TimeProvider 1000 and 1100 Node Clock

TL-1 Reference Guide
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Symmetricom®

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How to Use This Guide

Who Should Read This Guide

This guide is intended primarily as a command reference for personnel who are tasked with provisioning and otherwise managing the TimeProvider Node Clock. Chapter 1, TL-1 Overview is written for audiences who need a basic understanding of the Transaction Language 1 (TL-1) protocol, and how it is implemented in the TimeProvider. Chapter 2, TL-1 Commands describes each of the TimeProvider's TL-1 commands in detail. The command entries in Chapter 2 are organized in alphabetical order.

In This Preface

- Who Should Read This Guide
- Structure of This Guide
- Conventions Used in This Guide
- Warnings, Cautions, Recommendations, and Notes
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Structure of This Guide

This guide contains the following sections:

Chapter, Title	Description
Chapter 1, TL-1 Overview	Provides a basic overview of the Transaction Language 1 (TL-1) used by the TimeProvider.
Chapter 2, TL-1 Commands	Describes each of the TimeProvider's TL-1 commands in detail.
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 User 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.

When text appears this way...	... it means:
A *re-timing* application	A word or term being emphasized.
Symmetricom ***does not*** recommend...	A word or term given special emphasis.

Warnings, Cautions, Recommendations, and Notes

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

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

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

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

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

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

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

Related Documents and Information

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

■ *TimeProvider Node Clock User Guide*, part number 097-58001-02.

■ *TimePictra Administrator's Guide* and *TimePictra User's Guide.*

■ *SynCraft* management software online help.

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

Where to Find Answers to Product and Document Questions

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

Chapter 1 TL-1 Overview

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

In This Chapter

- Overview
- TL-1 Command Structure
- Responses
- Autonomous Messages
- Command Security

1.1   Overview

Transaction Language 1 (TL-1) is the most widely used management language in the telecommunications industry. TL-1 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 TL-1 as its human-to-machine command line interface (CLI).

Note: For a complete description of the TL-1 syntax, refer to Telcordia (Bellcore) Technical References *TR-NWT-00831* and *TR-NWT-00833*.

The remainder of this chapter explains the TL-1 command language and how it applies to the TimeProvider.

1.2   TL-1 Command Structure

The TL-1 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 *block separator character*, which is a colon (:), and the command is terminated by the *terminating character*, which is a semicolon (;). The semicolon indicates to the interpreter that the command statement is completed, and the command is then executed.

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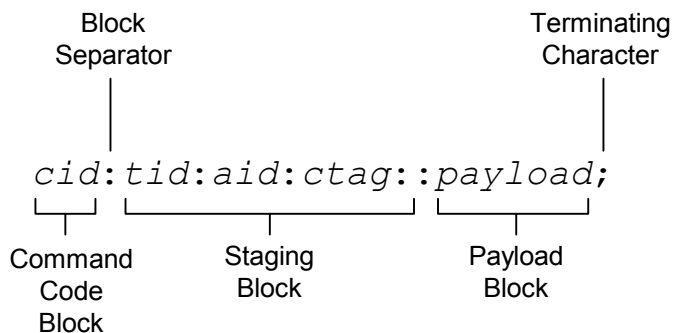
Figure 1-1.   Typical TL-1 Command Structure

1.2.1 Command Code Block

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

The verb indicates the class of command, and generally identifies the action that will take place as a result of the command. Modifiers further refine a command's action, and serve to either identify the object within the unit where the action is to be taken, or identify the type of information being requested.

`ED-DAT` is the command code block used in the TimeProvider's "Edit Date" TL-1 command. `ED` is the verb which identifies the command as being in that class of commands used for editing, and `DAT` is the modifier indicating that the command will edit a date object.

1.2.2 Staging Block

The Staging Block identifies the TimeProvider resources to which the command pertains. The Staging Block itself 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 in the sense that its value can be null. If it is not omitted from the command (that is, if its value is not null), it must match the Source Identifier (sid) that is set within the unit, or the unit will not respond to the command. Furthermore, 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 that is to be acted upon by the command. In the TL-1 syntax provided in Chapter 2 of this manual, the <aid> syntax tag is used specifically to denote modules, inputs, outputs, or ports, and other more specific syntax tags are used to denote other types of entities, such as <uid> to denote a user identifier, or <cid> to denote a command identifier. The position of the aid block within the command string, however, is always the same, that is, it 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, however its use 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, that is, if it is not followed by a Payload Block, it, as well as the surrounding block separator characters, can be omitted from the command string.

1.2.3   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 (, ,). The "Copy Memory " (CPY-MEM) command is 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. The "Edit Equipment " (ED-EQPT) command is one of the many TimeProvider TL-1 commands that use a name-defined payload block.

1.3   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.

1.3.1   Normal Response

The TimeProvider sends a Normal response when it receives and can properly process a TL-1 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 TL-1 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 TL-1 command string. If the value for the ctag is null in the command string, the unit returns a zero (0) as the ctag in the response.
textblk	A double-quoted message containing less than 4kBytes of information that the unit returns in response to the command.
LG_textblk	If the unit responds with a message containing more than 4kBytes of information, the message is divided into records of approximately 4kBytes, each ending with COMPLD<cr><lf>. The last record ends with <cr><lf>;.

1.3.2   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 TL-1 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 TL-1 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. Table 1-3 describes the meaning of each error code.

Table 1-3 describes the meaning of 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 TL-1 syntax).
IIAC	Invalid AID Code.
IICM	Invalid Command (invalid command or command with insufficient security clearance).
IICT	Invalid CTAG.
IITA	Invalid Target Identifier.

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

Error Code	Meaning
IPEX	Extra Parameter.
IPMS	Parameter Missing.
IPNV	Parameter Not Valid.
ISCH	Invalid Character, syntax.
ISPC	Invalid Punctuation, syntax.
SDBE	Database Error.
SDNR	Data Not Ready.
SRAC	Requested Access Configuration Not Valid.
SROF	Requested Operation Failed.
SROU	Requested Operation Unnecessary.
SWFA	Working Unit Failed.

1.3.3 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 explains each field that is 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 TL-1 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.

Table 1-4. In-Process Response Fields (Continued)

Field	Description
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 TL-1 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.

1.4   Autonomous Messages

In addition to the TL-1 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 TL-1 response that is associated with a command, because the command happens to cause a change in the unit's state. You will see, however, that Autonomous Messages are not directly correlated with commands, hence, they do not contain correlation tags (ctags).

