

TL1 INTEGRATION KIT FOR PAC PROJECT GUIDE

Form 1906-091222—December 2009

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1: Getting Started

Introduction

The TL1 Integration Kit for PAC Project™ (Part # PAC-INT-TL1) allows Opto 22 SNAP PAC controllers using PAC Control™ to manage telecommunication network elements (NEs) using the Transaction Language 1 (TL1) protocol, an element management protocol widely used in North America.

The integration kit contains an example strategy that includes the following things:

- A TL1 Protocol chart, which contains everything you need to use the TL1 protocol in your own PAC Control strategy. The TL1 protocol chart will listen to four Ethernet ports and one serial port if enabled.
- An Add Autonomous Message subroutine, which is used to create autonomous messages in your strategy
- An Example_Autonomous_Message_Chart, which provides an example of how to use the subroutine

This guide assumes that you understand how to use PAC Control and the TL1 protocol, including the use of autonomous messages.

This guide includes the following topics:

- [“Extracting, Exporting, and Importing the TL1 Protocol Chart” on page 2](#)
- [“Setting Up the TL1 Protocol Chart in Block 1” on page 3](#)

What is Required

You will need a PC with PAC Project 8.2a or newer (Basic or Pro).

Extracting, Exporting, and Importing the TL1 Protocol Chart

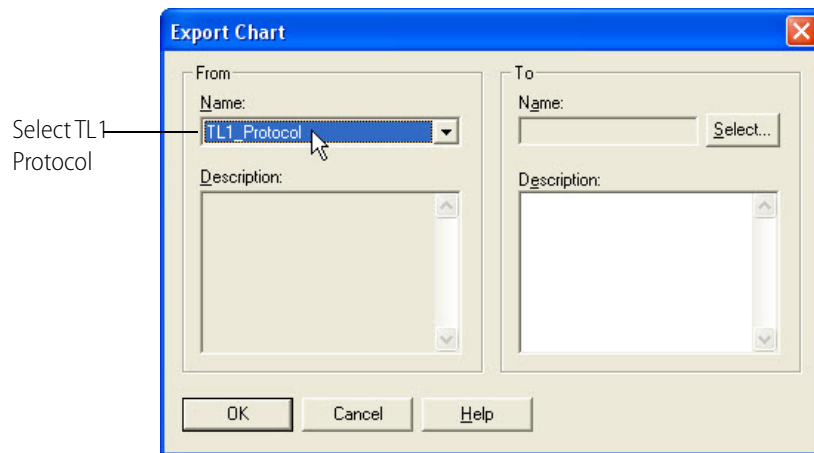
The example strategy contains the TL1 Protocol chart, which you can use in your own strategy and allows you to use the TL1 protocol commands.

In order to use the chart, you must extract the contents of the zip file, export the chart from the example strategy, and then import the chart into your own strategy, as described in the following sections:

- “Extracting the Strategy and Exporting the Chart” on page 2
- “Importing the Chart into Your Strategy” on page 3

Extracting the Strategy and Exporting the Chart

1. Extract the zip file, PACTL1NEvR82a.zip, to any directory on your hard drive (C:).
2. Open PAC Control, browse to the directory, and then open the strategy file, PACTL1NE.idb.
3. Select Chart > Export to open the Export Chart dialog box.

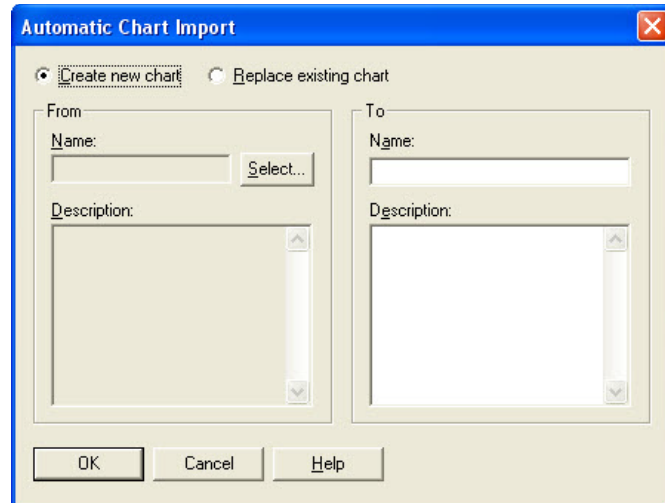


NOTE: When you export the TL1 Protocol chart, the Add Autonomous Message subroutine is included in the export file.

