SIEMENS

INSTALLATION & OPERATION

A80672 PTC CONSOLE

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VERSION A.2

Siemens Mobility, Inc.
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The equipment covered in this manual has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

DOCUMENT HISTORY

Version	Release Date	Sections Changed	Details of Change
A	3-28-14	- - - - -	INITIAL RELEASE
A.1	11-12-2018	4.1.2.2	Updated with PTC General Parameters and updated branding to Siemens Mobility, Inc.
A.2	10-09-2019	All, Appendix A	Updated WebUI Screenshots and added Appendix A.

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LIST OF TABLES

NOTES, CAUTIONS, AND WARNINGS

Throughout this manual, notes, cautions, and warnings are frequently used to direct the reader's attention to specific information. Use of the three terms is defined as follows:

WARNING

INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY. WARNINGS ALWAYS TAKE PRECEDENCE OVER NOTES, CAUTIONS, AND ALL OTHER INFORMATION.

CAUTION

REFERS TO PROPER PROCEDURES OR PRACTICES WHICH IF NOT STRICTLY OBSERVED, COULD RESULT IN A POTENTIALLY HAZARDOUS SITUATION AND/OR POSSIBLE DAMAGE TO EQUIPMENT. CAUTIONS TAKE PRECEDENCE OVER NOTES AND ALL OTHER INFORMATION, EXCEPT WARNINGS.

NOTE

Generally used to highlight certain information relating to the topic under discussion.

If there are any questions, contact Siemens Mobility, Inc. Application Engineering.

ELECTROSTATIC DISCHARGE (ESD) PRECAUTIONS

Static electricity can damage electronic circuitry, particularly low voltage components such as the integrated circuits commonly used throughout the electronics industry. Therefore, procedures have been adopted industry-wide which make it possible to avoid the sometimes invisible damage caused by electrostatic discharge (ESD) during the handling, shipping, and storage of electronic modules and components. Siemens has instituted these practices at its manufacturing facility and encourages its customers to adopt them as well to lessen the likelihood of equipment damage in the field due to ESD. Some of the basic protective practices include the following:

- Ground yourself before touching card cages, assemblies, modules, or components.
- Remove power from card cages and assemblies before removing or installing modules.
- Remove circuit boards (modules) from card cages by the ejector lever only. If an ejector lever is not provided, grasp the edge of the circuit board but avoid touching circuit traces or components.
- Handle circuit boards by the edges only.
- Never physically touch circuit board or connector contact fingers or allow these fingers to come in contact with an insulator (e.g., plastic, rubber, etc.).
- When not in use, place circuit boards in approved static-shielding bags, contact fingers first. Remove circuit boards from static-shielding bags by grasping the ejector lever or the edge of the board only. Each bag should include a caution label on the outside indicating static-sensitive contents.
- Cover workbench surfaces used for repair of electronic equipment with static dissipative workbench matting.
- Use integrated circuit extractor/inserter tools designed to remove and install electrostatic-sensitive integrated circuit devices such as PROM's (OK Industries, Inc., Model EX-2 Extractor and Model MOS-40 Inserter (or equivalent) are highly recommended).
- Utilize only anti-static cushioning material in equipment shipping and storage containers.

For information concerning ESD material applications, please contact the Technical Support Staff at 1-800-793-7233. ESD Awareness Classes and additional ESD product information are also available through the Technical Support Staff.

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SECTION 1
INTRODUCTION

1.0 INTRODUCTION

1.1 GENERAL DESCRIPTION

The PTC Console is an interface component of the wayside PTC system that can be configured for a variety of applications for wayside control and monitoring, including Positive Train Control (PTC) applications.

1.2 PTC CONSOLE

The PTC Console is shown in Figure 1-1. The PTC Console has Dual 400 MHz processors, one processor handles non-vital functions and one handles vital functions. The front panel has LED indicators to provide system status. Interfaces include one Ethernet Laptop and 3 Ethernet network ports, up to three RS-232 serial ports, an Echelon® network port, and a serial Diagnostics (Terminal) port.

Figure 1-1 PTC Console

1.2.1.1 PTC Console Indicators and Controls

See locations on the following page.

1. Laptop Port
2. Power/ECD Connector
3. I/O Port - VRO x1/VPI x2
4. Power Indicator
5. ITC Comms (Communications)
6. Time Sync
7. IN 1 (VPI on I/O Connector)
8. IN 2 (VPI on I/O Connector)
9. TX/RX Serial Port
10. On-Site (Illuminates when On-Site Personnel Button is pressed)
11. Health Status
12. Beaconing
13. GEO Sessions
14. Out (VRO on I/O Connector)
15. Alarms Suppressed
16. TX/RX Echelon®
17. On-Site Personnel (Pressed when Maintainer is on Site, halts active CDLs and suppresses alarms)
18. Ethernet Port 1
19. Ethernet Port 2
20. Ethernet Port 3
21. MultiPort Connector
22. Echelon® Connector
23. Terminal (Diagnostics Port)

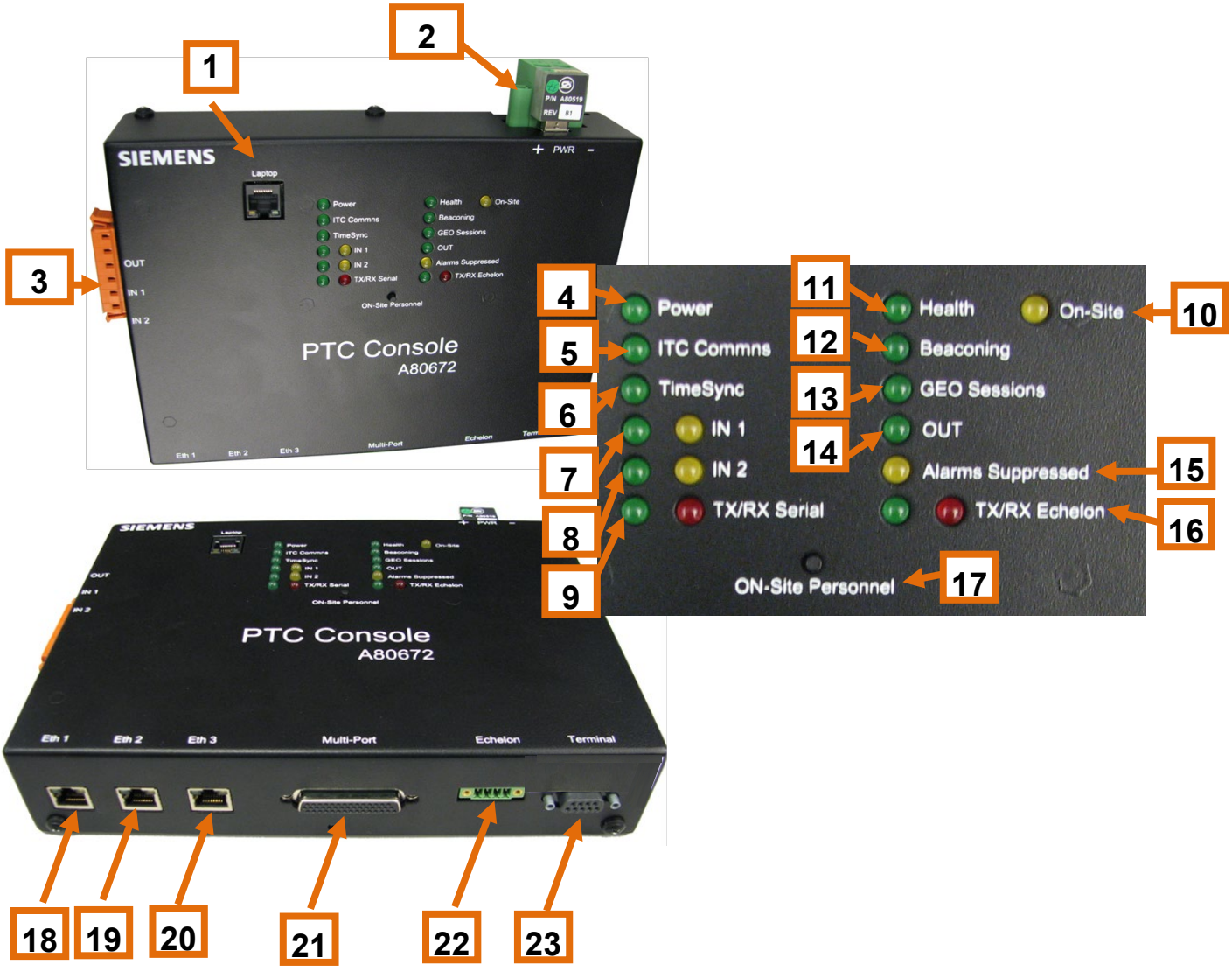

Figure 1-2 PTC Console Indicator and Controls Locations

Table 1-1 Indicator Information

Indicator	LED Color	LED State	Description and Function
Power	Green	On	Power is applied to the unit
		Off	Power is not applied to the unit or the internal power supply has failed
Health	Green	Flashing Slowly	System is healthy
		Flashing Rapidly	System is not healthy
On-Site	Yellow	On	Pending request for local user presence
		Flashing	Local user presence verification accepted and active
		Off	No pending requests, no actions that require on-site personnel can be performed
ITC Comms	Green	On	Class D connection established with application gateway
		Flashing	Unit is attempting to connect with application gateway
		Off	No Connection No attempt to connect
Beaconing	Green	On	Unit currently transmitting WSMs with the "Beacon Bit" set
		Flashing	Unit sending WSMs beacon end timer is running (beacon bit not set)
		Off	Unit is not beaconing (neither beacon timer nor beacon end timer are running)
Time Sync	Green	On	Unit is synchronized via Class C time updates or SNTP
		Flashing	Unit is not receiving updates and 8-hour timeout running
		Off	Not synchronized, 8-hour timeout has occurred
GEO Session	Green	On	All connected GEO systems are in session
		Flashing	At least one GEO is in session but not all
		Off	All GEOs are out of session
IN1 & IN2	Green Yellow	Green On Yellow Off	Input is energized positive
		Yellow On Green Off	Input is energized negative
		Both Off	Input is de-energized
Output	Green	On	Output energized
		Off	Output de-energized
Serial Port TX/RX	Green TX	Flashes	Flashes briefly when transmitting data
	Red RX	Flashes	Flashes briefly when receiving data
			These LEDs show activity with serially connected GEO These LEDs are not for the laptop serial port
Echelon® TX RX	Green TX	Flashes	Flashes briefly when transmitting data
	Red RX	Flashes	Flashes briefly when receiving data
Alarms Suppressed	Yellow	On	Alarms are being suppressed by maintainer on-site
		Off	Alarms are not being suppressed

1.3 A26702-0X PTC CONSOLE MULTIPORT CABLES

The PTC Console has two MultiPort Cables as detailed in the following sections.