> **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` TL-1 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 been cleared, etc. The format of an Autonomous Message is as follows. Note that `REPT` identifies the response as an Autonomous Message:

```
<cr><lf><lf>
   sid date time<cr><lf>
almcde atag REPT reptype aidtype<cr><lf>
   aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtim:condsr"<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` TL-1 command.
date	The date of the message, in the format *YY-MM-DD*, where *YY* is the 2-digit year, *MM* is the 2-digit representation of the month, and *DD* is the day of the month.
time	The time of the message, in the format *HH-MM-SS*, where *HH* is the hour in 24-hour format, *MM* is the minutes, and *SS* is the seconds.
almcde	The alarm code, which can be one of the following: `*C` - The event being reported is a critical alarm. `**` - The event being reported is a major alarm. `*` - The event being reported is a minor alarm. `A` - The event being reported is a non-alarm event.
atag	The Autonomous Message tag, which is a number up to six digits long which is increased by one each time an event is generated. It wraps back to 1 after reaching 999999.
reptype	The type of report. It can be either EVT (the event is a non-alarm event), or ALM (the event is an alarm event).
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.
aid	The access identifier, which denotes the system component that the reported alarm or event applies to.
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 TL-1 code that is associated with the alarm or event. Table 1-6 shows all of the possible TimeProvider event condition types, and Table 1-7 shows all of the possible TimeProvider alarm condition types.
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*.

Table 1-5. Autonomous Message Fields (Continued)

Field	Description
ocrtim	The time that the alarm or event occurred, in the format *HH-MM-SS*.
condscr	The condition string, which is a description of the alarm or event. It is a quoted text string, preceded with the "\" escape character. Table 1-6 shows all of the possible TimeProvider event condition strings, and Table 1-7 shows all of the possible TimeProvider alarm and clearing alarm condition strings.

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

Table 1-6. TimeProvider Event Conditions

condtype	condscr
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>
FLOW	SERIAL FLOW CONTROL HAS CHANGED, <state>
FWFAIL	FIRMWARE UPGRADE UNSECCESSFUL
FWOK	FIRMWARE UPGRADE SUCCESSFUL
FWLOAD	BEGINNING FIRMWARE UPGRADE
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
LOGIN	USER LOGGED IN, <username>

Table 1-6. TimeProvider Event Conditions (Continued)

condtype	condscr
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
USRCLE	NO USERS DEFINED
USRDEL	USER HAS BEEN DELETED
XFERFAIL	CONFIGURATION TRANSFER FAILED, <fromdev>,<todev>
XFEROK	CONFIGURATION TRANSFER SUCCESSFUL, <fromdev>,<todev>
IOC Event Conditions	
CLKTYPE	CLOCK TYPE HAS CHANGED, <state>
FWFAIL	FIRMWARE UPGRADE UNSECCESSFUL
FWOK	FIRMWARE UPGRADE SUCCESSFUL
FWLOAD	BEGINNING FIRMWARE UPGRADE
IOCMODE	IOC MODE IS. <mode>
IOCSTATE	IOC STATE HAS CHANGED, <state>
RESET	MODULE HAS BEEN RESET
IOC Clock Event Conditions	
CLKFSTLK	CLOCK ENTERED FAST-LOCK MODE
CLKLOCK	CLOCK ENTERED LOCK MODE
SCAVAIL	SMARTCLOCK ALGORITHM, <value>
IOC Input Event Conditions	
CRCENA	INPUT CRC HAS CHANGED, < value >
FRMTYPE	INPUT FRAMING TYPE HAS CHANGED, <value>
INSTATE	INPUT STATE HAS CHANGED, < value >
PMCLR	PERFORMANCE DATA HAS BEEN CLEARED
PRIORITY	PRIORITY HAS CHANGED, <value>
RQLEVEL	RECEIVED QUALITY LEVEL HAS CHANGED, <value>
QLEVEL	USER ASSIGNED QUALITY LEVEL HAS CHANGED, <value>
SPANTYPE	INPUT SPAN TYPE HAS CHANGED, <value>

Table 1-6. TimeProvider Event Conditions (Continued)

condtype	condscr
SSMBIT	E1 SSM BIT HAS CHANGED, <bit position>
SSMENA	INPUT READING OF SSM HAS CHANGED, < value >
IOC Output Event Conditions	
FREEFLT	FREE-RUN OUTPUT FAULT STRATEGY HAS CHANGED, <state>
FRMTYPE	OUTPUT FRAMING TYPE HAS CHANGED, <value>
HOLDFLT	HOLDOVER OUTPUT FAULT STRATEGY HAS CHANGED, <state>
OUTSTATE	OUTPUT GROUP STATE HAS CHANGED, < value >
OUTMODE	OUTPUT FAULT MODE HAS CHANGED, < value >
SYS Event Conditions	
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>

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

Table 1-7. TimeProvider Alarm Conditions

condtype	condscr (When Alarm is Set)	condscr (When Alarm is Cleared)
SYS Alarm Conditions		
EXPFAIL	EXPANSION CONNECTIVY FAILED	EXPANSION CONNECTIVY RESTORED
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
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
IOC Alarm Conditions		
IMC1COMM	IOC1 TO IMC COMMUNICATION FAILED	IOC1 TO IMC COMMUNICATION ESTABLISHED
IMC2COMM	IOC2 TO IMC COMMUNICATION FAILED	IOC2TO IMC COMMUNICATION ESTABLISHED
IOC1TO2COMM	IOC1 TO IOC2 COMMUNICATION FAILED	IOC1 TO IOC2 COMMUNICATION ESTABLISHED
IOC2TO1COMM	IOC2 TO IOC1 COMMUNICATION FAILED	IOC2 TO IOC1 COMMUNICATION ESTABLISHED
IOCFAIL	IOC HARDWARE FAILURE	IOC HARDWARE RESTORED
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 1-7. TimeProvider Alarm Conditions (Continued)

condtype	condscr (When Alarm is Set)	condscr (When Alarm is Cleared)
IOC1 Alarm Conditions		
IOCSTATE	IOC STATE HAS CHANGED, UNEQUIPPED	IOC STATE HAS CHANGED, EQUIPPED
IOC2 Alarm Conditions		
IOCSTATE	IOC STATE HAS CHANGED, UNEQUIPPED	IOC STATE HAS CHANGED, EQUIPPED
PRS and 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
EXDSC	EXCESSIVE DISCONTINUITY FAULT	EXCESSIVE DISCONTINUITY CLEARED
OUT[g] Alarm Conditions		
SYNTHEOR	OUTPUT GENERATOR EXCEEDED PULL-IN RANGE	OUTPUT GENERATOR WITHIN PULL-IN RANGE

1.5   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 TL-1 commands require that users be logged into the system in order to access them. Each user that has been set up 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 TL-1 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 TL-1 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, then 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 in order to use commands that have an assigned access level of NONE.

- **USER** - When a given command is assigned an access level of USER, then 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 an access level of ADMIN, then 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 an access level of SECURITY, then 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 TL-1 commands, however, the access level for the following commands is fixed and cannot be changed: ACT-USER, CANC-USER, ED-CMD-SECU, ED-USER-SECU, and ENT-USER-SECU.

Table 1-8 lists each of the TimeProvider's TL-1 commands in alphabetical order, which is also the way the command entries are presented in Chapter 2 of this manual. The command type and default (factory set) access level is included in Table 1-8 for each command.

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

Command Name	Command Type	Factory Set Access Level
ACT-SWDL	Administrative	ADMIN
ACT-USER	Session	NONE
CANC-USER	Session	USER
CPY-MEM	System	ADMIN
DLT-SECU	Administrative	SECURITY
DLT-USER-SECU	Administrative	SECURITY
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
RTRV-ALM	System	USER
RTRV-ATTR	System	USER
RTRV-CMD-SECU	Administrative	ADMIN
RTRV-COND	System	USER
RTRV-CRAFT	System	USER
RTRV-DAT	System	USER

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

Command Name	Command Type	Factory Set Access Level
RTRV-EQPT	System	USER
RTRV-INV	System	USER
RTRV-LED	System	USER
RTRV-NETYPE	System	NONE
RTRV-HDR	System	NONE
RTRV-LOG	System	USER
RTRV-SYNC	System	USER
RTRV-SYS-MODE	System	USER
RTRV-USER	Session	USER
RTRV-USER-SECU	Administrative	SECURITY
SET-ATTR	System	ADMIN
SET-SID	System	ADMIN
SET-SYS-MODE	System	ADMIN

Chapter 2 TL-1 Commands

This chapter describes each of the TimeProvider's TL-1 commands in detail.

In This Chapter

- TL-1 Syntax Conventions
- Command Descriptions

2.1　TL-1 Syntax Conventions

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

Table 2-1. TL-1 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 TL-1 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 TL-1 command line.

■　TL-1 commands are not case sensitive unless specified as such.

2.2　Command Descriptions

The TL-1 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.

2.2.1   Activate Software Download Mode (ACT-SWDL)

This command places the information management card (IMC) in the firmware download mode prior to a firmware download.

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.
	IOC	The Information Management Card (IMC) is placed in firmware download mode to download firmware to the Input/Output Card (IOC) module. **Note:** In systems that have redundant IOC modules, it is desirable to have both IOC modules operating with the same version of firmware. The system automatically ensures that both IOC modules receive the same version of firmware.

The Firmware Download Process

Caution: When the IMC module is in firmware download mode, most commands are not executable because all users are logged off of the system, however, commands with an access level of NONE are executable. Furthermore, if security is not enabled, any command is executable.

To avoid interfering with the firmware download process:

- No commands should ever be sent to the TimeProvider during the download process.

- Input echo should be disabled on the port (COML, COMR, or COMI) over which the download will take place using the ED-EQPT command, before the ACT-SWDL command is issued (see "Edit Equipment (ED-EQPT)" on page 46 *for more information).*

Notes:

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

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

The ACT-SWDL command places the IMC module in the firmware download mode, so that firmware upgrades can be downloaded to the IMC or IOC modules. When the TimeProvider is placed into firmware download mode, it automatically logs all users off of the system and locks the system against new logins. The system then disconnects TL-1 from the connection that sent the ACT-SWDL command, and starts the TimeProvider's internal Ymodem file receiver on that connection.

Firmware downloads require the use of an external Ymodem file sender utility, 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 IMC module returns to normal operation. If the file transfer is initiated within 60 seconds, the transfer of the file to the IMC module takes place.

After the file transfer to the IMC module completes, TL-1 is reconnected for the connection that sent the ACT-SWDL command, and the IMC module validates the file (the system remains locked against logins at this point). If the file cannot be validated, the unit returns an error response and the IMC module returns to normal operation.

If the file can be validated, what happens next is determined by the module to which the downloaded upgrade file applies.

If the upgrade file applies to the IMC module

If the upgrade file that was downloaded is valid and is for the IMC module, then 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, then 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 simply 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, then 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 the 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, after which it 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.

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", one "C" after approximately every 5 seconds 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:
```
   "TP-SSU" 03-01-02 15-10-20
A  964 REPT EVT

   "IMC,EQPT:NA,FWLOAD,NSA,03-01-02,15-10-20:\"BEGINNING FIRMWARE
UPGRADE\""
;IP TP1000
```

Progress Indicator → `<CCCCCCCCCC`

```
    "TP-SSU" 03-01-02 15-11-16
M   TP1000 DENY
    SROF
;

    "TP-SSU" 03-01-02 15-11-16
A   968 REPT EVT

    "IMC,EQPT:NA,FWFAIL,NSA,03-01-02,15-11-16:\"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:

```
    "TP-SSU" 03-01-02 15-12-00
A   969 REPT EVT

    "IMC,EQPT:NA,FWLOAD,NSA,03-01-02,15-11-59:\"BEGINNING FIRMWARE
UPGRADE\""
;IP TP1000
<CC

    "TP-SSU" 03-01-02 15-20-23
M   TP1000 COMPLD
;

    "TP-SSU" 03-01-02 15-20-23
A   971 REPT EVT

    "IMC,EQPT:NA,FWOK,NSA,03-01-02,15-20-23:\"FIRMWARE UPGRADE
SUCCESSFUL\""
;
```

2.2.2   Activate User (ACT-USER)

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

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

Syntax

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

Parameter	Value	Description
<uid>	*text string*	The user name assigned to the user logging on.
<pid>	*text string*	The password assigned to the user logging on. ***Note:*** Refer to "<newpid>" on page 65 for valid password specifications.

Each user session is independent, thus the same user can be logged into multiple user sessions without interaction between sessions.

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

Example

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

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

Normal Response:
```
   "TP-SSU" 03-01-06 02-23-33
M  TP1000 COMPLD
;
```

Autonomous Message:
```
   "TP-SSU" 03-01-06 07-23-32
A 2528 REPT EVT
   "IMC,EQPT:NA,LOGIN,NSA,03-01-06,07-23-32:\"USER LOGGED IN,
FRED\""
;
```

2.2.3 Cancel User (CANC-USER)

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

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

Syntax

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

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

Example

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

Input:

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

Normal Response:

```
   "TP-SSU" 03-01-06 07-55-46
M  TP1000 COMPLD
;
```

Autonomous Message:

```
   "TP-SSU" 03-01-06 07-55-46
A 2529 REPT EVT
   "IMC,EQPT:NA,LOGOUT,NSA,03-01-06,07-55-45:\"USER LOGGED OUT,
FRED\""
;
```

2.2.4 Copy Memory (CPY-MEM)

This command saves a module's Istate in another module's flash memory.