4. In the From combo box, select TL1_Protocol.
5. Under To, click Select to open the Select Destination dialog box, and then browse to an appropriate directory, such as your strategy's directory.
6. Name the export file *TL1_export*, and then click Save to close the Select Destination dialog box.
7. Click OK to export the file and exit the Export Chart dialog box.

Importing the Chart into Your Strategy

1. Open the strategy you want to use with the TL1 protocol.
2. Select Chart > Import to open the Automatic Chart Import dialog box.



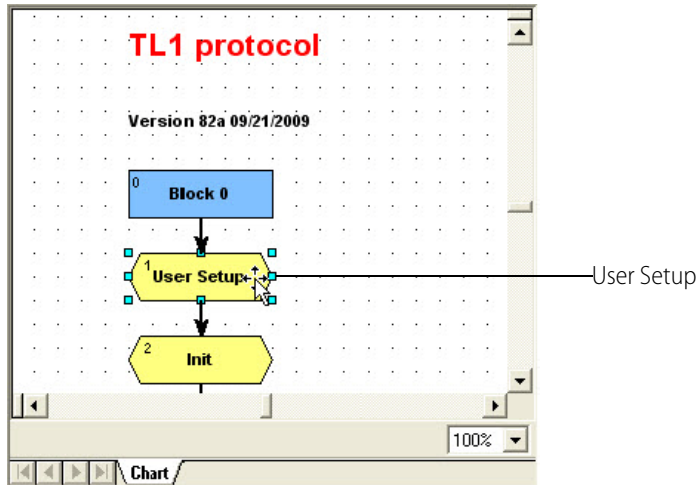
3. Select "Create new chart", then click Select to open the Select File dialog box.
4. Browse to the directory that contains the TL1_export file, select the export file, and then click Open.
The Select File dialog box closes.
5. Under To in the Automatic Chart Import dialog box, enter the name of the chart, *TL1_Protocol*.
6. Click OK to import the file and exit the Automatic Chart Import dialog box.

Setting Up the TL1 Protocol Chart in Block 1

Once you have imported the TL1 Protocol Chart, you will need to customize the chart by editing the user setup parameters in Block 1.

1. With your strategy open in PAC Control, display the TL1 Protocol chart.

2. Double-click block 1, User Setup.



This opens the User Setup script.

```

//Assign Unit SID
if (pstTL1SID == "") then
A   psTL1SID = "opto22S1200";
endif

//Master user id and password. This user and password cannot be changed using TL1 commands
B   sTL1MasterUserID = "opto";
    sTL1MasterPassword = "dude";

//Set default user and password if not set.
if (pstTL1UserID[0] == "") then
C   pstTL1UserID[0] = "super"; //maximum of 64 characters
    pstTL1UserPassword[0] = "password"; //maximum of 25
    pntTL1UserSecurityLevel[0] = 3; //Supervisor level = 3 Maintenance = 2 Operator = 1
endif

//Idle time before logout
D   nTL1SupervisorSecurityTimeout = 900;
    nTL1MaintenanceSecurityTimeout = 3600;
    nTL1OperatorSecurityTimeout = 86400;

//Timeout for session if there is no communications
E   nTL1SessionTimeout = 300;

//////
//Serial port section
//Enable serial communication support. 0 = disable 1 = enable
F   nTL1EnableSerialMode = 1;
G   sTL1SerialPortConfigurationString = "ser:1,115200,n,8,1";
//To use a serial port you must have a configuration string for the serial port used. Below are two examples.
//Example of SCM module string          sTL1SerialPortConfigurationString = "tcp:192.168.1.226:225
//Example of controller serial port string  sTL1SerialPortConfigurationString = "ser:1,115200,n,8,1";
//////

//Assign supported ports. These are the port used by the OSS or Telnet to open a session.
H   ntTL1PortNumbers[0] = 4000;
    ntTL1PortNumbers[1] = 4001;
    ntTL1PortNumbers[2] = 4002;
    ntTL1PortNumbers[3] = 4003;

//Enable autonomous messages 0 = disable 1 = enabled
I   pnTL1AutonomousMessageEnable = 0;
//Port to use if autonomous messages is enabled and OSS has opened session. References the index number of nt
J   nTL1AutonomousMessagePort = 1; //0 - 4 supported. port 4 is the serial port. To use serial port, serial commu
    
```


3. Using the following table, edit the User Setup script in Block 1.

Example values are provided in the script. Make sure to overwrite the example text with your own values. Values in quotes are strings. Make sure to keep the quotes around all string values.