1.3.1 A26702-0X PTC Console MultiPort Cable

The PTC Console A26702-0X Multi-Port cable provides three serial ports for external devices. Figure 1-3 shows the PTC Console Multi-Port Cable. This cable may be used for future applications incorporating use of a backplane attached modules.

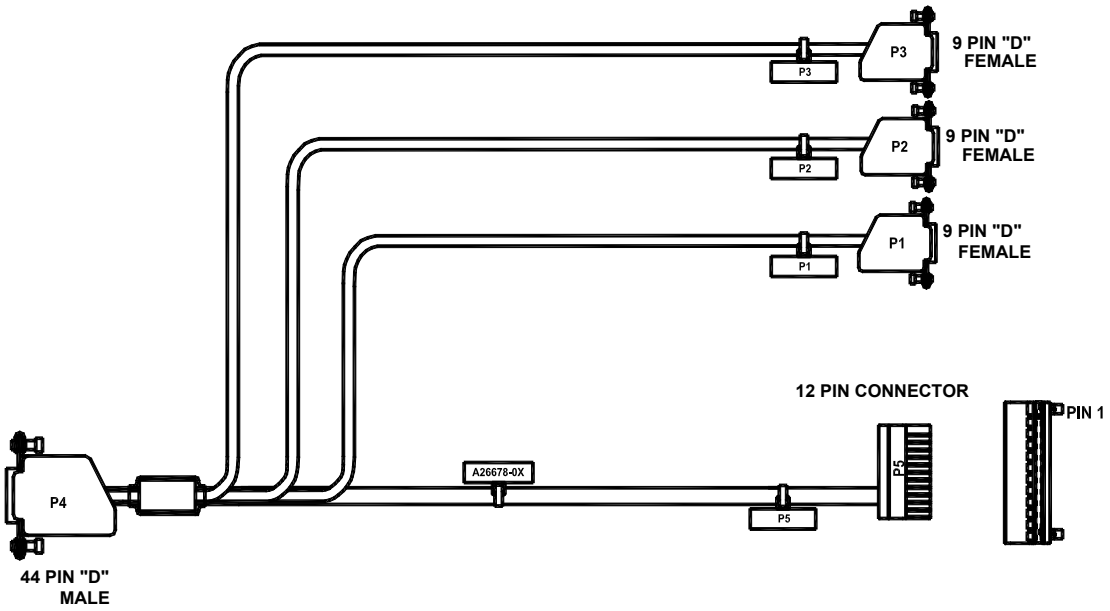

Figure 1-3 A26702-0X MultiPort Cable

A wiring diagram of the A26702-0X Multi-Port cable is shown in Figure 1-4 P1 through P3 provide RS-232 serial protocol via three DB-9 connectors to interface to external devices.

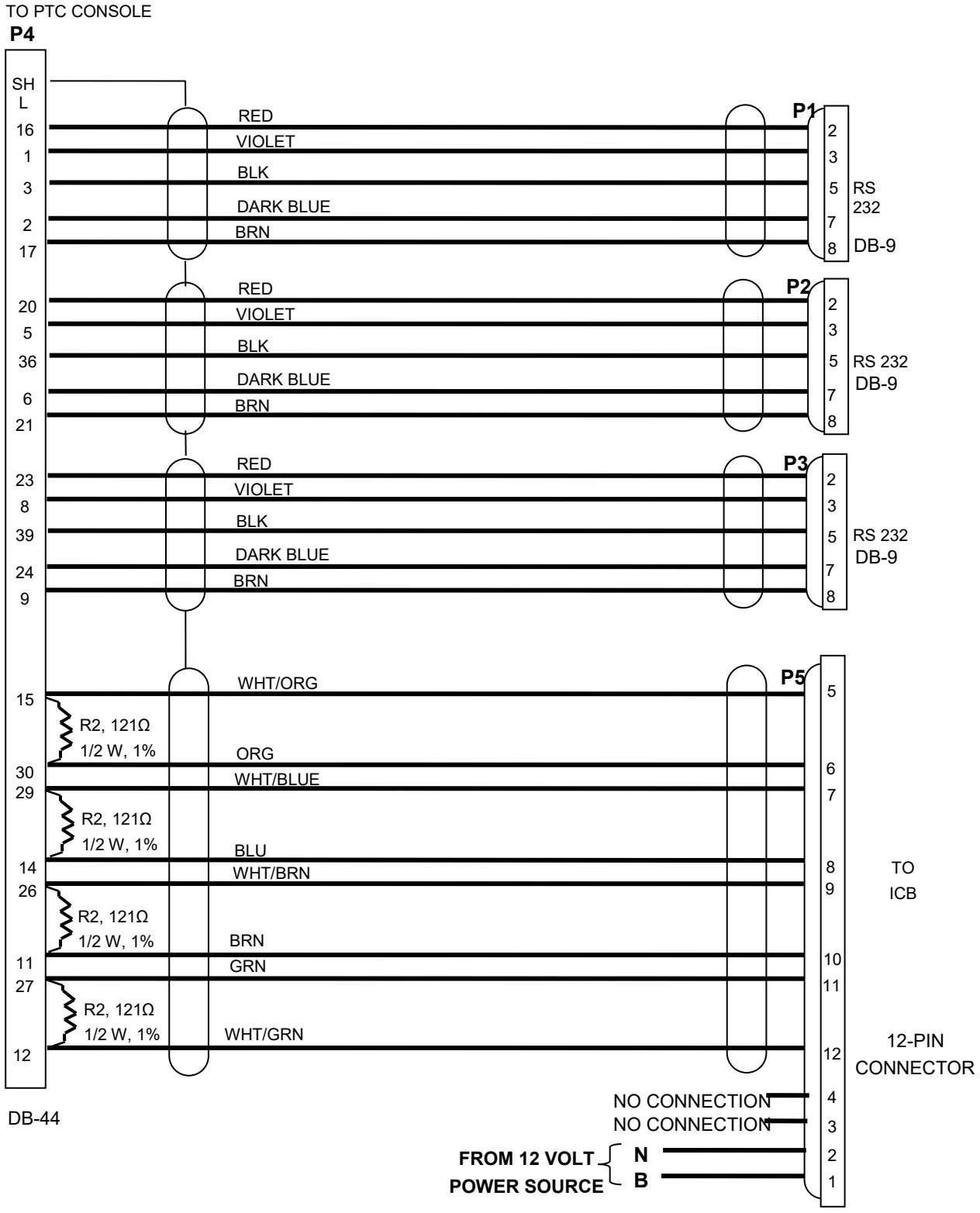

Figure 1-4 A26702-0X MultiPort Cable Wiring Diagram

1.3.2 A26775-0X PTC Console MultiPort Cable

The PTC Console A26775-0X Multi-Port cable provides a serial port for external devices. Figure 1-5 shows the PTC Console Multi-Port Cable. This is used to connect a PTC-enabling GEO with CPU1, which does not support an Echelon® connection to the PTC Console.

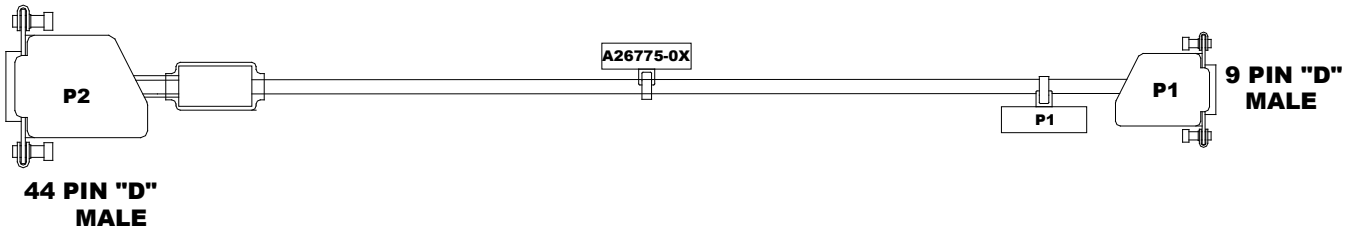

Figure 1-5 A26775-0X MultiPort Cable

A wiring diagram of the A26775-0X Multi-Port cable is shown in Figure 1-6. P1 provides RS-232 serial protocol via the DB-9 connector to interface to external devices.