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.

Using the CPY-MEM command to copy IStates is most useful in the following cases:

■ *The IMC Module is Replaced* – In this case, copying the IMC Istate to the active IOC module, replacing the IMC module, then copying the IMC Istate back to the replacement IMC module effectively provisions the replacement IMC module 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.

> ⚠️ **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.

> **Note:** 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:
>
> 1. Replace the IOC module that is in standby mode.
> 2. 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.
> 3. Force the replacement card to the active state.
> 4. Replace the other IOC module. The Istate will then transfer 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" 03-01-01 14-30-25
M  TP1000 COMPLD
;
```

Autonomous Message:

```
    "TP-SSU" 03-01-01 14-30-25
A   314 REPT EVT

    "IMC,EQPT:NA,XFEROK,NSA,03-01-01,14-30-25:\"CONFIGURATION
TRANSFER SUCCESSFUL\""
;
```

2.2.5 Delete Security (DLT-SECU)

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

This command has a default access level of SECURITY.

Syntax

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

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

Example

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

Input:

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

Normal Response:

```
   "TP-SSU" 03-01-02 08-29-38
M  TP1000 COMPLD
;
```

Autonomous Message:

```
   "TP-SSU" 03-01-02 08-29-34
A  263 REPT EVT

   "IMC,EQPT:NA,USRDEL,NSA,03-01-02,08-29-34:\"USER HAS BEEN
DELETED\""
;IP TP1000
<

   "TP-SSU" 03-01-02 08-29-35
A  265 REPT EVT

   "IMC,EQPT:NA,USRDEL,NSA,03-01-02,08-29-34:\"USER HAS BEEN
DELETED\""
;

   "TP-SSU" 03-01-02 08-29-35
A  266 REPT EVT

   "IMC,EQPT:NA,USRDEL,NSA,03-01-02,08-29-35:\"USER HAS BEEN
DELETED\""
;
```

2.2.6 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" 03-01-06 08-08-21
M  TP1000 COMPLD
;
```

Autonomous Message:

```
   "TP-SSU" 03-01-06 08-08-20
A 2533 REPT EVT
   "IMC,EQPT:NA,USRDEL,NSA,03-01-06,08-08-20:\"USER HAS BEEN
DELETED\""
;
```

2.2.7   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 2-2 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 2-2. 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" 03-01-06 08-16-31
M  TP1000 COMPLD
;
```

Autonomous Message:

```
   "TP-SSU" 03-01-06 08-16-31
A 2534 REPT EVT
   "IMC,EQPT:NA,CMDCHG,NSA,03-01-06,08-16-31:\"COMMAND ACCESS
LEVEL HAS CHANGED, RTRV-LOG\""
;
```

2.2.8   Edit Date (ED-DAT)

This command changes the system date and time.

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 2-3 for <keyword> and <value> descriptions.

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

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

Example

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

Input:
```
ED-DAT::SYS:TP1000::TIMCHG=13-56-00;
```

Normal Response:
```
   "TP-SSU" 03-01-06 13-56-01
M  TP1000 COMPLD
;
```

Autonomous Message:

```
   "TP-SSU" 03-01-06 13-56-00
A 2535 REPT EVT
   "SYS,EQPT:NA,TIMCHG,NSA,03-01-06,13-56-00:\"SYSTEM TIME HAS
CHANGED, 13-56-00\""
;
```

2.2.9   Edit Equipment (ED-EQPT)

This command is used to provision equipment parameters.

This command has a default access level of ADMIN.

Syntax

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

Parameter	Value	Description
<aid>	SYS	The command's effect is at the system level. **Note:** See Table 2-4 for <keyword> and <value> descriptions.
	COM*p*	The command's effect is on the communication port specified by *p*: *p* is "L" for the local serial port. *p* is "R" for the remote serial port. *p* is "I" for the IP (Ethernet) port. **Note:** See Table 2-5 for <keyword> and <value> descriptions.
	IOC*m*	The command's effect is on the IOC module specified by *m*: *m* is "1" for the module marked "IOC 1" on the top of the main shelf. *m* is "2" for the module marked "IOC 2" on the top of the main shelf. **Note:** See Table 2-6 for <keyword> and <value> descriptions.
	PRS	The command's effect is on the PRS input. **Note:** See Table 2-7 for <keyword> and <value> descriptions.
	INP*p*	The command's effect is on the input port specified by *p*: p is "1" for the input marked INP 1 on the input connector module. p is "2" for the input marked INP 2 on the input connector module. **Note:** See Table 2-8 for <keyword> and <value> descriptions.

Parameter	Value	Description
<aid> *(continued)*	OUT*g*	The command's effect is on the output group specified by *g*: *g* is "A" for the group marked "A" on the main shelf. *g* is "B" for the group marked "B" on the main shelf. *g* is "C" for the group marked "C" on the main shelf. *g* is "D" for the group marked "D" on the main shelf. ***Note:*** See Table 2-9 for <keyword> and <value> descriptions.

Table 2-4. ED-EQPT - Keywords and Values for <aid>=SYS

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

Table 2-5. ED-EQPT - Keywords and Values for <aid>=COMp

<keyword>	<value>	Description	Default
The following applies for the COML, COMR, and COMI aids.			
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 2-5. ED-EQPT - Keywords and Values for <aid>=COMp (Continued)

<keyword>	<value>	Description	Default
The following applies for the COML and COMR aids 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.	
The following applies for the COMI aid only.			
IPGATE	*IP dot notation*	The IP address of the default gateway. The range is 1.0.0.1 to 254.255.255.254	127.0.0.1
IPADDR	*IP dot notation*	The IP address of the Network Element. The range is 1.0.0.1 to 254.255.255.254	127.0.0.1
IPSUBNET	*IP dot notation*	The subnet mask. The range is 1.0.0.1 to 255.255.255.254	255.255.255.0

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

<keyword>	<value>	Description	Default
IOCMODE	ACTIVE	The specified IOC card is forced to the active state. The other IOC card is set to the standby state.	ACTIVE
	STANDBY	The specified IOC card is forced to the standby state. The other IOC card is set to the active state. *Note:* If only one IOC card is installed, the IOCMODE=STANDBY setting is ignored.	
CLKTYPE	ST3E	The assumed SSM quality level for the IOC card's clock is set to stratum 3E traceable (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 ST3E will not be used as a reference.	TYPEI
	TYPEI	The assumed SSM quality level for the IOC card's clock is set to ETSI Type I (TYPEI). 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 will not be 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 has been taken out of service is not selectable by the system to generate outputs or monitor inputs, and no alarms are generated by the module.	

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

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

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

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

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

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

Note: See Section 2.2.11, Edit Sync (ED-SYNC) for more provisioning parameters.

Example

To enable Output Group B:

Input:

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

Normal Response:

```
   "TP-SSU" 03-01-06 14-01-06
M  TP1000 COMPLD
;
```

Autonomous Message:

```
   "TP-SSU" 03-01-06 14-01-06
A 2537 REPT EVT
   "OUTB,EQPT:NA,OUTSTATE,NSA,03-01-06,14-01-06:\"OUTPUT GROUP
STATE HAS CHANGED, ENABLE\""
;
```

2.2.10 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) case-sensitive 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 (refer to Telcordia (Bellcore) general requirements document GR-831-CORE for more information).

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" 03-01-06 14-11-02
M   TP1000 COMPLD
;
```

Autonomous Message:

```
    "TP-SSU" 03-01-06 14-11-01
A 2538 REPT EVT
    "IMC,EQPT:NA,PIDCHG,NSA,03-01-06,14-11-01:\"USER PASSWORD HAS
CHANGED\""
;
```

2.2.11 Edit Sync (ED-SYNC)

This command changes input and output port parameter settings.

This command has a default access level of ADMIN.

Syntax

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

Parameter	Value	Description
<aid>	SYS	The command's effect is on system-level input settings. ***Note:*** See Table 2-10 for <keyword> and <value> descriptions.
	PRS	The command's effect is on the PRS system input. ***Note:*** See Table 2-11 for <keyword> and <value> descriptions.
	INP	The command's effect is on the input ports*.* ***Note:*** See Table 2-12 for the <keyword> and <value> description.
	INP*p*	The command's effect is on the input port specified by *p*: p is "1" for the input marked INP 1 on the input connector module. p is "2" for the input marked INP 2 on the input connector module. ***Note:*** See Table 2-13 for <keyword> and <value> descriptions.
	OUT*g*	The command's effect is on the output group specified by *g*: *g* is "A" for the group marked "A" on the main shelf. *g* is "B" for the group marked "B" on the main shelf. *g* is "C" for the group marked "C" on the main shelf. *g* is "D" for the group marked "D" on the main shelf. ***Note:*** See Table 2-14 for <keyword> and <value> descriptions.

Table 2-10. ED-SYNC - Keywords and Values for <aid>=SYS

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

Table 2-11. ED-SYNC - Keywords and Values for <aid>=PRS

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

Table 2-11. ED-SYNC - Keywords and Values for <aid>=PRS (Continued)

<keyword>	<value>	Description	Default
PRIORITY *Note:* When input quality levels on all inputs are equal, then the input with the highest PRIORITY is selected. Also, the PRIORITY settings for the inputs determine if the switching strategy is revertive or non-revertive. This setting is used when REFMODE is set to AUTO.	1	The priority level of the PRS input is set to 1.	2
	2	The priority level of the PRS input is set to 2.	
	3	The priority level of the PRS input is set to 3.	
	4	The priority level of the PRS input is set to 4.	
FRMTYPE *Note:* If the input frequency does not match the FRMTYPE setting, an input loss-of-signal (INPLOS) condition results.	2M	The PRS input frequency is provisioned as 2048 kHz.	2M
	5M	The PRS input frequency is provisioned as 5 MHz.	
	10M	The PRS input frequency is provisioned as 10 MHz.	

