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
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

Table C-1. Event Identifiers (Continued)

Event ID or CONDTYPE	Event Description	AID TYPE	Default Value	Value Description
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 Event Codes				
CKTIDCHG	A user has modified the Circuit ID for the output.	T1	GPS	The ID can be up to 40 characters in length.
FREEFLT	Defines if the Retimer mode operates or not when the LO enters Free-run mode of operation. The output groups are provisioned for fault strategies.	T1	CUTTHRU	■ RETIMER – In fault mode the output signals are retimed ■ CUTTHRU – In fault mode the cut-thru mode is enabled, and output signals are not retimed.

Table C-1. Event Identifiers (Continued)

Event ID or CONDTYPE	Event Description	AID TYPE	Default Value	Value Description
HOLDFLT	Defines if the Retimer mode operates or not when the LO enters Holdover mode of operation. The output groups are provisioned for fault strategies.	T1	CUTTHRU	■ RETIMER – In fault mode the output signals are retimed ■ CUTTHRU – In fault mode the cut-thru mode is enabled, and output signals are not retimed.
RTMLBO	The Line Buildout on the specified Retimer port 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 state of the specified Retimer port has changed.	T1	ENABLE	■ ENABLE – Enable the Retimer port ■ DISABLE – Disable the Retimer port and clear all alarms associated with the port.
SLIPCHG	The Retimer slip threshold has changed.	T1	4	1 to 255
SLIPCLR	The Retimer slip counter has been cleared	T1	NA	NA

Table C-2. Event Code Condition Descriptions

Event ID	Event Condition 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>
CMDCHG	COMMAND ACCESS LEVEL HAS CHANGED, <command>
ECHO	SERIAL PORT ECHO MODE HAS CHANGED, <state>
FEATURE	SYSTEM FEATURE HAS BEEN ACTIVATED, <feature>

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

Event ID	Event Condition Description
FLOW	SERIAL FLOW CONTROL HAS CHANGED, <state>
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>
IPSUB	SUBNET MASK IP ADDRESS HAS CHANGED, <value>
ISDIFF	CONFIGURATION IMAGES ARE DIFFERENT
ISEQ	CONFIGURATION IMAGES ARE THE SAME
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	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>
MODE	GPS ANTENNA MODE, <mode>
POS	GPS ANTENNA POSITION, <pos>
ELEVMASK	GPS ELEVATION MASK, <value>
RESET	GPS POWER HAS BEEN RESET
IOC Event Conditions	
CCALIGN	COMPOSITE CLOCK ALIGNMENT
CLKTYPE	CLOCK TYPE HAS CHANGED, <state>
FWFAIL	FIRMWARE UPGRADE UNSUCCESSFUL

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

Event ID	Event Condition Description
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>
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>
CRCENA	OUTPUT GENERATION OF CRC HAS CHANGED, <value>
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 >
SSMBIT	E1 OUTPUT SSM BIT HAS CHANGED, <bit position>

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

Event ID	Event Condition Description
SSMENA	OUTPUT GENERATION OF SSM HAS CHANGED, <value>
EIA-422 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 >
NTP Event Conditions	
AUTHEN	NTP AUTHENTICATION, <state>
KEYGEN	NTP AUTHENTICATION HAS CHANGED
SERVER	NTP SERVER CONFIGURATION HAS CHANGED
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>
Retimer Event Conditions	
CKTIDCHG	RETIMER CIRCUIT ID HAS CHANGED, <cktid>
FREEFLT	FREE-RUN OUTPUT FAULT STRATEGY HAS CHANGED, <state>

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

Event ID	Event Condition Description
HOLDFLT	HOLDOVER OUTPUT 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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Symbols