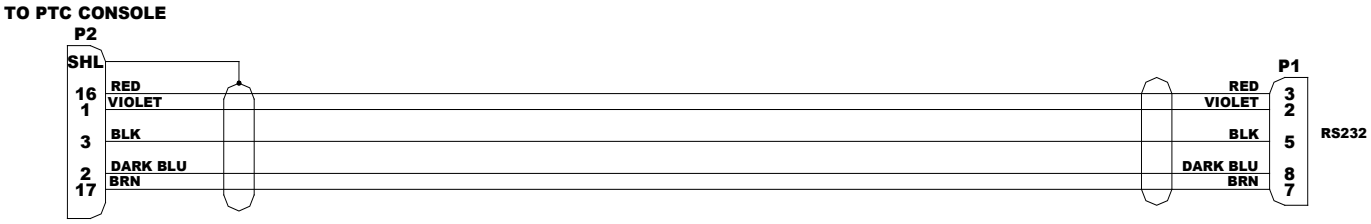

Figure 1-6 A26775-0X MultiPort Cable Wiring Diagram

1.4 ORDERING INFORMATION

Figure 1-7 displays the PTC Console and Multi-Port Cable ordering information. Options are subject to change. Contact Siemens Mobility, Inc. Customer Service for the latest configuration options.

PTC Console:

8000-80672-00XX

0	W/O MOUNTING PLATE
1	MOUNTING PLATE

		SOFTWARE
0	W/O 80611-05	9VA51-A01X
1	80611-05	9VB14-A01X

PTC Console Multi-Port Cables:

8000-26702-000X

	Length P5 ±2"	Length P1, P2, P3 ±2"	Source
1	3 FT	3 FT	Back Shell
2	6 FT	3 FT	Back Shell
3	6 FT	6 FT	Back Shell
4	12 FT	6 FT	Back Shell
5	12 FT	12 FT	Back Shell

8000-26775-000X

	Length P1 ±2"	Source
1	3 FT	Back Shell
2	6 FT	Back Shell
3	6 FT	Back Shell
4	12 FT	Back Shell

Figure 1-7 Ordering Information

1.4.1 Specifications

Power Requirements

Input Voltage	9-32 VDC, Isolated, Reverse Polarity Protection
Input Current	1.1 Amps Max @ 13.8 VDC

Connectivity

Power	2-Pin Phoenix
Ethernet Ports	RJ-45
Echelon®	4-Pin Wago®
MultiPort	DB-44
Vital I/O Port	6-Pin Wago®
Terminal (Serial RS-232)	DB-9

Indicators

Power (Green)
ITC Comms (Green)
TimeSync (Green)
IN 1 (Green) (Yellow)
IN 2 (Green) (Yellow)
TX/RX Serial (Green) (Red)
Health (Green)
Beaconing (Green)
GEO Sessions (Green)
OUT (Green)
Alarms Suppressed (Yellow)
TX/RX Echelon® (Green) (Red)
On-Site (Yellow)

Controls

Push-Button	
Momentary	On-Site Personnel

Physical

Dimensions	9.625 inches (24.4475 cm) Wide 7.000 inches (17.78 cm) High 2.125 inches (5.3975 cm) Deep
Weight	4.3 lbs. (1.95 kg)

Environmental

Temperature	-40 ° C to 70 ° C
Humidity	95% non-condensing

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SECTION 2
APPLICATIONS

2.0 APPLICATIONS

2.1 APPLICATIONS OVERVIEW

The PTC Console may be used in a variety of applications. This section will provide an overview of possible applications using the PTC Console.

2.1.1 PTC Enabled GEO

In this example, the SEAR II remains in place to perform the non-vital logic and codeline interface functions. The PTC Console is installed into an existing system to report signal/switch/hazard detector status to the PTC network.

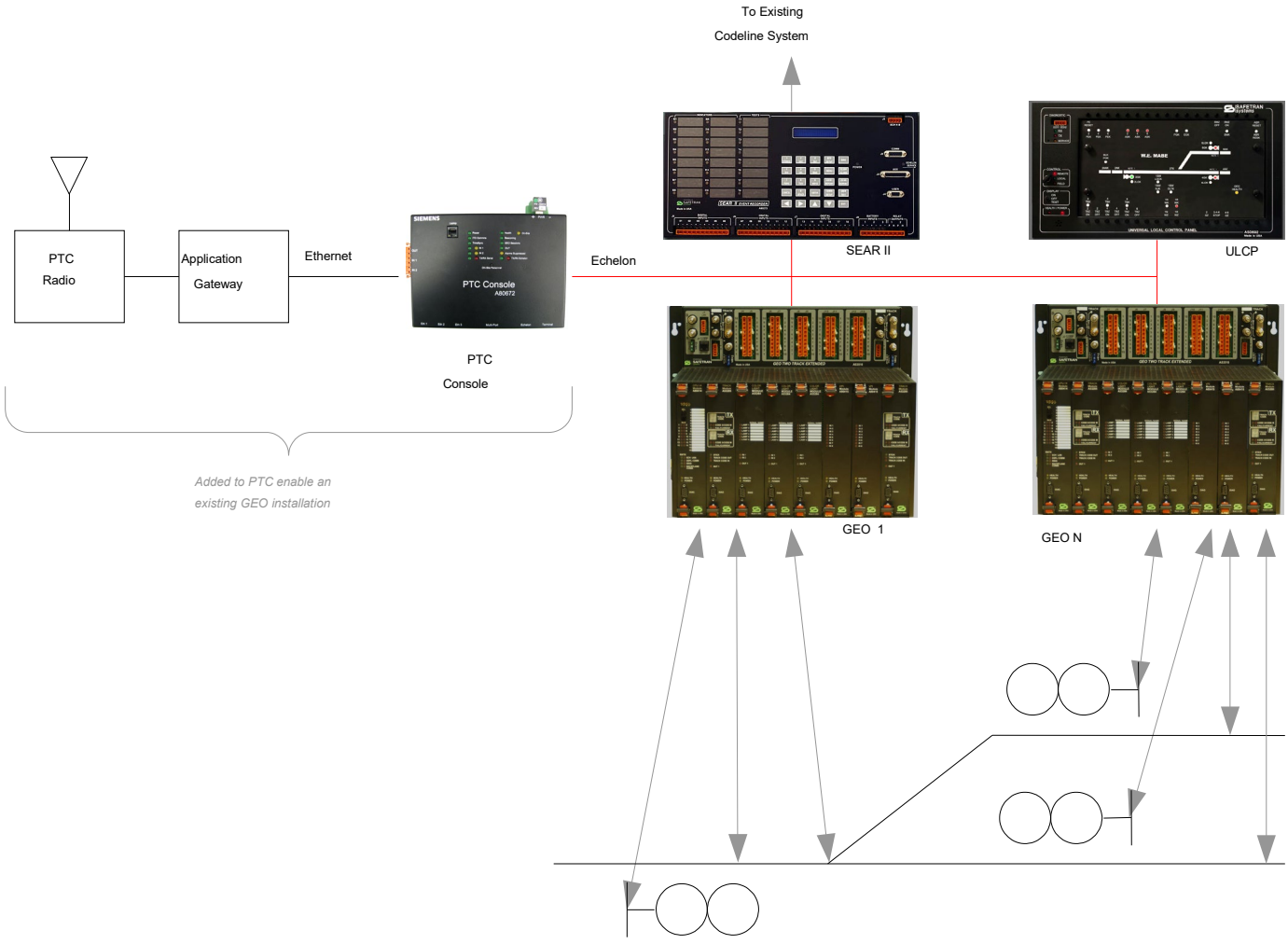

Figure 2-1 PTC Enabled GEO Installation Example

2.1.2 Dark Territory

In Figure 2-2 shows an example of a Dark Territory installation with monitor and control of a switch via radio.

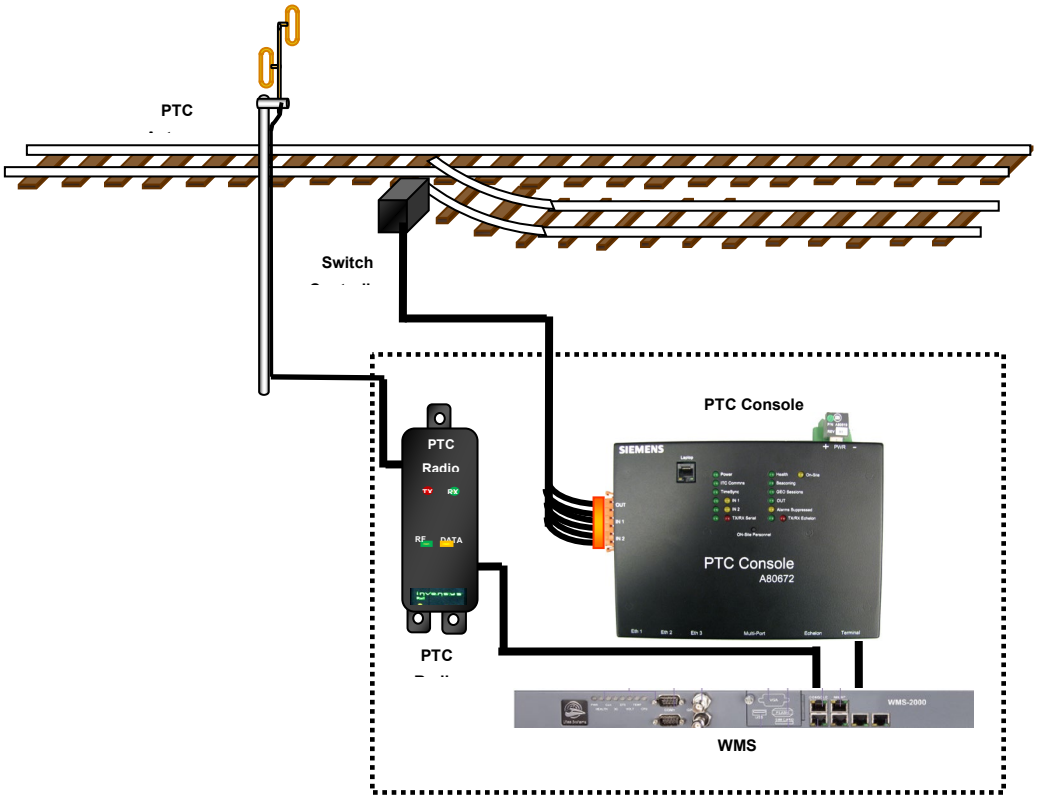

Figure 2-2 Dark Territory Installation Example

NOTE

NOTE

For other application of the PTC Console, contact Siemens Mobility Inc.