Table 2-12. ED-SYNC - Keywords and Values for <aid>=INP

<keyword>	<value>	Description	Default
SPANTYPE	T1	The specified inputs are provisioned as T1 inputs.	E1
	E1	The specified inputs are provisioned as E1 inputs.	

Table 2-13. ED-SYNC - Keywords and Values for <aid>=INPp

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

Table 2-13. ED-SYNC - Keywords and Values for <aid>=INPp (Continued)

<keyword>	<value>	Description	Default
PRIORITY ***Note:*** When input quality levels on all inputs are equal, then the input with the highest PRIORITY is selected. Also, the PRIORITY settings for the inputs determine if the switching strategy is revertive or non-revertive. This setting is used when REFMODE is set to AUTO.	1	The priority level of the specified input is set to 1.	3 (INP1) 4 (INP2)
	2	The priority level of the specified input is set to 2.	
	3	The priority level of the specified input is set to 3.	
	4	The priority level of the specified input is set to 4.	
FRMTYPE ***Note:*** When the TimeProvider is in Subtending (SUB) operating mode (see "Set System Mode (SET-SYS-MODE)" on page 120), the frame signal type is automatically set to Composite Clock (CC) by the system. The CC FRMTYPE cannot otherwise be selected by the user.	2M	The frame signal type of the specified input is provisioned to 2M. ***Note:*** Valid when SPANTYPE=E1.	2M
	CCS	The frame signal type of the specified input is provisioned to CCS. ***Note:*** Valid when SPANTYPE=E1.	
	D4	The frame signal type of the specified input is provisioned to D4 (Super Frame). ***Note:*** Valid when SPANTYPE=T1.	ESF
	ESF	The frame signal type of the specified input is provisioned to ESF (Extended Super Frame). ***Note:*** Valid when SPANTYPE=T1.	

Table 2-13. ED-SYNC - Keywords and Values for <aid>=INPp (Continued)

<keyword>	<value>	Description	Default
CRCENA	ENABLE	Enables the use of CRC4 checking on the input. **Note:** If an input is provisioned to read SSMs (SSMENA=ENABLE), CRC4 is automatically enabled.	DISABLE
	DISABLE	Disables the use of CRC4 checking on the input. **Note:** If an input is provisioned to read SSMs (SSMENA=ENABLE), CRC4 checking is automatically enabled.	
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.	

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

<keyword>	<value>	Description	Default
FRMTYPE	2M	The framing type generated by the specified output group is provisioned as 2M.	2M
	CAS	The framing type generated by the specified output group is provisioned as CAS.	
	D4	The framing type generated by the specified output group is provisioned as D4 (Super Frame).	
	ESF	The framing type generated by the specified output group is provisioned as ESF (Extended Super Frame).	
	CC	The framing type generated by the specified output group is provisioned as Composite Clock.	
	8kHz	The framing type generated by the specified output group is provisioned as 8 kHz.	
	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.	

Example

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

Input:

```
ED-SYNC::INP:TP1000::SPANTYPE=T1;
```

Normal Response:

```
   "TP-SSU" 03-01-06 14-36-22
M  TP1000 COMPLD
;
```

Autonomous Message:

```
   "TP-SSU" 03-01-06 14-36-21
A 2556 REPT EVT
   "INP,T1:NA,SPANTYPE,NSA,03-01-06,14-36-21:\"INPUT SPAN TYPE HAS
CHANGED,T1\""
;
```

2.2.12 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 2-15 for <keyword> and <value> descriptions.

Table 2-15. ED-USER-SECU - Keyword and Values for <uid>=text string

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

Example

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

Input:

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

Normal Response:

```
    "TP-SSU" 03-01-06 14-43-01
M   TP1000 COMPLD
;
```

Autonomous Message:

```
    "TP-SSU" 03-01-06 14-43-01
A 2562 REPT EVT
    "IMC,EQPT:NA,ACCLVL,NSA,03-01-06,14-43-00:\"USER ACCESS LEVEL
HAS CHANGED\""
;
```

2.2.13 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) case-sensitive 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 (refer to Telcordia (Bellcore) general requirements document GR-831-CORE for more information).

Example

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

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


Normal Response:
```
   "TP-SSU" 03-01-08 06-39-45
M  TP1000 COMPLD
;
```


Autonomous Message:
```
   "TP-SSU" 03-01-08 06-39-45
A 174 REPT EVT
   "IMC,EQPT:NA,PIDCHG,NSA,03-01-08,06-39-45:\"USER PASSWORD HAS
CHANGED\""
;
```

2.2.14 Enter User Security (ENT-USER-SECU)

This command enters a new user in the user database.

Notes:

1. Up to twenty users can be stored.

2. With no users defined, anyone connecting to the system has access to all commands.

3. The system requires that the initial user to be entered have Security-level access. Once this user is created, that user must log into the system using the Activate User (ACT-USER) command to further provision the system.

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

Syntax

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

Parameter	Value	Description
<uid>	*text string*	The user name for the user being set up. **Note:** The user name can be comprised of up to twenty (20) case-insensitive alphanumeric characters.
<pid>	*text string*	The password for the user being set up. **Notes:** - The password can be up to twenty (20) characters. It must include at least two non-alphabetic characters, and must include at least one special character, which is any printing character other than a letter of the alphabet, a number, a comma, a colon, or a semicolon. - To use case-sensitive passwords, <pid> must be enclosed in quotes in the command line (refer to Telcordia (Bellcore) general requirements document GR-831-CORE for more information).

Parameter	Value	Description
<uap>	NONE	The specified user has an access level of NONE assigned. *Note:* With an access level of NONE, users can receive autonomous messages, but have very limited command access.
	USER	The user being set up will have USER access, that is, will be able to issue commands having an access level of NONE or USER.
	ADMIN	The user being set up will have ADMIN access, that is, will be able to issue commands having an access level of NONE, USER, or ADMIN
	SECURITY	The user being set up will have SECURITY access, that is, will be 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" 03-01-06 14-42-55
M  TP1000 COMPLD
;
```

Autonomous Message:

```
   "TP-SSU" 03-01-06 14-42-54
A 2560 REPT EVT
   "IMC,EQPT:NA,USRADD,NSA,03-01-06,14-42-54:\"USER HAS BEEN
ADDED\""
;
```

2.2.15 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" 03-01-06 14-47-45
M  TP1000 COMPLD
;
```

Autonomous Message:

```
   "TP-SSU" 03-01-06 14-47-45
A 2563 REPT EVT
   "IMC,EQPT:NA,INITLOG,NSA,03-01-06,14-47-45:\"EVENT LOG HAS BEEN
CLEARED\""
;
```

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

This command has a default access level of ADMIN.

Syntax

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

Parameter	Value	Description
<aid>	SYS	The command's effect is at the system level. ***Note:*** See Table 2-16 for the <keyword> description.
	IMC	The command's effect is on the Information Management Card module. ***Note:*** See Table 2-17 for the <keyword> description.
	IOC*m*	The command's effect is on the Input/Output Card module specified by *m*: *m* is "1" for the module marked "IOC 1" on the top of the main shelf. *m* is "2" for the module marked "IOC 2" on the top of the main shelf. ***Note:*** See Table 2-17 for the <keyword> description.

Table 2-16. INIT-SYS - Keyword for <aid>=SYS

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

Table 2-17. INIT-SYS - Keyword for <aid>=IMC and <aid>=IOCm

<keyword>	Description	Default
RESET	Performs a reset (reboot) of the specified card, which reinitializes volatile memory, but does not affect non-volatile (persistent) memory. *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.	N/A

Example

To perform a reset on the IOC2 module:

Input:

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

Normal Response:

```
    "TP-SSU" 03-01-02 08-25-38
M   TP1000 COMPLD
;
```

Autonomous Message:

```
    "TP-SSU" 03-01-02 08-25-39
A   258 REPT EVT

    "IOC2,EQPT:NA,RESET,NSA,03-01-02,08-25-38:\"MODULE HAS BEEN
RESET\""
;
```

2.2.17 Operate Alarm Cutoff (OPR-ACO-ALL)

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

> **Note:** Once 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" 03-01-06 14-51-20
M  TP1000 COMPLD
;
```

Autonomous Message:

```
   "TP-SSU" 03-01-06 14-51-20
A 2564 REPT EVT
   "IMC,EQPT:NA,ACO,NSA,03-01-06,14-51-20:\"AUDIO ALARM IS
DEACTIVATED\""
;
```

2.2.18 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;
```

Normal Response:

```
    "TP-SSU" 03-01-06 14-56-12
M  TP1000 COMPLD
"Host 192.168.12.10 is alive. Roundtrip time was 165 milliseconds"
;
```

Autonomous Message:

None.

2.2.19 Retrieve Alarm Condition (RTRV-ALM)

This command retrieves information on currently active alarms.

This command has a default access level of USER.