Letter	Parameter	Description
A	SID (source identifier)	20 characters maximum
B	Master user and password	A supervisor-level user that cannot be changed using TL1 input commands
C	Default user and password	A default user if no user is in index 0 of the user table. The user and password can be changed using TL1 input commands.
D	Idle Time before logout	Sets the time in seconds before a user is automatically logged out
E	Timeout for session	Sets the time in seconds before a session closes if there is no communication. Not used for serial port.
F	Enable serial port	Used to enable serial port communications 1 = Enabled 0 = Disabled
G	Serial port communication handle string	Used to set the serial communication handle. For more information, see form 1700, the <i>PAC Control User's Guide</i> . (example = ser:1,115200,n,8,1)
H	Assign port number	Ports the strategy listens for communications. The strategy can support four Ethernet sessions and one serial session.
I	Enable or disable autonomous messages	1 = Enabled 0 = Disabled
J	Assign autonomous message port	Autonomous messages are sent on this port if enabled. This is the index number of the table that stores the port numbers. Port 4 is the serial port.

4. Click OK to close Block 1.

Contents of Block 1

For reference, the contents of Block 1 in the protocol chart are as follows:

```
//Assign Unit SID
if (psTL1SID == "") then
    psTL1SID = "opto22S1200";
endif

//Master user id and password. This user and password cannot be changed using TL1
commands
sTL1MasterUserID = "opto";
sTL1MasterPassword = "dude";

//Set default user and password if not set.
if (pstTL1UserID[0] == "") then
    pstTL1UserID[0] = "super";//maximum of 64 characters
    pstTL1UserPassword[0] = "password";//maximum of 25
    pntTL1UserSecurityLevel[0] = 3;//Supervisor level = 3 Maintenance = 2
Operator = 1
endif

//Idle time before logout
ntTL1SupervisorSecurityTimeout = 900;
ntTL1MaintenanceSecurityTimeout = 3600;
ntTL1OperatorSecurityTimeout = 86400;

//Timeout for session if there is no communications
ntTL1SessionTimeout = 300;

//////////
//Serial port section
//Enable serial communication support. 0 = disable 1 = enable
ntTL1EnableSerialMode = 1;
sTL1SerialPortConfigurationString = "ser:1,115200,n,8,1";
//To use a serial port you must have a configuration string for the serial port
used. Below are two examples.
//Example of SCM module string
sTL1SerialPortConfigurationString
= "tcp:192.168.1.226:22526";
//Example of controller serial port string
sTL1SerialPortConfigurationString = "ser:1,115200,n,8,1";
//////////

//Assign supported ports. These are the ports used by the OSS or Telnet to open a
session.
ntTL1PortNumbers[0] = 4000;
ntTL1PortNumbers[1] = 4001;
ntTL1PortNumbers[2] = 4002;
ntTL1PortNumbers[3] = 4003;

//Enable autonomous messages 0 = disable 1 = enabled
pnTL1AutonomousMessageEnable = 0;
//Port to use if an autonomous message is enabled and OSS has opened session.
References the index number of ntTL1PortNumbers
ntTL1AutonomousMessagePort = 1; //0 - 4 supported. Port 4 is the serial port. To use
serial port, serial communication must be enabled.
```

2: Using the TL1 Commands

This chapter provides details for each supported TL1 command. It also describes the TL1 command syntax, the security levels supported by each command, and how to use autonomous messages.

The following topics are included:

- [“TL1 Command Syntax” on page 8](#)
- [“Security Log” on page 10](#)
- [“Using TL1 Autonomous Messages” on page 11](#)
- [“TL1 Command Reference” on page 13](#)

The following TL1 commands are supported:

“ACT-USER” on page 13	“RTRV-LOG” on page 18
“ALW-MSG-ALL” on page 13	“RTRV-TOD” on page 18
“CANC-USER” on page 14	“RTRV-VAL” on page 19
“DLT-USER-LOG” on page 14	“RTRV-VAL-TBL” on page 19
“DLT-USER-SECU” on page 15	“RTRV-USER-SECU” on page 20
“ED-PID” on page 15	“RTRV-USER-LOG” on page 20
“ED-TOD” on page 16	“SET-VAL-FTBL” on page 21
“ED-USER-SECU” on page 16	“SET-VAL-ITBL” on page 21
“ENT-USER-SECU” on page 17	“SET-SID” on page 22
“INH-MSG-ALL” on page 17	

TL1 Command Syntax

Symbols and Specifiers	Description
< >	Enclose a symbol specifier, for example <ctag>
[]	Enclose an optional symbol, for example [<tid>]
" "	Enclose a literal character
^	Space
aid	Access identifier
ctag	Correlation tag
pid	Login password Maximum size: 25 characters
tid	Target identifier
uap	User security level super = supervisor maint = maintenance oper = operator
uid	User identifier Maximum size: 64 characters

TL1 Commands by User Security

The protocol chart supports three security levels: Supervisor, Maintenance, and Operator. Use the following table to see which commands are available for each security level.