SECTION 3
INSTALLATION AND CONFIGURATION

3.0 INSTALLATION AND CONFIGURATION

3.1 INSTALLATION OVERVIEW

Figure 3-1 displays all the possible connections to the PTC Console.

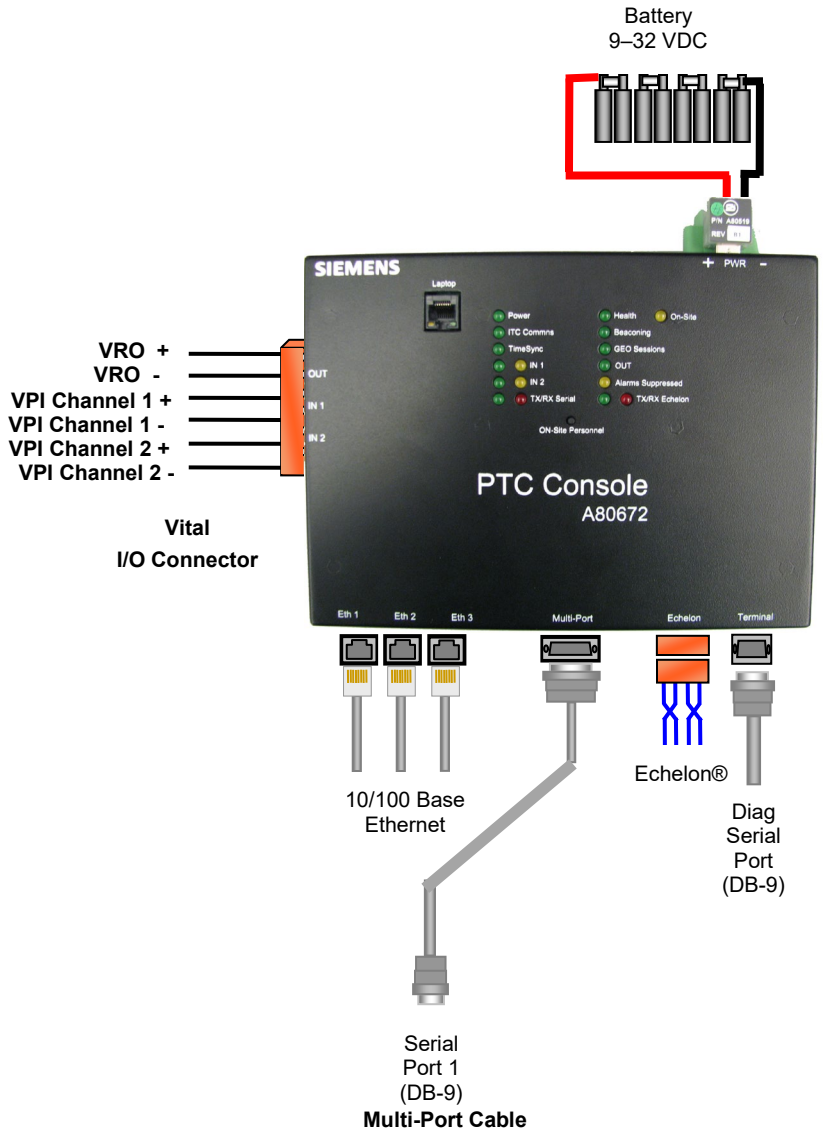

Figure 3-1 PTC Console Interconnection Overview

3.1.1 Example PTC Enabled GEO Installation

The figure below is an example of a PTC Enabled GEO installation.

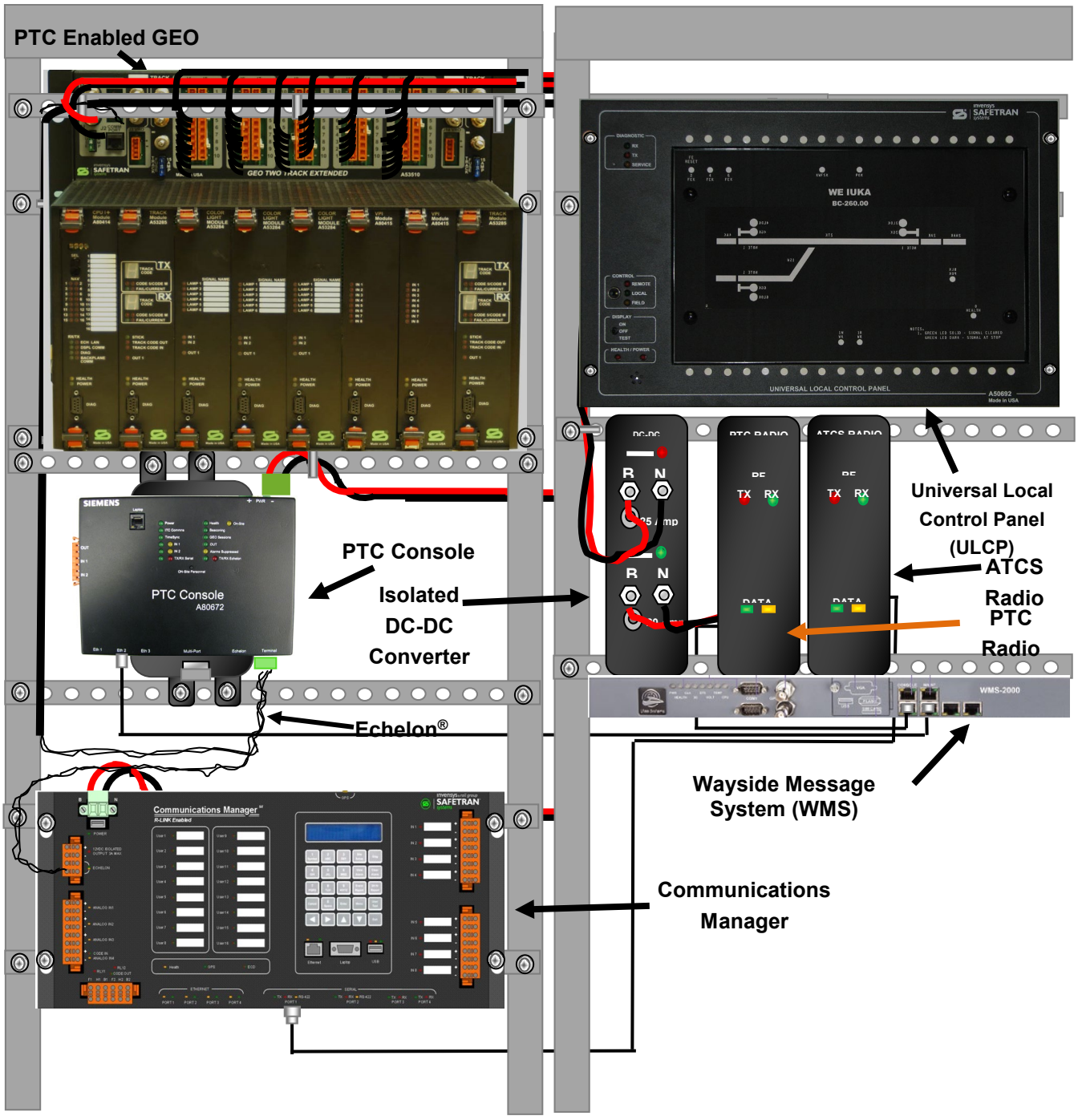

Figure 3-2 PTC Enabled GEO Installation Example

3.1.1.1 PTC Enabled GEO Wiring Diagram

The figure below depicts an example wiring diagram of a PTC Enabled GEO installation.