Syntax

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

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

Command Output

The following shows the output format of the command, and Table 2-18 explains the various fields in the command output:

```
<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 2-18. RTRV-ALM Output Fields

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

Example

To display all currently active alarms from the system:

Input:

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

Normal Response:

```
   "TP-SSU" 03-01-01 19-42-42
M  TP1000 COMPLD
   "SYS,EQPT:NA,EXPFAIL,SA,03-01-01,12-00-01:\"EXPANSION
   CONNECTIVITY FAILED\""
   "IOC1,EQPT:MJ,CLKHOLD,SA,03-01-01,15-32-19:\"CLOCK ENTERED
   HOLDOVER MODE\""
   "IOC2,EQPT:MJ,CLKHOLD,SA,03-01-01,15-32-18:\"CLOCK ENTERED
   HOLDOVER MODE\""
;
```

Autonomous Message:

None.

2.2.20 Retrieve Attribute (RTRV-ATTR)

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

This command has a default access level of USER.

Syntax

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

Parameter	Value	Description
<aid>	ALL (or *null*)	Retrieves the alarm levels set for all alarms in the entire system. ***Note:*** See Table 2-19 for <keyword> descriptions.
	SYS	Retrieves the alarm level(s) set for all system-level alarms, or for the specified system-level alarm. ***Note:*** See Table 2-19 for <keyword> descriptions.
	IMC	Retrieves the alarm level(s) set for all Information Management Card (IMC) module alarms, or for the specified IMC module alarm. ***Note:*** See Table 2-19 for <keyword> descriptions.
	IOC*m*	Retrieves the alarm level(s) set for all alarms in the specified Input/Output Card module, or for the specified alarm from the specified Input/Output Card module. *m* is "1" for the module marked "IOC 1" on the top of the main shelf. *m* is "2" for the module marked "IOC 2" on the top of the main shelf. ***Notes:*** - See Table 2-19 for <keyword> descriptions. - Alarm level information is retrieved from the IOC module that is currently active.
	PRS	Retrieves the alarm level(s) set for all PRS alarms, or for the specified PRS alarm. ***Note:*** See Table 2-19 for <keyword> descriptions.

Parameter	Value	Description
<aid> *(Continued)*	INPp	Retrieves the alarm level(s) set for all alarms related to the specified input port, or for the specified alarm related to the specified input port. p is "1" for the input marked INP 1 on the input connector module. p is "2" for the input marked INP 2 on the input connector module. ***Note:*** See Table 2-19 for <keyword> descriptions.

Table 2-19. RTRV-ATTR - Keywords and Values for all <aids>

<keyword>	Description	Default
Alarm ID	The identifier of the alarm for which the level is to be retrieved. ***Notes:*** - See Table 2-31 under "*Set Attribute (SET-ATTR)*" 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 2-20 explains the various fields in the command output:

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

Table 2-20. RTRV-ATTR Output Fields

Field	Description
event id	The identifier of the alarm for which the level is displayed. *Note:* See Table 2-31 under "*Set Attribute (SET-ATTR)*" 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;
```

Normal Response:

```
    "TP-SSU" 03-01-01 21-16-48
M   TP1000 COMPLD
    "IMC:IOC1COMM,MN"
;
```

Autonomous Message:

None.

2.2.21 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 2-21 explains the various fields in the command output:

```
<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 2-21. 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 allows all users to issue it) ■ USER (command allows users with an access level of USER, ADMIN, and SECURITY to issue it) ■ ADMIN (command allows users with an access level of ADMIN and SECURITY to issue it) ■ SECURITY (command allows users with an access level of SECURITY to issue it).

Example

To display the current access level set for all TL-1 commands:

Input:

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

Normal Response:

```
    "TP-SSU" 03-01-02 01-43-47
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.

2.2.22 Retrieve Condition (RTRV-COND)

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

This command has a default access level of USER.

Syntax

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

Parameter	Value	Description
<aid>	(*null*) or ALL	Retrieves all state and status information for the entire system.
	SYS	Retrieves expansion panel connectivity status and any alarm events associated with the expansion panel. **Note:** This information is reported by the active IOC.
	IMC	Retrieves all conditions related to the Information Management Card module.
	IOC*m*	Retrieves current setup and conditions related to the system-level functions of the Input/Output Card module specified by *m*. *m* is "1" for the module marked "IOC 1" on the top of the main shelf. *m* is "2" for the module marked "IOC 2" on the top of 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.
	PRS	Retrieves PRS input state and any alarm events associated with the PRS input.

Parameter	Value	Description
<aid> *(Continued)*	INP*p*	Retrieves input state and any alarm events associated with the input specified by *p*. p is "1" for the input marked INP 1 on the input connector module. p is "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 is "A" for the group marked "A" on the main shelf. g is "B" for the group marked "B" on the main shelf. g is "C" for the group marked "C" on the main shelf. g is "D" for the group marked "D" on the main shelf. **Note:** This information is reported by the active IOC.

Command Output

The following shows the output format of the command when the "ALL" aid is used, and Table 2-22 explains the various fields in the command output:

```
<cr><lf><lf>
   sid date time<cr><lf>
M  ctag COMPLD<cr><lf>
   "SYS:pwra,pwrb,exp,ext1,ext2,ioc1,ioc2,date,time"<cr><lf>
   "IMC:ioc1comm,ioc2comm"<cr><lf>
   "IOC1:iocstatus,ioccomm,imccomm"<cr><lf>
   "IOC2:iocstatus,ioccomm,imccomm"<cr><lf>
   "PRS:status"<cr><lf>
   "INP1:status"<cr><lf>
   "INP2:status"<cr><lf>
   "OUTA:status"<cr><lf>
   "OUTB:status"<cr><lf>
   "OUTC:status"<cr><lf>
   "OUTD:status"<cr><lf>
;
```

Table 2-22. RTRV-COND Output Fields

Field	Description
The following applies for the SYS aid.	
pwra(b)	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).

Table 2-22. RTRV-COND Output Fields (Continued)

Field	Description
exp	Indicates if the connection to the expansion output panel has been 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).
ext1(2)	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).
ioc1(2)	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 has been received), or IOC1(2)-UNEQPT (no IOC1(2)EQPT event has been received).
date	The date the system was last provisioned by a user. The format is *YY-MM-DD*, where *YY* is the 2-digit year, *MM* is the 2-digit representation of the month, and *DD* is the day of the month.
time	The time the system was last provisioned by a user. The format is *HH-MM-SS*, where *HH* is the hour in 24-hour format, *MM* is the minutes, and *SS* is the seconds.
The following applies for the IMC aid.	
ioc1(2)comm	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).
The following applies for the IOC1 and IOC2 aids.	
Note: The following status conditions are reported by the IOC modules, but are stored in the IMC module. When the RTRV-COND command is received by the unit, the IMC module reports the last status conditions it received from the IOC modules. If a given IOC module is removed or develops a communication problem, the states as reported by the IMC might not be accurate.	
iocstatus	The current status of the specified IOC module. 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 currently is active. The possible returned values can be either 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 possible returned values can be either 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).
The following applies for the PRS, INP1, INP2, OUTA, OUTB, OUTC, and OUTD aids.	
status	The current status of the specified input, output, or system component. The status can be either OK (no alarms are currently active for the specified component), or ALM (one or more alarms are currently active for the specified component).

Example

To display the current state and status for all AIDs:

Input:

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

Normal Response:

```
"TP-SSU" 03-01-08 09-47-45
M   TP1000 COMPLD
    "SYS:PWRA-OK,PWRB-OK,EXP-OK,EXT1-OK,EXT2-OK,IOC1-EQPT,IOC2-EQPT
,03-01-08,06-49-35"
    "IMC:IOC1COMM-OK,IOC2COMM-OK"
    "IOC1:OK,IOC1TO2COMM-OK,IMC1COMM-OK"
    "IOC2:ALM,IOC2TO1COMM-OK,IMC2COMM-OK"
    "PRS:OK"
    "INP1:OK"
    "INP2:OK"
    "OUTA:OK"
    "OUTB:OK"
    "OUTC:OK"
    "OUTD:OK"
;
```

Autonomous Message:

None.

2.2.23 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:

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

2. 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.

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

4. 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 2-23 explains the various fields in the command output:

```
<cr><lf><lf>
   sid date time<cr><lf>
M  ctag COMPLD<cr><lf>
   "SYS:pwra,pwrb,exp,ext1,ext2,ioc1,ioc2,date,time,sysmode,
      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>
   "PRS:prsstatus,instate,qlevel,priority,frmtype"<cr><lf>
   "INP1:inpstatus,instate,qlevel,priority,frmtype,spantype,
      rqlevel,crcena,ssmena,ssmbit"<cr><lf>
   "INP2:inpstatus,instate,qlevel,priority,frmtype,spantype,
      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>
    ;
```

Table 2-23. RTRV-CRAFT Output Fields

Field	Description
The following applies for the SYS aid.	
pwra(b)	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).
exp	Indicates if the connection to the expansion output panel has been 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).
ext1(2)	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).
ioc1(2)	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 has been received), or IOC1(2)-UNEQPT (no IOC1(2)EQPT event has been received).
date	The date the system was last provisioned by a user. The format is *YY-MM-DD*, where *YY* is the 2-digit year, *MM* is the 2-digit representation of the month, and *DD* is the day of the month.
time	The time the system was last provisioned by a user. The format is *HH-MM-SS*, where *HH* is the hour in 24-hour format, *MM* is the minutes, and *SS* is the seconds.
sysmode	The TimeProvider system's currently provisioned operating mode (see "SYSMODE" on page 120 (Table 2-33) for a description of the values that might be returned).
refmode	The reference selection mode (see "REFMODE" on page 55 (Table 2-10) for a description of the values that might be returned).
inpref	The input reference that is selected when the reference mode (REFMODE) is set to forced (see "INPREF" on page 55 (Table 2-10) for a description of the values that might be returned)
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. (see "CLRDELAY" on page 55 (Table 2-10) for a description of the values that might be returned).
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. (see "FLTDELAY" on page 55 (Table 2-10) for a description of the values that might be returned).