Command	Supervisor	Maintenance	Operator
ACT-USER	X	X	X
ALW-MSG-ALL	X	X	
CANC-USER	X	X	X
DLT-USER-LOG	X		
DLT-USER-SECU	X		
ED-PID	X	X	X
ED-TOD	X	X	
ED-USER-SECU	X		
ENT-USER-SECU	X		
INH-MSG-ALL	X	X	
RTRV-LOG	X	X	X
RTRV-TOD	X	X	X
RTRV-VAL	X	X	X
RTRV-VAL-TBL	X	X	X
RTRV-USER-SECU	X		
RTRV-USER-LOG	X		
SET-VAL-FTBL	X	X	X
SET-VAL-ITBL	X	X	X
SET-SID	X		

Security Log

The protocol chart logs all user security activity to the pstTL1SecurityLog table. The table data can be retrieved and deleted using TL1 input commands. If a supervisor deletes the security log, all entries are deleted and a new entry is added to the log showing who deleted the log.

Activity	Security Entry to the pntTL1SecurityLog Table
ACT-USER	
Login OK	ACT-USER:LOGIN:<uid>:<date>^<time>:COMPLD
Invalid user	ACT-USER:INVALID USER ID:<uid>:<date>^<time>:DENY
Invalid password	ACT-USER:INVALID PASSWORD:<uid>:<date>^<time>:DENY
CANC-USER	
Logout OK	CANC-USER:LOGOUT:<uid>:<date>^<time>:COMPLD
Invalid user	CANC-USER:INVALID USER ID:<uid>:<date>^<time>:DENY
Auto logout timer	CANC-USER:AUTO LOGOUT:<uid>:<date>^<time>:DENY
DLT-USER-LOG	
Delete OK	DLT-USER-LOG:CLEARLOG:<uid>:<date>^<time>:COMPLD
Invalid user	DLT-USER-LOG:INVALID USER ID:<uid>:<date>^<time>:DENY
Not Supervisor	DLT-USER-LOG:USER IS NOT SUPERVISOR:<uid>:<date>^<time>:DENY
DLT-USER-SECU	
Delete OK	DLT-USER-SECU:DELETE:<uid>:<date>^<time>:COMPLD
Invalid user	DLT-USER-SECU:INVALID USER ID:<uid>:<date>^<time>:DENY
Not Supervisor	DLT-USER-SECU:USER IS NOT SUPERVISOR:<uid>:<date>^<time>:DENY
ED-USER-SECU	
Edit OK	ED-USER-SECU:EDIT:<uid>:<date>^<time>:COMPLD
Invalid user	ED-USER-SECU:INVALID USER ID:<uid>:<date>^<time>:DENY
Not Supervisor	ED-USER-SECU:USER IS NOT SUPERVISOR:<uid>:<date>^<time>:DENY
ENT-USER-SECU	
Enter OK	ENT-USER-SECU:ENTER:<uid>:<date>^<time>:COMPLD
User exists	ENT-USER-SECU:USER ALREADY EXISTS:<uid>:<date>^<time>:DENY
User table full	ENT-USER-SECU:USER TABLE FULL:<uid>:<date>^<time>:DENY
Not Supervisor	ENT-USER-SECU:USER IS NOT SUPERVISOR:<uid>:<date>^<time>:DENY
RTRV-USER-SECU	
Retrieve OK	RTRV-USER-SECU:RETRIEVE:<uid>:<date>^<time>:COMPLD
Invalid user	RTRV-USER-SECU:INVALID USER ID:<uid>:<date>^<time>:DENY
Not Supervisor	RTRV-USER-SECU:USER IS NOT SUPERVISOR:<uid>:<date>^<time>:DENY

Using TL1 Autonomous Messages

Autonomous messages can be enabled or disabled in the setup block or by TL1 input commands. You can use any one of the supported ports to send autonomous messages. To send an autonomous message, autonomous messaging must be enabled and the port must have an open session. If the OSS (Operation Support System) has not opened a session on the port autonomous messages are assigned to, the protocol chart will disable autonomous messages until the OSS opens the session.

The Add Autonomous Message subroutine is provided to add autonomous messages. The following variables are used to enable autonomous messages and to open the port:

Variable	Usage
pnTL1AutonomousMessageEnable	1 = Enable send. Set in block 1 (User Setup) or by TL1 input command.
nTL1AutonomousMessagePort	Assign port to send message. Port must have been opened by OSS. If port is not open the strategy will disable autonomous messages until the OSS opens the session.