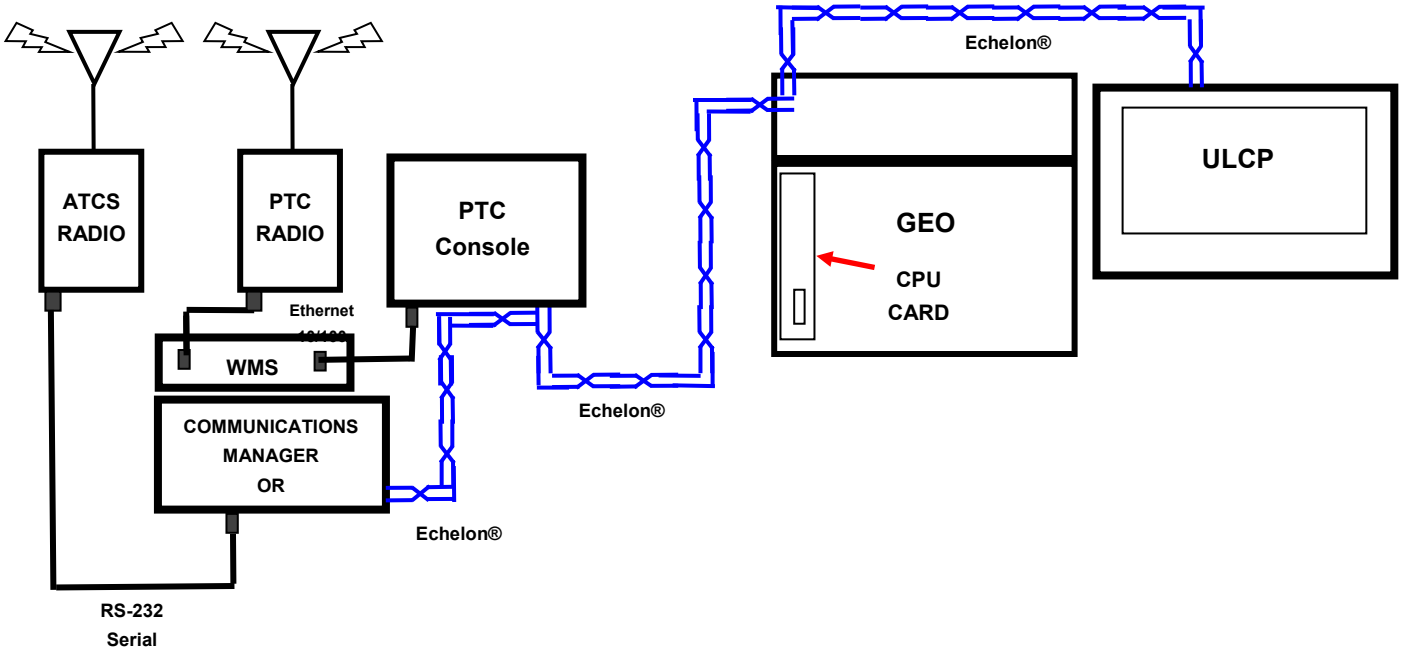

Figure 3-3 PTC Enabled GEO Wiring Diagram

3.1.2 Example Dark Territory Installation

The Drawing below is an example Dark Territory Switch Monitor and Control using a PTC Console with optional I/O connector and PTC communications in a weatherproof pole mount cabinet.

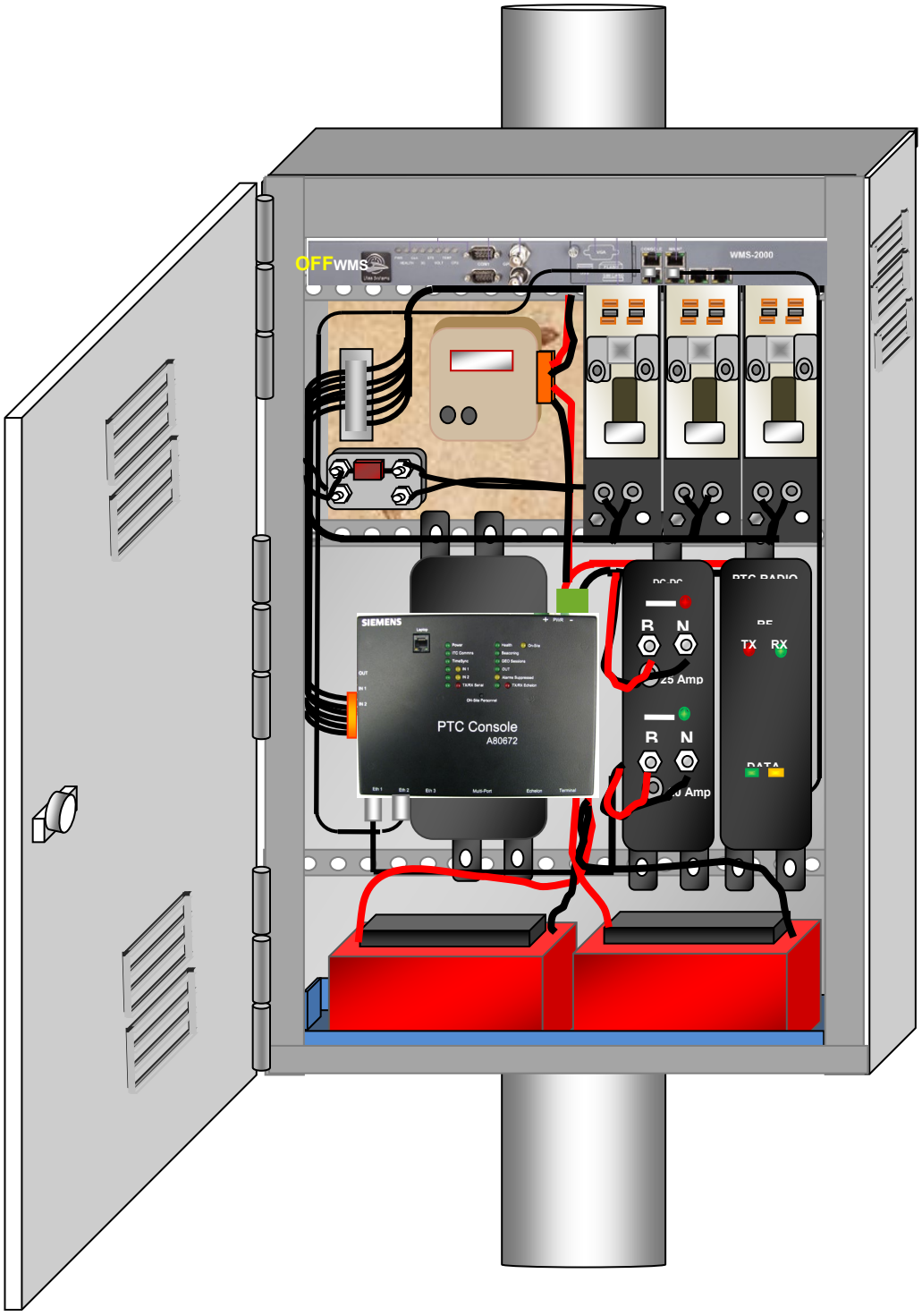

Figure 3-4 Dark Territory Switch Monitor Example

3.1.2.1 Example Dark Territory Switch Monitor Wiring Diagram

The diagram below is an example of a dark territory switch monitor and control for a PTC application.

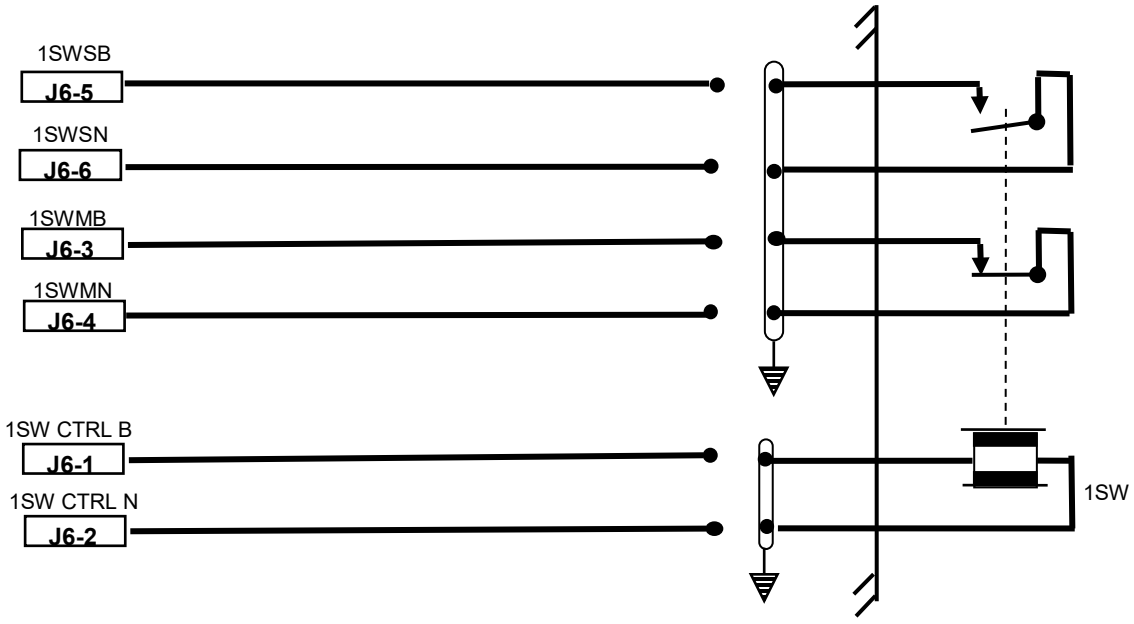

Figure 3-5 Example Dark Territory Switch Monitor Wiring Diagram

3.2 CONSOLE INSTALLATION

The PTC Console is mounted to the relay rack assembly using the optional mounting bracket. The PTC Console has four #8 threaded mounting holes on the rear of the unit.

3.2.1 Installing Mounting Bracket to Console

Use the following procedure to install the optional Mounting Bracket to the PTC Console:

1. Position the mounting bracket with the counter sunk holes facing away from the console.
2. Mount the bracket to the PTC Console using four #8 flat head screws as shown in Figure 3-6.