Table 2-23. RTRV-CRAFT Output Fields (Continued)

Field	Description
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 (see "INACTTIME" on page 47 (Table 2-4) for a description of the values that might be returned).
logecho	Indicates if login and logout events are echoed to the local terminal (see "LOGECHO" on page 47 (Table 2-4) for a description of the values that might be returned).
The following applies for the IMC aid.	
ioc1(2)comm	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).
The following applies for the COML and COMR aids.	
baud	The serial port's baud rate setting (see "BAUD" on page 48 (Table 2-5) for a description of the values that might be returned).
flow	The type of serial port flow control set (see "FLOW" on page 48 (Table 2-5) for a description of the values that might be returned).
echo	Indicates if input is echoed to the local terminal on the port (see "ECHO" on page 47 (Table 2-5) for a description of the values that might be returned).
The following applies for the COMI aid.	
ipaddr	The IP address of the Network Element (see "IPADDR" on page 48 (Table 2-5) for a description of the values that might be returned).
ipgate	The IP address of the default gateway (see "IPGATE" on page 48 (Table 2-5) for a description of the values that might be returned).
ipsubnet	The subnet mask (see "IPSUBNET" on page 48 (Table 2-5) for a description of the values that might be returned).
echo	Indicates if input is echoed to the local terminal on the port (see "ECHO" on page 47 (Table 2-5) for a description of the values that might be returned).
The following applies for the IOC1 and IOC2 aids.	
Note: The following status conditions are reported by the IOC modules, but are stored in the IMC module. When the RTRV-COND command is received by the unit, the IMC module reports the last status conditions it received from the IOC modules. If a given IOC module is removed or develops a communication problem, the states as reported by the IMC might not be accurate.	
iocstatus	The current status of the specified IOC module. 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 currently is active. The possible returned values can be either 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).

Table 2-23. RTRV-CRAFT Output Fields (Continued)

Field	Description
imccomm	Indicates if a communication alarm from the IMC to the IOC2(1) module currently is active. The possible returned values can be either 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).
iocstate	The service mode of the IOC module (see "IOCSTATE" on page 49 (Table 2-6) for a description of the values that might be returned).
iocmode	Indicates if the IOC module is active (see "IOCMODE" on page 49 (Table 2-6) for a description of the values that might be returned).
clkmode	The current mode of the local oscillator on the IOC module.
clktype	The assumed SSM quality level for the IOC module's clock (see "CLKTYPE" on page 49 (Table 2-6) for a description of the values that might be returned).
The following applies for the PRS aid.	
prsstatus	The current status of the PRS. The status can be either OK (no alarms are currently active for the PRS), or ALM (one or more alarms are currently active for the PRS).
inpstate	The state of the PRS input (see "INSTATE" on page 50 (Table 2-7) for a description of the values that might be returned).
qlevel	The provisioned quality level for the PRS input (see "QLEVEL" on page 56 (Table 2-11) for a description of the values that might be returned).
priority	The provisioned priority level for the PRS input (see "PRIORITY" on page 57 (Table 2-11) for a description of the values that might be returned).
frmtype	The PRS input frequency setting (see "FRMTYPE" on page 57 (Table 2-11) for a description of the values that might be returned).
The following applies for the INP1 and INP2 aids.	
inpstatus	The current status of the specified input. The status can be either OK (no alarms are currently active for the specified input), or ALM (one or more alarms are currently active for the specified input).
inpstate	The state of the specified input (see "INSTATE" on page 50 (Table 2-8) for a description of the values that might be returned).
qlevel	The provisioned quality level for the specified input (see "QLEVEL" on page 58 (Table 2-13) for a description of the values that might be returned).
priority	The provisioned priority level for the specified input (see "PRIORITY" on page 59 (Table 2-13) for a description of the values that might be returned).
frmtype	The frame signal type provisioned for the specified input (see "FRMTYPE" on page 59 (Table 2-13) for a description of the values that might be returned).
spantype	The type of input (T1/E1) that the specified input is provisioned as (see "SPANTYPE" on page 57 (Table 2-12) for a description of the values that might be returned).
rqlevel	The quality level received on the specified input. This parameter can be an integer from 1 through 8, or NA.

Table 2-23. RTRV-CRAFT Output Fields (Continued)

Field	Description
crcena	Indicates if the specified input is provisioned to utilize CRC4 checking. (see "CRCENA" on page 60 (Table 2-13) for a description of the values that might be returned).
ssmena	Indicates if the specified input is provisioned to read the received SSM (see "SSMENA" on page 60 (Table 2-13) for a description of the values that might be returned).
ssmbit	The bit position at which the specified input is provisioned to read SSM (see "SSMBIT" on page 60 (Table 2-13) for a description of the values that might be returned).
The following applies for the OUTA, OUTB, OUTC, and OUTD aids.	
outstatus	The current status of the specified output group. The status can be either OK (no alarms are currently active for the specified output group), or ALM (one or more alarms are currently active for the specified output group).
outstate	The state of the specified output group (see "OUTSTATE" on page 50 (Table 2-9) for a description of the values that might be returned).
frmtype	The framing type that the specified output group is provisioned to generate (see "FRMTYPE" on page 61 (Table 2-14) for a description of the values that might be returned).
freeflt	The type of signal to be generated on the specified output group when the Local Oscillator enters Free-run mode (see "FREEFLT" on page 61 (Table 2-14) for a description of the values that might be returned).
holdflt	The type of signal to be generated on the specified output group when the Local Oscillator enters Holdover mode (see "HOLDFLT" on page 61 (Table 2-14) for a description of the values that might be returned).

Example

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

Input:

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

Normal Response:

```
   "TP-SSU" 03-01-01 19-28-02
M  TP1000 COMPLD
   "SYS:PWRA-OK,PWRB-OK,EXP-ALM,EXT1-OK,EXT2-OK,IOC1-EQPT,
   IOC2-EQPT,03-01-01,17-19-59,SSU,AUTO,NONE,5,5,0,ENABLE"
   "IMC:IOC1COMM-OK,IOC2COMM-OK"
   "COML:9600,NONE,"
   "COMR:57600,NONE,"
   "COMI:192.168.40.39,192.168.40.1,255.255.255.0,DISABLE"
   "IOC1:ALM,IOC1TO2COMM-OK,IMC1COMM-OK,INSRV,STANDBY,,TYPEI"
   "IOC2:ALM,IOC2TO1COMM-OK,IMC2COMM-OK,INSRV,STANDBY,,TYPEI"
   "PRS:ALM,ENABLE,2,1,2M"
```

```
        "INP1:ALM,ENABLE,1,1,CCS,E1,1,ENABLE,DISABLE,8"
        "INP2:ALM,ENABLE,2,1,2M,E1,2,DISABLE,DISABLE,8"
        "OUTA:,ENABLE,ISOLATED_1,SQUELCH,ON"
        "OUTB:,DISABLE,2M,SQUELCH,ON"
        "OUTC:,DISABLE,2M,SQUELCH,ON"
        "OUTD:,DISABLE,2M,SQUELCH,ON"
    ;
```

Autonomous Message:

None.

2.2.24 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 2-24 explains the various fields in the command output:

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

Table 2-24. RTRV-DAT Output Fields

Field	Description
date	The currently set system date, in the format *yy-mm-dd*: *yy* is the 2-digit year. *mm* is the 2-digit representation of the month. *dd* is the day of the month.
time	The currently set system time, in the format *hh-mm-ss*: *hh* is the hour, in 24-hour format. *mm* is the minutes. *ss* is the seconds.
offset	The currently set UTC offset, in the format ±*hh-mm*: *hh* is the local time's hour offset from UTC; ±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" 03-01-10 10-23-48
M   TP1000 COMPLD
    "SYS:03-01-10,10-23-48,00-00"
;
```

Autonomous Message:

None.

2.2.25 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	The command's effect is at the system-level. ***Note:*** See Table 2-4 under "*Edit Equipment (ED-EQPT)*" for <keywords> and descriptions of their possible <values>.
	COM*p*	The command's effect is on the communication port specified by *p*: *p* is "L" for the local serial port. *p* is "R" for the remote serial port. *p* is "I" for the IP (Ethernet) port. ***Note:*** See Table 2-5 under "*Edit Equipment (ED-EQPT)*" for <keywords> and descriptions of their possible <values>.
	IOC*m*	The command's effect is on the IOC module specified by *m*: *m* is "1" for the module marked "IOC 1" on the top of the main shelf. *m* is "2" for the module marked "IOC 2" on the top of the main shelf. ***Note:*** See Table 2-6 under "*Edit Equipment (ED-EQPT)*" for <keywords> and descriptions of their possible <values>.
	PRS	The command's effect is on the PRS system input. ***Note:*** See Table 2-7 under "*Edit Equipment (ED-EQPT)*" for <keywords> and descriptions of their possible <values>.

Parameter	Value	Description
<aid> *(continued)*	INP*p*	The command's effect is on the input port specified by *p*: p is "1" for the input marked INP 1 on the input connector module. p is "2" for the input marked INP 2 on the input connector module. ***Note:*** See Table 2-8 under "*Edit Equipment (ED-EQPT)*" for <keywords> and descriptions of their possible <values>.
	OUT*g*	The command's effect is on the output group specified by *g*: *g* is "A" for the group marked "A" on the main shelf. *g* is "B" for the group marked "B" on the main shelf. *g* is "C" for the group marked "C" on the main shelf. *g* is "D" for the group marked "D" on the main shelf. ***Note:*** See Table 2-9 under "*Edit Equipment (ED-EQPT)*" for <keywords> and descriptions of their possible <values>.

Example

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

Input:

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

Normal Response:

```
    "TP-SSU" 03-01-10 12-09-02
M   TP1000 COMPLD
    "COML:BAUD,9600"
;
```

Autonomous Message:

None.

2.2.26 Retrieve Inventory (RTRV-INV)

This command retrieves the system inventory.

This command has a default access level of USER.

Syntax

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

Command Output

The following shows the output format of the command, and Table 2-25 explains the various fields in the command output:

```
<cr><lf><lf>
    sid date time<cr><lf>
M   ctag COMPLD<cr><lf>
    "IMC:part_no,ser_no,clei,hw_ver,fw_ver,mac_adrs"<cr><lf>
    "IOC1:part_no,ser_no,clei,hw_ver,fw_ver"<cr><lf>
    "IOC2:part_no,ser_no,clei,hw_ver,fw_ver"<cr><lf>
;
```

Table 2-25. RTRV-INV Output Fields

Field	Description
part_no	The module's part number.
ser_no	The module's serial number.
clei	The Common Language Equipment Identification (CLEI) code for the module.
hw_ver	The revision number of the module's hardware.
fw_ver	The revision number of the module's firmware.
mac_adrs *(IMC only)*	The media access control (MAC) address of the IMC module.

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;
```

Normal Response:

```
    "TP-SSU" 03-01-10 12-54-49
M   TP1000 COMPLD
    "IMC:,,,,0.01.06,00-60-08-A8-44-88"
    "IOC1:091-58021-01,C12345,CLEI012345,A,0.02.03"
    "IOC2:091-58021-01,C12345,CLEI012345,A,0.02.03"
;
```

Autonomous Message:

None.