The subroutine includes the following security levels:

Security Level	Meaning
CR	Critical alarm
MJ	Major alarm
MN	Minor alarm
NO	Non-alarm message

Add Autonomous Message Subroutine

The following table shows the passed parameters for the Add Autonomous Message Subroutine.

Prompt	Variable Used in Example	Description
Severity	sTL1AutonomousASeverity	Severity level
Access ID	sTL1AutonomousAccessID	Used in quoted line of text block
Condition	sTL1AutonomousCondition	Used in quoted line of text block
Text Desc	sTL1AutonomousTextDesc	Used in comment line of text block
Message Table	pstTL1AutonomousMessages	A persistent table that stores messages until sent
ATAG	pnTL1ATAG	Autonomous message identifier. Subroutine will increment the value of this identifier for each message.
Table Flag	nTL1FlagTableLock	Flag used to lock the table
New Message Flag	pnTL1NewAutonomousMessage	Persistent variable used to keep track of messages in the table
Sub Status	sTL1SubStatus	Status of subroutine. OK is returned if the subroutine is successful.
Put Status In	nTL1SubStatus	Controller level errors

Autonomous Message Output Format

The autonomous message output format is as follows:

```
<cr><lf><lf>^^^<tid>^<YY-MM-DD>^<HH:MM:SS><cr><lf>*^^<atag>^<verb>-<modifier><cr><lf>^^^"Access ID":<level>,<condition>^^^" <cr><lf> /*<text description>*/<cr><lf>;
```

For example, using the following message data:

Prompt	
Severity	MN
Access ID	Generator-1
Condition	HITEMP
Text Desc	High Temperature Alarm

This data stored in the table as follows:

```
opto22S1200 09-09-09 18:26:02<cr><lf>* 1239 REPT ALM<cr><lf>
"Generator-1:MN,HITEMP"<cr><lf> /*High Temperature Alarm*/
```

This is sent to the OSS:

```
<cr><lf><lf> opto22S1200 09-09-09 18:26:02<cr><lf>* 1239 REPT
ALM<cr><lf> "Generator-1:MN,HITEMP"<cr><lf> /*High Temperature
Alarm*/<cr><lf>;
```


TL1 Command Reference

ACT-USER

Used to log in to the NE (Network Element).

Input Format:	ACT-USER:[<tid>]:<uid>:<ctag>::<pid>;
Input Example:	ACT-USER:opto22S1200:samt:123::gtu765;
Input Example:	ACT-USER::samt:123::gtu765;
Output format:	<cr><lf>^^<sid>^<year>-<month>-<day>^<hour>:<minute>:<second><cr><lf>M^^<ctag>^<completion code><cr><lf>^^<quoted line><cr><lf>(:;>)
Output Example:	<cr><lf> opto22S1200 09-09-17 14:21:03<cr><lf>M 123 COMPLD<cr><lf>"uid=samt:LASTLOGIN=09-05-06 14:26:12,UNSUCCESSAT-TEMPTS=0"<cr><lf>;
Errors:	IIFM = INVALID USER ID IIFM = INVALID PASSWORD IPMS = INVALID SYNTAX

ALW-MSG-ALL

Used to enable autonomous messages.

Input Format:	ALW-MSG-ALL:[<tid>]::<ctag>;
Input Example:	ALW-MSG-ALL:opto22S1200::123;
Input Example:	ALW-MSG-ALL::123;
Output format:	<cr><lf>^^<sid>^<year>-<month>-<day>^<hour>:<minute>:<second><cr><lf>M^^<ctag>^<completion code><cr><lf>^^<quoted line><cr><lf>(:;>)
Output Example:	<cr><lf> opto22S1200 09-09-17 14:21:03<cr><lf>M 123 COMPLD<cr><lf>"ALW-MSG-ALL"<cr><lf>;
Errors:	PICU = USER NOT LOGGED IN PICU = USER NOT AUTHORIZED

CANC-USER

Used to log out of the NE.

Input Format	CANC-USER:[<tid>]:<uid>:<ctag>;
Input Example	CANC-USER:opto22S1200:samt:123;
Input Example	CANC-USER::samt:123;
Output format	<cr><lf>^^<sid>^<year>-<month>-<day>^<hour>:<minute>:<second><cr><lf>M^^<ctag>^<completion code><cr><lf>^^<quoted line><cr><lf>(< >)
Output Example	<cr><lf> opto22S1200 09-09-17 14:21:03<cr><lf>M 123 COMPLD<cr><lf>"uid=samt:LASTLOGOUT=09-05-06 14:26:12"<cr><lf>;
Errors	IIFM = INVALID USER ID IPMS = INVALID SYNTAX

DLT-USER-LOG

Used to get the security log.