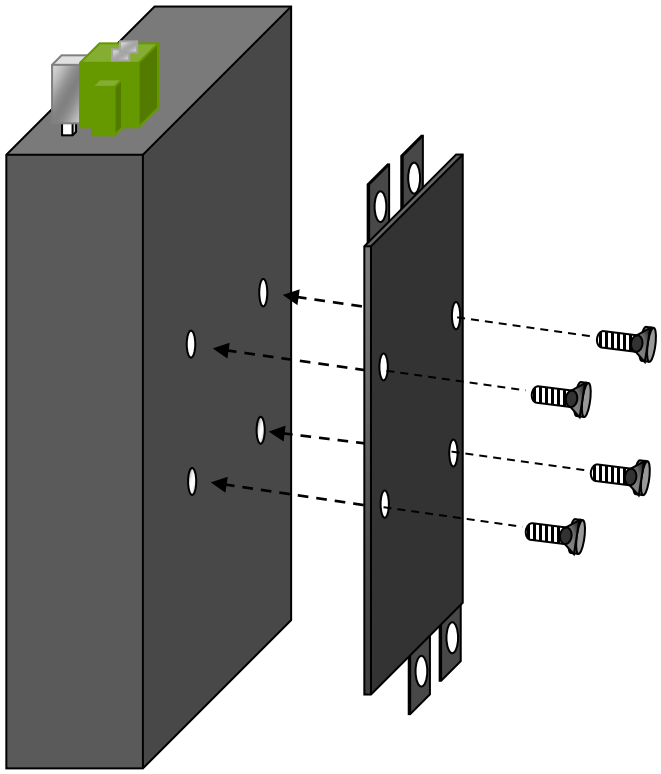

Figure 3-6 Installing PTC Console Mounting Bracket

3.2.2 Installing the PTC Console to the Rack Assembly

The PTC Console optional Mounting Bracket is designed to mount the console between the relay rack rails. Mount the console using the following procedure:

1. Align the Mounting Bracket with the Relay Rack rails.
2. Use ¼-20 bolts and flat washers and slide through the holes in the mounting bracket and the rack rail.
3. Secure the bolts using a flat washer, a lock washer, and a ¼-20 nut.

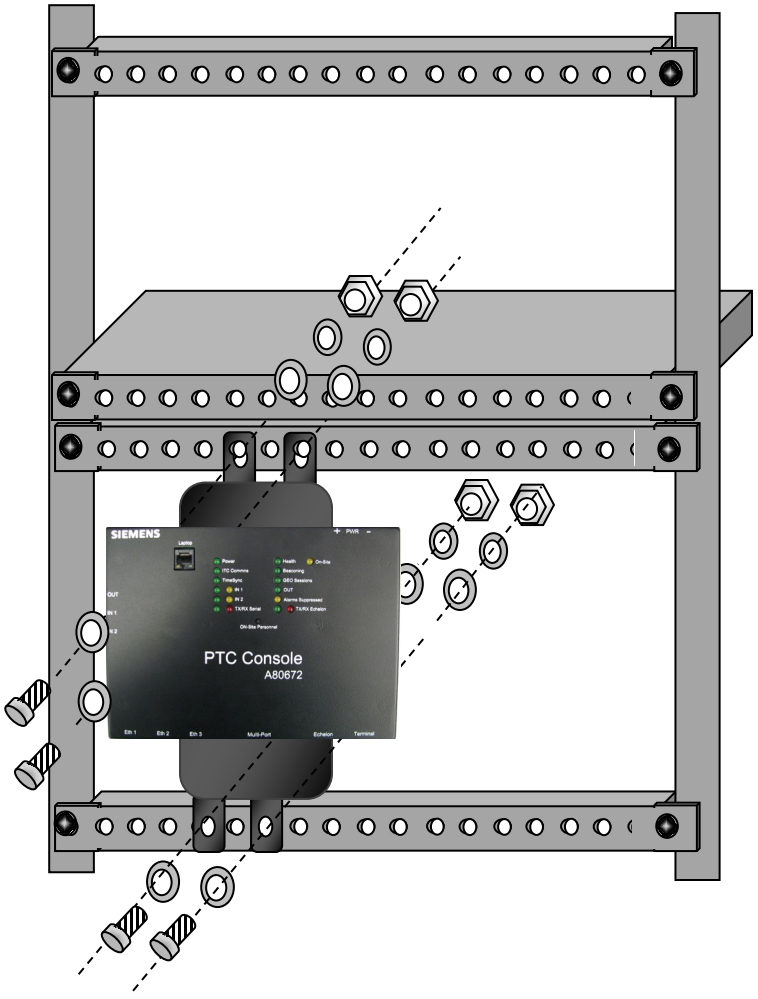

Figure 3-7 Mounting the PTC Console to a Rack Assembly

3.3 CONFIGURATION

Once installed, the PTC Console will require setup and configuration. Setup and configuration is performed using WebUI and is described in detail in Section 4.

Figure 3-8 shows the connection of a laptop computer to the PTC Console using the Laptop port.

Figure 3-8 Laptop Connection to the PTC Console

SECTION 4
WEB USER INTERFACE (WebUI)

4.0 WEB USER INTERFACE (WEBUI)

4.1 WEBUI OVERVIEW

The PTC Console comes with a Web User Interface (WebUI) which enables users to configure the PTC Console locally at the console as well as remotely. Using a standard web browser, enter the IP address assigned to the console (e.g. https://192.168.255.81). Note: the WebUI utilizes the HTTP Secure (https) protocol. On the initial login, the web browser will notify the user that the connection is not secure. For the initial login, the WebUI must be added as an exception. See Figure 4-1 below for example.

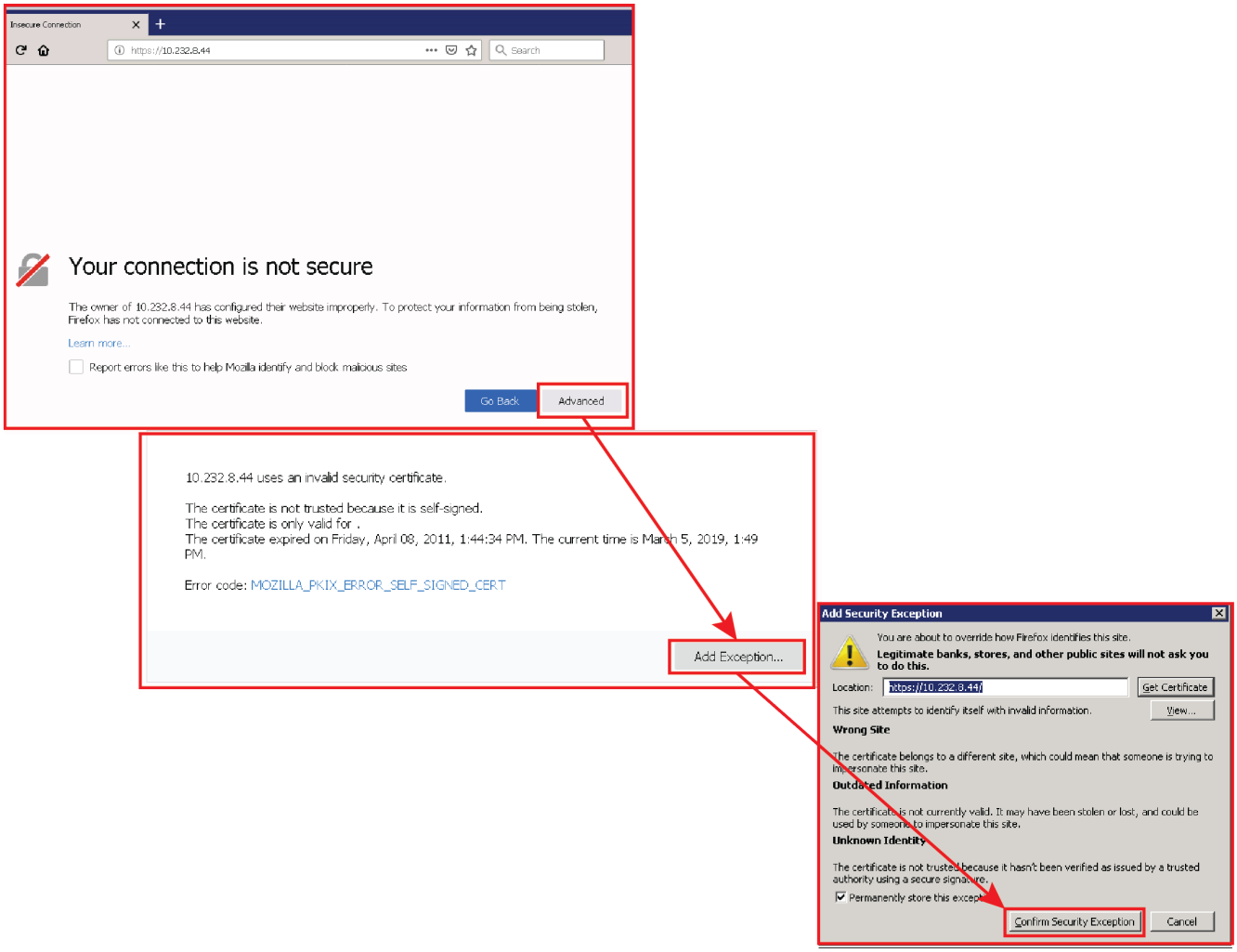

Figure 4-1 Add Exception

4.1.1 WebUI Login Page

Upon connecting to the console, the WebUI Login Page will come up. Log into the console using the assigned Password and click on the Login button. Note that Passwords are case sensitive. The factory default password is Siemens.