2.2.27 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's panel.
	IOC1	Retrieves the status of the LED indicators on the IOC1 module's panel.
	IOC2	Retrieves the status of the LED indicators on the IOC2 module's panel.

Command Output

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

```
<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 2-26. RTRV-LED Output Fields

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

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

Example

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

Input:

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

Normal Response:

```
    "TP-SSU" 03-01-10 13-56-48
M   TP1000 COMPLD
    "IMC:POWER,GREEN"
    "IMC:FAIL,OFF"
    "IMC:ALARM,RED"
    "IMC:CRITICAL,RED"
    "IMC:MAJOR,OFF"
    "IMC:MINOR,OFF"
    "IMC:ACO,OFF"
    "IOC1:POWER,GREEN"
    "IOC1:FAIL,OFF"
    "IOC1:ALARM,RED"
    "IOC1:ACTIVE,GREEN"
    "IOC1:HOLDOVER,OFF"
    "IOC1: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: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.

2.2.28 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:[<tid>]::[<ctag>];
```

Example

To retrieve the NE type from the TimeProvider:

Input:

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

Normal Response:

```
   "TP-SSU" 03-01-11 09-00-33
M  TP1000 COMPLD
   "TimeProvider"
;
```

Autonomous Message:

None.

2.2.29 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" 03-01-11 09-10-52
M  TP1000 COMPLD
;
```

Autonomous Message:

None.

2.2.30 Retrieve Log (RTRV-LOG)

This command retrieves all events in the event log. The event log contains the last 500 events, and displays these in chronological order, that is, first in, first out. It can include both 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>];
```

Parameter	Value	Description
<aid>	ALL (or *null*)	Retrieves events containing any aid. *Note:* See Table 2-27 for the <keyword> descriptions.
	IMC	Retrieves events with an aid field of IMC. *Note:* See Table 2-27 for the <keyword> descriptions.
	IOC	Retrieves events with an aid field of IOC. *Note:* See Table 2-27 for the <keyword> descriptions.
	IOC*m*	Retrieves events with an aid field of IOC*m*, where: *m* is "1" for the module marked "IOC 1" on the top of the main shelf. *m* is "2" for the module marked "IOC 2" on the top of the main shelf. *Note:* See Table 2-27 for the <keyword> descriptions.
	PRS	Retrieves events with an aid field of PRS. *Note:* See Table 2-27 for the <keyword> descriptions.

Parameter	Value	Description
<aid> *(continued)*	INP*p*	Retrieves events with an aid field of INP*p*, where: p is "1" for the input marked INP 1 on the input connector module. p is "2" for the input marked INP 2 on the input connector module. ***Note:*** See Table 2-27 for the <keyword> descriptions.
	OUT*g*	Retrieves events with an aid field of OUT*g*, where: g is "A" for the group marked "A" on the main shelf. g is "B" for the group marked "B" on the main shelf. g is "C" for the group marked "C" on the main shelf. g is "D" for the group marked "D" on the main shelf. ***Note:*** See Table 2-27 for the <keyword> descriptions.

Table 2-27. RTRV-LOG - Keywords for all <aids>

<keyword>	Description	Default
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

Command Output

The following shows the output format of the command, and Table 2-28 explains the various fields in the command output:

```
<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 2-28. RTRV-LOG 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 TL-1 alarm or event code that is associated with the event or alarm. **Note:** Table 1-6 in Chapter 1 shows all of the possible TimeProvider event codes (event condition types), and Table 1-7 shows all of the possible TimeProvider alarm condition types.
srveff	Whether the event is service affecting (SA) or non-service affecting (NSA).
ocrdat	The date the event occurred, in the format *YY-MM-DD*.
ocrtim	The time that the event occurred, in the format *HH-MM-SS*.
condscr	The description of the alarm or event. It is a quoted text string, preceded with the "\" escape character. **Note:** Table 1-6 in Chapter 1 shows all of the possible TimeProvider event descriptions (event condition strings), and Table 1-7 shows all of the possible TimeProvider alarm and clearing alarm condition strings.

Example

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

Input:

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

Normal Response:

```
    "TP-SSU" 03-01-11 09-10-52
M   TP1000 COMPLD
    "IOC1,EQPT:MN,CLKWARM,SA,03-01-01,12-00-10:\"CLOCK ENTERED
WARM-UP MODE\""
    "IOC1,EQPT:CL,CLKWARM,SA,03-01-01,12-07-37:\"CLOCK EXITED
WARM-UP MODE\""
    "IOC1,EQPT:MJ,CLKFREE,SA,03-01-01,12-07-37:\"CLOCK ENTERED
FREE-RUN MODE\""
    "IOC1,EQPT:NA,IOCMODE,NSA,03-01-01,12-07-40:\"IOC MODE IS,
ACTIVE\""
    "IOC1,EQPT:MJ,CLKFREE,SA,03-01-01,12-00-01:\"CLOCK ENTERED
FREE-RUN MODE\""
    "IOC1,EQPT:CL,CLKFREE,SA,03-01-02,12-00-01:\"CLOCK EXITED
FREE-RUN MODE\""
```

```
    "IOC1,EQPT:CR,CLKFREE,SA,03-01-02,12-00-01:\"CLOCK ENTERED
FREE-RUN MODE\""
;
```

Autonomous Message:

None.

2.2.31 Retrieve Sync (RTRV-SYNC)

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

This command has a default access level of USER.

Syntax

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

Parameter	Value	Description
<aid>	SYS	The command's effect is on system-level input settings. ***Note:*** See Table 2-10 under "*Edit Sync (ED-SYNC)*" for <keywords> and descriptions of their possible <values>.
	PRS	The command's effect is on the PRS system input. ***Note:*** See Table 2-11 under "*Edit Sync (ED-SYNC)*" for <keywords> and descriptions of their possible <values>.
	INP	The command's effect is on the input ports. ***Note:*** See Table 2-12 under "*Edit Sync (ED-SYNC)*" for <keywords> and descriptions of their possible <values>.
	INP*p*	The command's effect is on the input port specified by *p*: p is "1" for the input marked INP 1 on the input connector module. p is "2" for the input marked INP 2 on the input connector module. ***Note:*** See Table 2-13 under "*Edit Sync (ED-SYNC)*" for <keywords> and descriptions of their possible <values>.
	OUT*g*	The command's effect is on the output group specified by *g*: *g* is "A" for the group marked "A" on the main shelf. *g* is "B" for the group marked "B" on the main shelf. *g* is "C" for the group marked "C" on the main shelf. *g* is "D" for the group marked "D" on the main shelf. ***Note:*** See Table 2-14 under "*Edit Sync (ED-SYNC)*" for <keywords> and descriptions of their possible <values>.

Example

To retrieve the current priority setting for input reference 2:

Input:

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

Normal Response:

```
    "TP-SSU" 03-01-05 09-43-25
M   TP1000 COMPLD
    "INP2:PRIORITY,3"
;
```

Autonomous Message:

None.

2.2.32 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 this mode, the system provides filtering compliant with G.812 and GR1244.

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

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;
```

Normal Response:

```
    "TP-SSU" 03-01-05 10-53-20
M   TP1000 COMPLD
    SYS,EQPT:SYSMODE,SSU
;
```

Autonomous Message:

None.

2.2.33 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;
```

Normal Response:

```
    "TP-SSU" 03-01-01 12-34-10
M   TP1000 COMPLD
    FRANKJ
    FRED
    BILLG
;
```

Autonomous Message:

None.