Input Format	DLT-USER-LOG:[<tid>]:<uid>:<ctag>;
Input Example	DLT-USER-LOG:opto22S1200:super:123;
Input Example	DLT-USER-LOG::super:123;
Output format	<cr><lf>^^<sid>^<year>-<month>-<day>^<hour>:<minute>:<second><cr><lf>M^^<ctag>^<completion code><cr><lf>^^<quoted line><cr><lf>(< >)
Output Example	<cr><lf> opto22S1200 09-09-17 14:21:03<cr><lf>M 123 COMPLD<cr><lf>"uid=super:DLT-USER-LOG"<cr><lf>;
Errors	IIFM = INVALID USER ID IPMS = INVALID SYNTAX PIUC = USER IS NOT SUPERVISOR

DLT-USER-SECU

Used to delete an existing user account.

Input Format	DLT-USER-SECU:[<tid>]:<uid>:<ctag>;
Input Example	DLT-USER-SECU:opto22S1200:samt:123;
Input Example	DLT-USER-SECU::samt:123;
Output format	<cr><lf>^^<sid>^<year>-<month>-<day>^<hour>:<minute>:<second><cr><lf>M^^<ctag>^<completion code><cr><lf>^^<quoted line><cr><lf>(:;>
Output Example	<cr><lf> opto22S1200 09-09-17 14:21:03<cr><lf>M 123 COMPLD<cr><lf>"uid=samt:DLT-USER-SECU"<cr><lf>;
Errors	IIFM = INVALID USER ID IPMS = INVALID SYNTAX PIUC = USER IS NOT SUPERVISOR

ED-PID

Used to edit your own password.

Input Format	ED-PID:[<tid>]:<uid>:<ctag>:<oldpid>,<newpid>;
Input Example	ED-PID:opto22S1200:samt:123::gt876,zr567;
Input Example	ED-PID::opto:123::gt876,zr567;
Output format	<cr><lf>^^<sid>^<year>-<month>-<day>^<hour>:<minute>:<second><cr><lf>M^^<ctag>^<completion code><cr><lf>^^<quoted line><cr><lf>(:;>
Output Example	<cr><lf> opto22S1200 09-09-17 14:21:03<cr><lf>M 123 COMPLD<cr><lf>"uid=samt:ED-PID"<cr><lf>;
Errors	IIFM = INVALID USER ID IIFM = INVALID PASSWORD IPMS = INVALID SYNTAX

ED-TOD

Used to edit the date and time on the NE.

Input Format	ED-TOD:[<tid>]:<ctag>::<date>],[<time>]; date = YY-MM-DD time = HH-MM-SS
Input Example	ED-TOD:opto22S1200::123::09-05-06,19-12-06;
Input Example	ED-TOD:::123::09-05-06,19-12-06;
Output format	<cr><lf>^M^<sid>^<year>-<month>-<day>^<hour>:<minute>:<second><cr><lf>M^<ctag>^<completion code><cr><lf>^M^<quoted line><cr><lf>(; >)
Output Example	<cr><lf> opto22S1200 09-09-17 14:21:03<cr><lf>M 123 COMPLD<cr><lf>"ED-TOD:09-05-06,19:12:06"<cr><lf>;
Errors	IPMS = INVALID SYNTAX PICU = USER NOT LOGGED IN PICU = USER NOT AUTHORIZED

ED-USER-SECU

Used to edit the user ID, password, or security level.

Input Format	ED-USER-SECU:[<tid>]:<uid>:<ctag>::<newuid>,<newpid>,,<uap>;
Input Example	ED-USER-SECU:opto22S1200:samt:123::sammy,gtu765,,oper;
Input Example	ED-USER-SECU:::samt:123::sammy,gtu765,,oper;
Output format	<cr><lf>^M^<sid>^<year>-<month>-<day>^<hour>:<minute>:<second><cr><lf>M^<ctag>^<completion code><cr><lf>^M^<quoted line><cr><lf>(; >)
Output Example	<cr><lf> opto22S1200 09-09-17 14:21:03<cr><lf>M 123 COMPLD<cr><lf>"uid=samt:ED-USER-SECU"<cr><lf>;
Errors	IIFM = INVALID USER ID IPMS = INVALID SYNTAX PIUC = USER IS NOT SUPERVISOR

ENT-USER-SECU

Used to create a user.