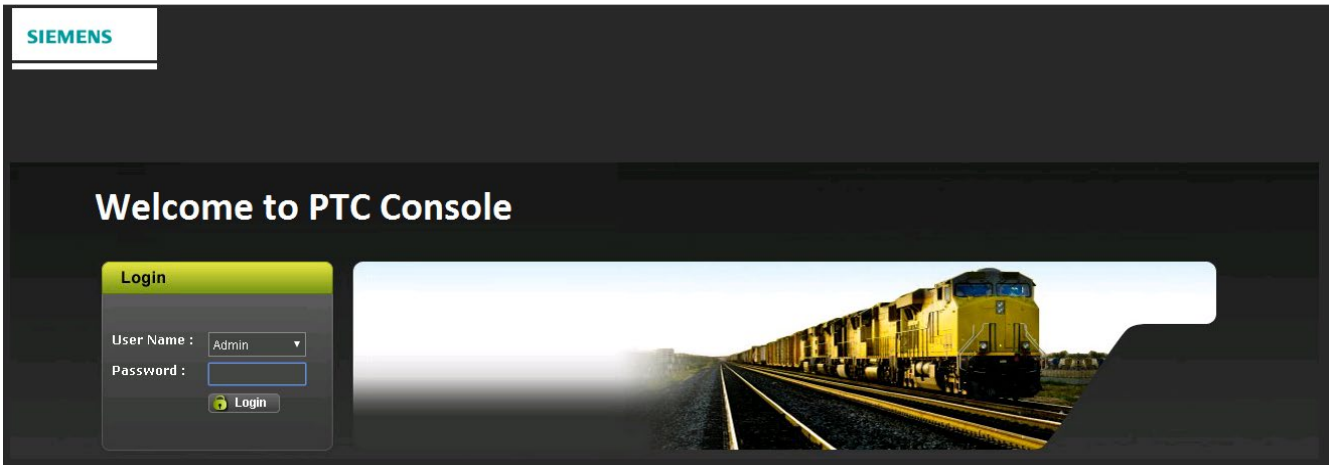

Figure 4-2 WebUI Login Page

4.1.2 Configuration Menu

The WebUI opens with the Configuration Menu. The Configuration Menu contains three sub-menus for site information: Applications, Non-Vital Configuration, Vital Configuration. Click on any of the menu buttons to bring up the corresponding configuration page.

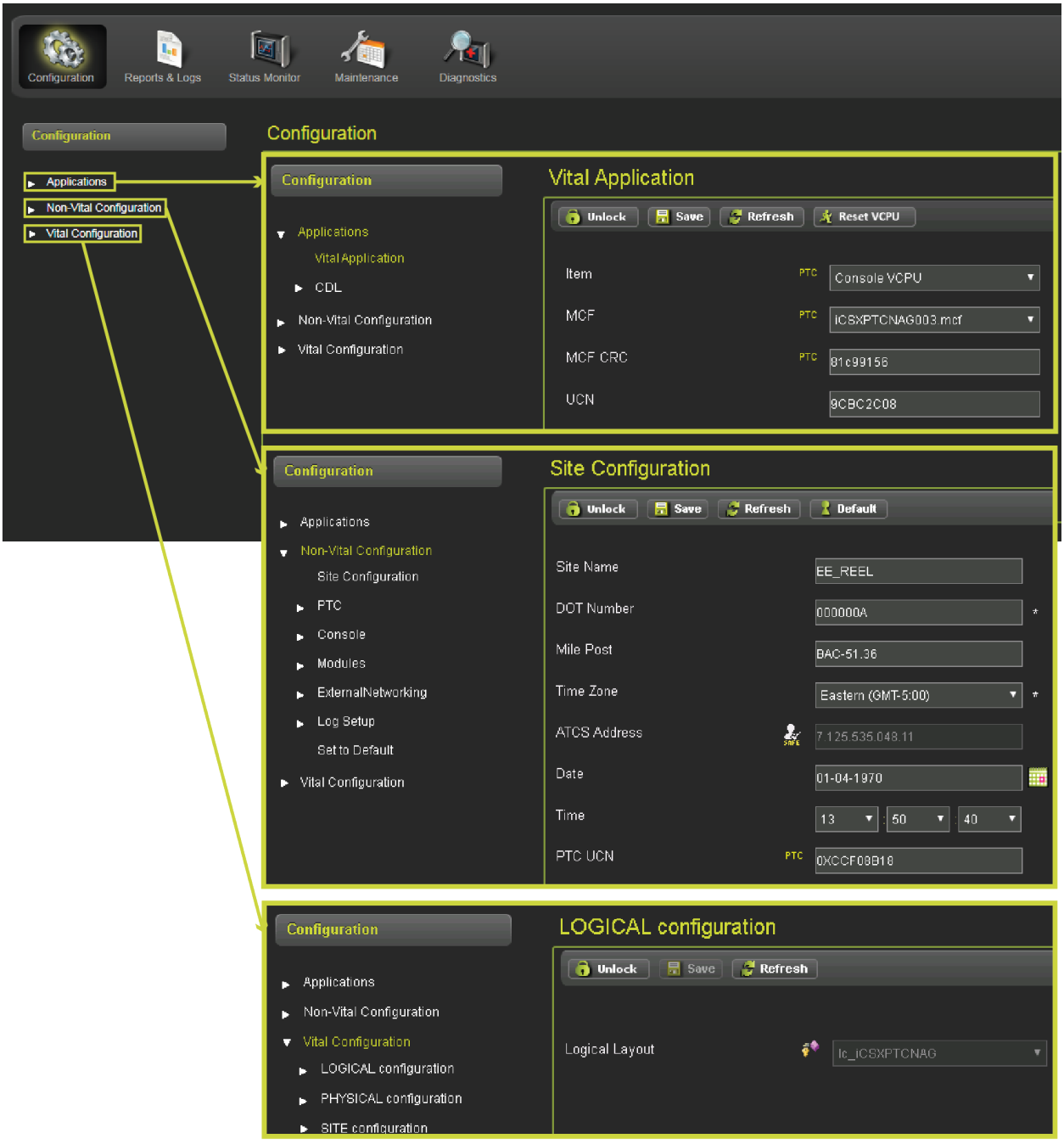

Figure 4-3 Configuration Menu

4.1.2.1 Vital Application

The vital application page provides a quick reference location for the MCF, MCF CRC, and UCN applicable to the item selected. This is also where the MCF CRC and UCN are entered.

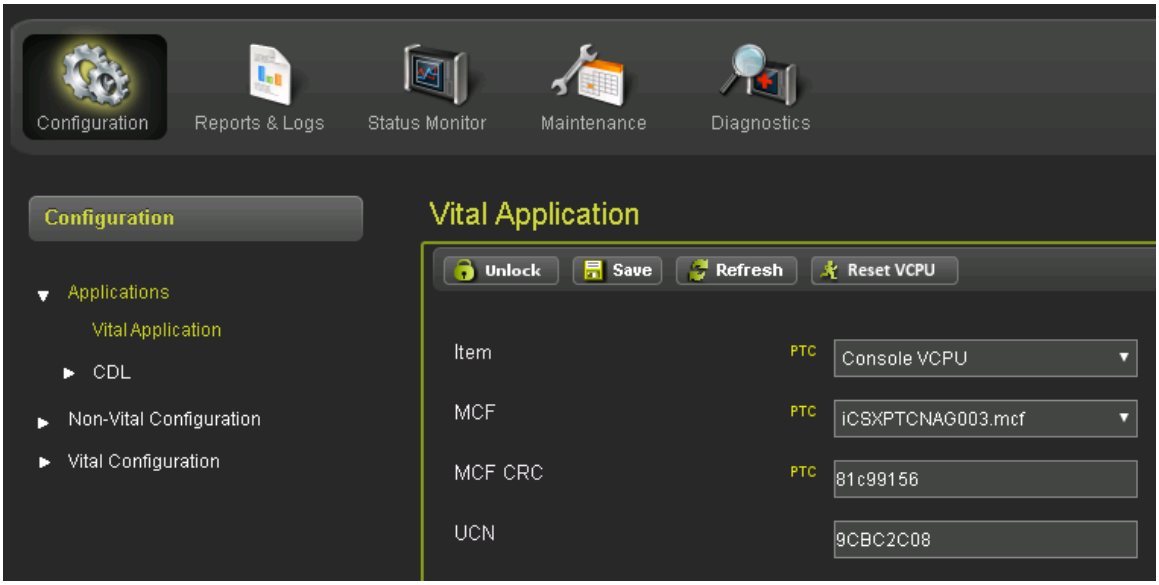

Figure 4-4 Vital Application Information

WARNING

THE MCF, MCF PARAMETERS SETTINGS AND UCN MUST BE SET ACCORDING TO THE SITE PLANS.

WARNING

WARNING

ENTERING THE WRONG UCN WILL RENDER THE PTC CONSOLE INOPERABLE. DO NOT CHANGE THE UCN UNLESS REQUIRED BY SYSTEM CHANGES THAT HAVE BEEN APPROVED BY THE RAILROAD AND/OR AUTHORIZING AGENCY USING A UCN ASSIGNED TO THE SITE PLANS.