2.2.34 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 2-29 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 2-29. 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;
```

Normal Response:

```
   "TP-SSU" 03-01-02 09-22-02
M  TP1000 COMPLD
   "LEE,SECURITY"
   "FRANKJ,USER"
   "BILLG,SECURITY"
   "BFG,USER"
   "FRED,USER"
   "SVSEC,SECURITY"
   "BSMITH,USER"
;
```

Autonomous Message:

None.

2.2.35 Set Attribute (SET-ATTR)

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

This command has a default access level of ADMIN.

Syntax

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

Parameter	Value	Description
<aid>	SYS	The command's effect is at the system level. ***Note:*** See Table 2-30 for <keyword> and <value> descriptions.
	IMC	Sets the alarm level for the specified Information Management Card module alarm to the specified value. ***Note:*** See Table 2-30 for <keyword> and <value> descriptions.
	IOC*m*	Sets the alarm level for the specified alarm in the specified Input/Output Card module to the specified value. *m* is "1" for the module marked "IOC 1" on the top of the main shelf. *m* is "2" for the module marked "IOC 2" on the top of the main shelf. ***Note:*** See Table 2-30 for <keyword> and <value> descriptions.
	PRS	Sets the alarm level for the specified PRS alarm to the specified value. ***Note:*** See Table 2-30 for <keyword> and <value> descriptions.
	INPp	Sets the alarm level for the alarm related to the specified input port to the specified value. p is "1" for the input marked INP 1 on the input connector module. p is "2" for the input marked INP 2 on the input connector module. ***Note:*** See Table 2-30 for <keyword> and <value> descriptions.

Table 2-30. SET-ATTR - Keywords and Values for all <aids>

<keyword>	<value>	Description	Default
ELEVTIME (SYS aid only)	ENABLE	The system has the ability to elevate minor alarms to major, and major alarms to critical after the system elevation time has elapsed. **Note:** The system elevation time is 86400 seconds, and cannot be changed.	DISABLE
	DISABLE	The system does not have the ability to elevate alarms.	
FACTORY (SYS aid only)	*(none)*	Sets the alarm level for all alarms to their factory settings.	N/A
Alarm ID **Note:** See Table 2-31 for a list of alarm identifiers, and possible alarm levels that can be set.	NR	The alarm level for the specified alarm is set as not-reported.	N/A
	NA	The specified alarm is set as a non-alarm event.	
	MN	The alarm level for the specified alarm is set to "minor."	
	MJ	The alarm level for the specified alarm is set to "major."	
	CR	The alarm level for the specified alarm is set to "critical."	
	CLEAR	The alarm, if active, is cleared. **Note:** If the alarm transitions from the Clear to the Active state after it has been cleared, or if the alarm condition continues to persist, the alarm is regenerated.	

Table 2-31 lists all of the TimeProvider Alarm Identifiers (Alarm IDs) and provides a brief description of each. The table also shows the possible alarm levels that can be set with the SET ATTR command, whether or not the error delay is editable, and certain other defaults for each Alarm ID.

Table 2-31. Alarm Identifiers

Alarm ID	Description of Alarm Condition	Possible Alarm Levels	Error Delay Default	Error Delay Editable?	Default Alarm Level	
					SSU Mode	SUB Mode
<aid> = SYS						
PWRA	Loss of A power	MN MJ CR	Immediate	No	MJ	MJ

Table 2-31. Alarm Identifiers (Continued)

Alarm ID	Description of Alarm Condition	Possible Alarm Levels	Error Delay Default	Error Delay Editable?	Default Alarm Level	
					SSU Mode	SUB Mode
PWRB	Loss of B power	MN MJ CR	Immediate	No	MJ	MJ
EXPFAIL	Connection to the Expansion Panel is lost	NR NA MN MJ CR	Immediate	No	MJ	MJ
EXTALM	External alarm generated by external equipment	NR NA MN MJ CR	Immediate	No	MN	MN
<aid> = IMC						
IOC1 COMM	Comm alarm with IOC 1	NR NA MN MJ CR	Immediate	No	MN	MN
IOC2 COMM	Comm alarm with IOC 2	NR NA MN MJ CR	Immediate	No	MN	MN
<aid> = IOC1 or IOC2						
IOC1 COMM	Comm alarm from IMC module to IOC1 module	NR NA MN MJ CR	Immediate	No	MN	MN
IOC2 COMM	Comm alarm from IMC module to IOC2 module	NR NA MN MJ CR	Immediate	No	MN	MN

Table 2-31. Alarm Identifiers (Continued)

Alarm ID	Description of Alarm Condition	Possible Alarm Levels	Error Delay Default	Error Delay Editable?	Default Alarm Level	
					SSU Mode	SUB Mode
IOC1TO2 COMM	Comm alarm from IOC1 to IOC2	NR NA MN MJ CR	Immediate	No	MN	MN
IOC2TO1 COMM	Comm alarm from IOC2 to IOC1	NR NA MN MJ CR	Immediate	No	MN	MN
IOCFAIL	Summary alarm of IOC failures; for example, calibration was unsuccessful	MN MJ CR	Immediate	No	MJ	MJ
CLKWARM	Local oscillator on the specified IOC is in Warm-up mode	MN MJ	Immediate	No	MN	MN
CLKFREE	Local oscillator on specified IOC is in Free-run mode	MN MJ CR	Immediate	No	MJ	MJ
CLKBRDG	Local oscillator on specified IOC is in Bridging mode	MN MJ CR	Immediate	No	MJ	MJ
CLKHOLD	Local oscillator on specified IOC is in Holdover mode	MN MJ CR	Immediate	No	MJ	MJ
<aid> = PRS						
INPDISQ	Specified input has been disqualified or qualified as a possible system reference.	MN MJ CR	Determined by FLTDELAY	Yes	MN	MN
INPLOS	Specified input has Loss Of Signal.[1]	MN MJ CR	Immediate	No	MN	MN

Table 2-31. Alarm Identifiers (Continued)

Alarm ID	Description of Alarm Condition	Possible Alarm Levels	Error Delay Default	Error Delay Editable?	Default Alarm Level	
					SSU Mode	SUB Mode
INPFRQ	Specified input has calculated received frequency exceeds the pull-in range of the LO.This alarm condition disqualifies the input as a possible reference.[2]	NR NA MN MJ CR	Immediate	No	MN	NR
INPPHASE	Specified input port's phase measurement exceeds usable value.	NR NA MN MJ CR	Immediate	No	MN	MN
EXDSC	Input has had excessive discontinuities, indicated by more than 3 signal faults of the same type within a 5-minute period. The alarm clears when the 5-minute window contains less than 3 alarms of the same type.	NR NA MN MJ CR	Immediate	No	MN	MN
<aid> = INP1 or INP2						
INPDISQ	Specified input has been disqualified or qualified as a possible system reference.	MN MJ CR	Determined by FLTDELAY	Yes	MN	MN
INPAIS	The specified input is receiving an Alarm Indication Signal.[1]	MN MJ CR	Immediate	No	MN	MN
INPLOS	The specified input has Loss of Signal.[1]	MN MJ CR	Immediate	No	MN	MN
INPOOF	The specified input is receiving an Out of Frame signal.[1]	MN MJ CR	Immediate	No	MN	MN

Table 2-31. Alarm Identifiers (Continued)

Alarm ID	Description of Alarm Condition	Possible Alarm Levels	Error Delay Default	Error Delay Editable?	Default Alarm Level	
					SSU Mode	SUB Mode
INPFRQ	Specified input port's calculated received frequency exceeds the pull-in range of the LO.This alarm condition disqualifies the input as a possible reference.[2]	NR NA MN MJ CR	Immediate	No	MN	NR
INPPHASE	Specified input port's phase measurement exceeds usable value.	NR NA MN MJ CR	Immediate	No	MN	MN
INPQL	The received SSM is of lesser quality than the QLEVEL for a specified input. This alarm occurs when you provision the input's QLEVEL below the quality level of the LO.	NR NA MN MJ CR	Immediate	No	MN	MN
EXDSC	Input has had excessive discontinuities, indicated by more than 3 signal faults of the same type within a 5- minute period. The alarm clears when the 5-minute window contains less than 3 alarms of the same type.	NR NA MN MJ CR	Immediate	No	MN	MN
<aid> = OUTA, OUTB, OUTC, or OUTD						
SYNTH EOR	The synthesizer generating the module's stable output frequency has reached the defined End-of-Range for the type of oscillator used on the IOC module.	MN MJ CR	Immediate	No	MJ	MJ

NOTE:

[1] When the fault is detected, the input is immediately removed from the possible reference list. The fault must be continuously present for the period specified by FLTDELAY before the alarm is set. After the alarm is set, it clears once the input signal is fault-free for the period specified by CLRDELAY.

2   Once INPFREQ is set, the alarm clears when the input frequency is within the defined pull-in range

Example

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

Input:

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

Normal Response:

```
   "TP-SSU" 03-01-02 11-36-20
M  TP1000 COMPLD
;
```

Autonomous Message:

```
   "TP-SSU" 03-01-02 11-36-19
A  175 REPT EVT
   "IMC,EQPT:NA,ALMCHG,NSA,03-01-02,11-36-19:\"ALARM PARAMETER HAS
 CHANGED,EXPFAIL,CRITICAL\""
;
```

2.2.36 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 2-32. SET-SID - Keyword and Value

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

Example

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

Input:

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

Normal Response:

```
   "TP-SSU" 03-01-02 08-26-53
M  TP1000 COMPLD
;
```

Autonomous Message:

```
   BLUE 03-01-02 08-26-53
A  449 REPT EVT

   "IMC,EQPT:NA,SIDCHG,NSA,03-01-02,08-26-52:\"SYSTEM SOURCE ID
HAS CHANGED,TP-SSU\""
;
```

2.2.37 Set System Mode (SET-SYS-MODE)

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

- *SSU (Synchronization Supply Unit operating mode)* – The system provides filtering compliant with G.812 and GR-1244.

- *SUB (Subtending SSU operating mode)* – The system provides composite clock input tracking compliant with GR-378.

This command has a default access level of ADMIN.

Syntax

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

Table 2-33. SET-SYS-MODE - Keyword and Values

<keyword>	<value>	Description	Default
SYSMODE	SSU	The TimeProvider is fully provisionable.	SSU
	SUB	The TimeProvider is provisioned to the SUB operating mode. Selection of this mode places the following restrictions on inputs: - The PRS 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.	

Example

To set the system's operating mode to subtending:

Input:

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

Normal Response:

```
    "TP-SSU" 03-01-02 07-49-55
M   TP1000 COMPLD
;
```

Autonomous Message:

```
    "TP-SSU" 03-01-02 07-49-55
A   396 REPT EVT

    "SYS,EQPT:NA,SYSMODE,NSA,03-01-02,07-49-54:\"SYSTEM MODE OF
OPERATION HAS CHANGED,SUB\""
;
```

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