Input Format	ENT-USER-SECU:[<tid>]:<uid>:<ctag>::<pid>,,<uap>;
Input Example	ENT-USER-SECU:opto22S1200:samt:123::gtu765,,maint;
Input Example	ENT-USER-SECU::samt:123::gtu765,,maint;
Output format	<cr><lf>^^<sid>^<year>-<month>-<day>^<hour>:<minute>:<second><cr><lf>M^^<ctag>^<completion code><cr><lf>^^<quoted line><cr><lf>(;>)
Output Example	<cr><lf> opto22S1200 09-09-17 14:21:03<cr><lf>M 123 COMPLD<cr><lf>"uid=samt:ENT-USER-SECU"<cr><lf>;
Errors	IPMS = INVALID SYNTAX PICC = USER ALREADY EXISTS PIUC = USER IS NOT SUPERVISOR PICC = USER TABLE FULL

INH-MSG-ALL

Used to disable autonomous messages.

Input Format	INH-MSG-ALL:[<tid>]:<ctag>;
Input Example	INH-MSG-ALL:opto22S1200::123;
Input Example	INH-MSG-ALL:::123;
Output format	<cr><lf>^^<sid>^<year>-<month>-<day>^<hour>:<minute>:<second><cr><lf>M^^<ctag>^<completion code><cr><lf>^^<quoted line><cr><lf>(;>)
Output Example	<cr><lf> opto22S1200 09-09-17 14:21:03<cr><lf>M 123 COMPLD<cr><lf>"ALW-MSG-ALL"<cr><lf>;
Errors	PICU = USER NOT LOGGED IN PICU = USER NOT AUTHORIZED

RTRV-LOG

Used to retrieve and clear errors in the controller message queue.

Input Format	RTRV-LOG:[<tid>]::<ctag>;
Input Example	RTRV-LOG:opto22S1200::123;
Input Example	RTRV-LOG:::123;
Output format	<cr><lf>^^<sid>^<year>-<month>-<day>^<hour>:<minute>:<second><cr><lf>M^^<ctag>^<completion code><cr><lf>^^<quoted line><cr><lf>(; >
Output Example	<cr><lf> opto22S1200 09-09-17 14:21:03<cr><lf>M 123 COMPLD<cr><lf>"RTRV-LOG:First error"<cr><lf>^^Next error"<cr><lf>^^"Next error"<cr><lf>;
Errors	PICU = USER NOT LOGGED IN

RTRV-TOD

Used to retrieve data and time of the NE.

Input Format	RTRV-TOD:[<tid>]::<ctag>;
Input Example	RTRV-TOD:opto22S1200::123;
Input Example	RTRV-TOD:::123;
Output format	<cr><lf>^^<sid>^<year>-<month>-<day>^<hour>:<minute>:<second><cr><lf>M^^<ctag>^<completion code><cr><lf>^^<quoted line><cr><lf>(; >
Output Example	<cr><lf> opto22S1200 09-09-17 14:21:03<cr><lf>M 123 COMPLD<cr><lf>"RTRV-TOD:2008,05,06,14,26,12"<cr><lf>;
Errors	PICU = USER NOT LOGGED IN

RTRV-VAL

Used to get the value of a variable. Integer 32, Integer 64, Up Timer, Down Timer, Float, String, Communication Handle, Digital Point, and Analog Point.

Input Format	RTRV-VAL:[<tid>]:<aid>:<ctag>;
Input Example	RTRV-VAL:opto22S1200:nTL1Toggle1:123;
Input Example	RTRV-VAL::nTL1Toggle1:123;
Output format	<cr><lf>^^<sid>^<year>-<month>-<day>^<hour>:<minute>:<second><cr><lf>M^^<ctag>^<completion code><cr><lf>^^<quoted line><cr><lf>(; >)
Output Example	<cr><lf> opto22S1200 09-09-17 14:21:03<cr><lf>M 123 COMPLD<cr><lf>"nTL1Toggle1=5"<cr><lf>;
Errors	IPMS = INVALID SYNTAX PICU = USER NOT LOGGED IN

RTRV-VAL-TBL

Used to get the values of a table. Integer 32 Table, Integer 64 Table, Float Table, and String Table. Security tables require supervisor level.

Input Format	RTRV-VAL-TBL:[<tid>]:<aid>:<ctag>::<start index>,<length>;
Input Example	RTRV-VAL-TBL:opto22S1200:ntLevelSetpoints:123::2,10;
Input Example	RTRV-VAL-TBL::ntLevelSetpoints:123::2,10;
Output format	<cr><lf>^^<sid>^<year>-<month>-<day>^<hour>:<minute>:<second><cr><lf>M^^<ctag>^<completion code><cr><lf>^^<quoted line><cr><lf>(; >)
Output Example	<cr><lf> opto22S1200 09-09-17 14:21:03<cr><lf>M 123 COMPLD<cr><lf>"aid:25,16,200,50,25,16,50,150,200,175"<cr><lf>;
Errors	IPMS = INVALID SYNTAX PIUC = USER IS NOT SUPERVISOR PICU = USER NOT LOGGED IN

RTRV-USER-SECU

Used to retrieve user security level.

Input Format	RTRV-USER-SECU:[<tid>]:<uid>:<ctag>;
Input Example	RTRV-USER-SECU:opto22S1200:samt:123;
Input Example	RTRV-USER-SECU::samt:123;
Output format	<cr><lf>^^<sid>^<year>-<month>-<day>^<hour>:<minute>:<second><cr><lf>M^^<ctag>^<completion code><cr><lf>^^<quoted line><cr><lf>(; >)
Output Example	<cr><lf> opto22S1200 09-09-17 14:21:03<cr><lf>M 123 COMPLD<cr><lf>"samt:,OPER:"<cr><lf>;
Errors	IIFM = INVALID USER ID IPMS = INVALID SYNTAX PIUC = USER IS NOT SUPERVISOR

RTRV-USER-LOG

Used to get the Security Log.

Input Format	RTRV-USER-LOG:[<tid>]:<ctag>;
Input Example	RTRV-USER-LOG:opto22S1200::123;
Input Example	RTRV-USER-LOG:::123;
Output format	<cr><lf>^^<sid>^<year>-<month>-<day>^<hour>:<minute>:<second><cr><lf>M^^<ctag>^<completion code><cr><lf>^^<quoted line><cr><lf>(; >)
Output Example	<cr><lf> opto22S1200 09-09-17 14:21:03<cr><lf>M 123 COMPLD<cr><lf>"RTRV-USER-LOG:First record"<cr><lf>^^Next Record"<cr><lf>^^Next record"<cr><lf>;
Errors	PIUC = USER IS NOT SUPERVISOR

SET-VAL-FTBL

Used to set the values of the float table (pftTL1TableData).

Input Format	SET-VAL-FTBL:[<tid>]::<ctag>::<index>,<value>;
Input Example	SET-VAL-FTBL:opto22S1200::123::2,45.69;
Input Example	SET-VAL-FTBL:::123::2,45.69;
Output format	<cr><lf>^^<sid>^<year>-<month>-<day>^<hour>:<minute>:<second><cr><lf>M^^<ctag>^<completion code><cr><lf>^^<quoted line><cr><lf>(;>)
Output Example	<cr><lf> opto22S1200 09-09-17 14:21:03<cr><lf>M 123 COMPLD<cr><lf>"SET-VAL-FTBL:2=45.69"<cr><lf>;
Errors	IPMS = INVALID SYNTAX PICU = USER NOT LOGGED IN

SET-VAL-ITBL

Used to set the values of the integer 32 table (pntTL1TableData).

Input Format	SET-VAL-ITBL:[<tid>]::<ctag>::<index>,<value>;
Input Example	SET-VAL-ITBL:opto22S1200::123::2,4569;
Input Example	SET-VAL-ITBL:::123::2,4569;
Output format	<cr><lf>^^<sid>^<year>-<month>-<day>^<hour>:<minute>:<second><cr><lf>M^^<ctag>^<completion code><cr><lf>^^<quoted line><cr><lf>(;>)
Output Example	<cr><lf> opto22S1200 09-09-17 14:21:03<cr><lf>M 123 COMPLD<cr><lf>"SET-VAL-ITBL:2=4569"<cr><lf>;
Errors	IPMS = INVALID SYNTAX PICU = USER NOT LOGGED IN

SET-SID

Used to change the NE SID.

Input Format	SET-SID:[<tid>]::<ctag>::<sid>;
Input Example	SET-SID:opto22S1200::123::opto22R1225;
Input Example	SET-SID:::123::opto22R1225;
Output format	<cr><lf>^^<sid>^<year>-<month>-<day>^<hour>:<minute>:<second><cr><lf>M^^<ctag>^<completion code><cr><lf>^^<quoted line><cr><lf>(; >
Output Example	<cr><lf> opto22S1200 09-09-17 14:21:03<cr><lf>M 123 COMPLD<cr><lf>"SET-SID:opto22S1200=opto22R1225"<cr><lf>;
Errors	IIFM = INVALID USER ID PIUC = USER IS NOT SUPERVISOR