4.1.2.2 Site Information

The Site Information menu enables the User to configure Site Name, DOT Number, Mile Post, Time Zone, ATCS Address, Date, Time, and PTC UCN.

Figure 4-5 Configuration Menu - Site Information

- **Setting the Time Zone**

To set the Time Zone, click on the drop menu. Select the desired time zone and click the mouse. Note that Daylight Savings Time rules are included in the time zone selected. The system will automatically adjust for DST based on the time zone selected

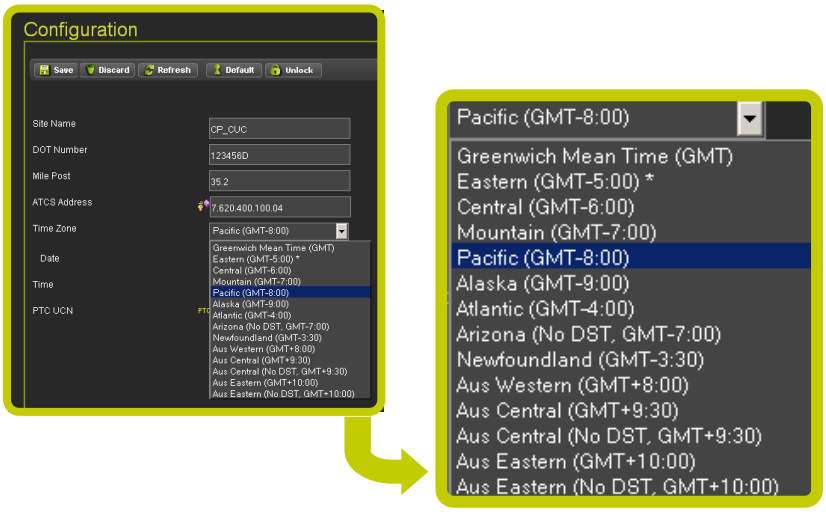

Figure 4-6 Setting the Time Zone

- **Setting the Date**

To set the Date, click on the calendar icon on the right of the Date box. Highlight the current date and click on it with the mouse.

Figure 4-7 Setting the Date

- **Setting the Time**

To set the time click on the Hours drop menu and highlight the current hour, click on the Minutes drop menu and select the current minute, and select the Seconds drop menu and select the current second. Click on the **Save** button to accept changes or the **Discard** button delete any changes.

Figure 4-8 Setting the Time

4.1.2.3 PTC

The PTC sub-menu enables the configuration of some of the PTC parameters. The PTC menu has seven screens that enable access to additional configuration parameters. Figure 4-9 shows the configuration screens available.

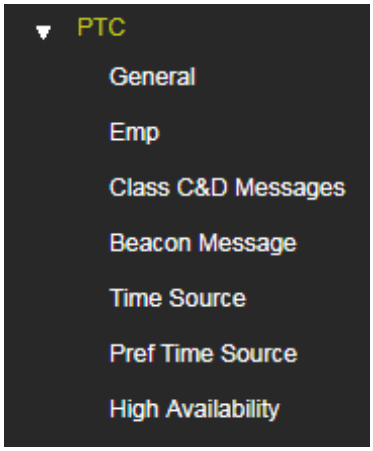

Figure 4-9 PTC Menu Tabs

- **PTC - General Menu**

The PTC - General menu is shown in Figure 4-10 below. Some parameters may have a key lock or a PTC designator. These parameters affect applicable UCN (Unique Check Number) and PTC UCN. Changing these parameters will place the system in the safe mode and render the console in an unconfigured state. The proper UCN or PTC UCN will be required and entered into the console to restore normal operation.

Figure 4-10 PTC General Menu

⚠ WARNING

WARNING

THE WIU ADDRESS MUST BE UNIQUE FOR EACH PTC CONSOLE

PTC Enable GEOs: set to **Yes** for PTC enabled GEO applications (set to **Yes** automatically by OCE)

Console as NV Logic Ctrlr: **Yes**, **No**, defaults to **No**. Leave as **No** as this feature is not currently supported

Log GEO Events: **Yes**, **No**, defaults to **Yes**. This is used to select whether the GEO sends events to the Console for logging in the Console Event Log. In general, this can be set to **Yes**. Would only set to **No** on a very large GEO set up with many GEO units being monitored by one Console where the Echelon link is near capacity.

Sync GEO and SEAR clocks: **Yes**, **No**, defaults to **No**. Used to select whether the Console sends time updates to the GEO and SEAR to synchronize their time to that of the Console.

WIU Channel Enabled: **Yes**, **No**, defaults to **Yes**. Used to enable the Console to send PTC messages. Keep as **Yes**.

Send Msg on Change of State: **Yes**, **No**, defaults to **Yes**. When set to **Yes** the GEO will send an updated state to the Console when the state of the data sent to the console changes. When set to **No**, the GEO will not send on change of state.

Msg Timeout (minutes): 5-240, defaults to 5 minutes. This is the message timeout on the GEO from the Console. If the GEO does not receive a valid message from Console in this time, it will set the link to **Out of Session** and stop sending messages to the Console. This is only used as a **Keep Alive** message so that the GEO will stop sending messages if the Console is removed, meaning, this is a non-vital function. The vital timeout on the Console is set using the **Msg Update Rate** (see below).

Msg Update Rate (ms): 500-3000ms, default 1500ms. This sets the message update rate on the GEO for messages sent to the Console. The Console will set a message timeout to the (2 * Msg Update Rate) + 100ms. If the Console receives no valid messages from the GEO in this message timeout, it will set the link to **Out of Session** and report the PTC devices associated with this GEO as restrictive.

- **PTC EMP Menu**

The PTC - EMP menu is shown in Figure 4-11 below. Refer to AAR specification S-9202 for proper values in setting up the PTC-EMP.

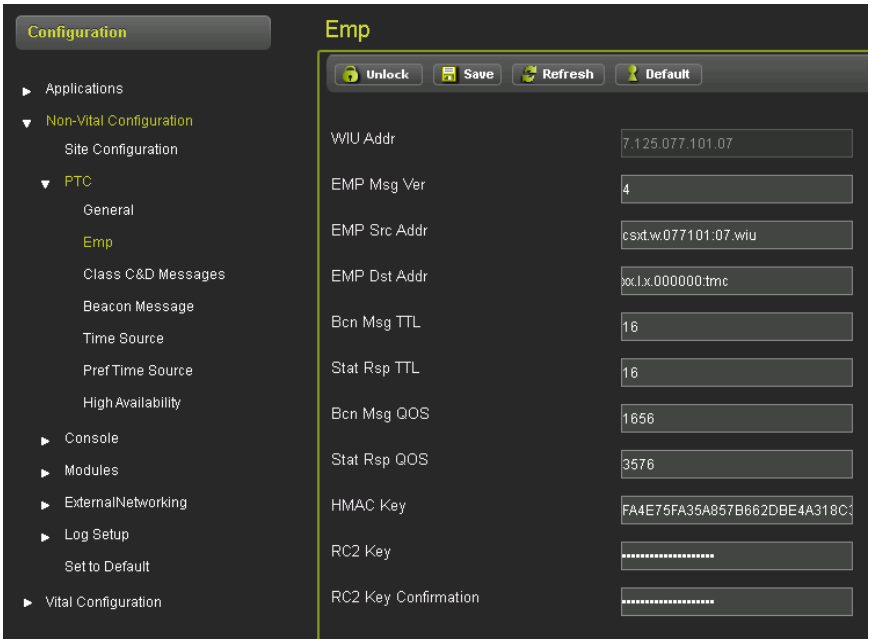

Figure 4-11 PTC EMP Menu

⚠ WARNING

WARNING

THE USER MUST ENSURE THAT EACH SITE IS GIVEN A UNIQUE HMAC KEY.

- **PTC - Class C&D Message**

Figure 4-12 displays the PTC Class C&D Message configuration options. Refer to AAR specifications S-9280 (Class C) and S-9356 (Class D) when setting up PTC - Class C&D messaging.

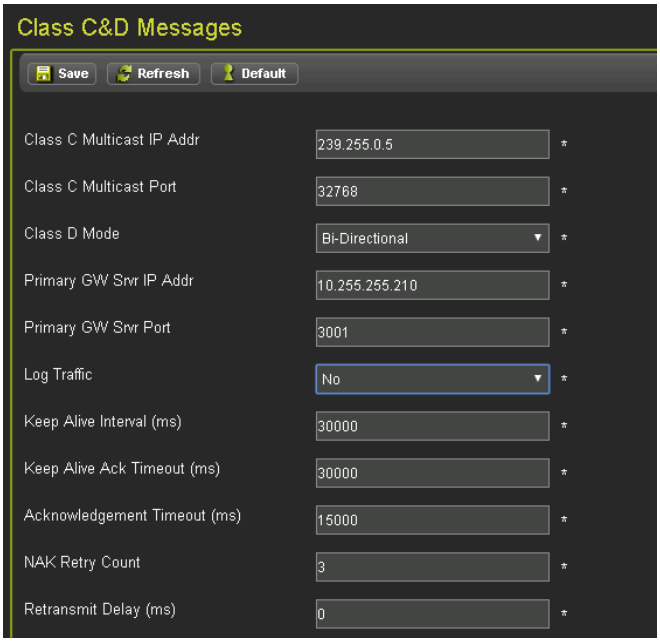

Figure 4-12 PTC - Class C & D Message

- **PTC - Beacon Message**

The PTC Beacon Message configuration with the Beacon Continuous option is shown in Figure 4-13 below.

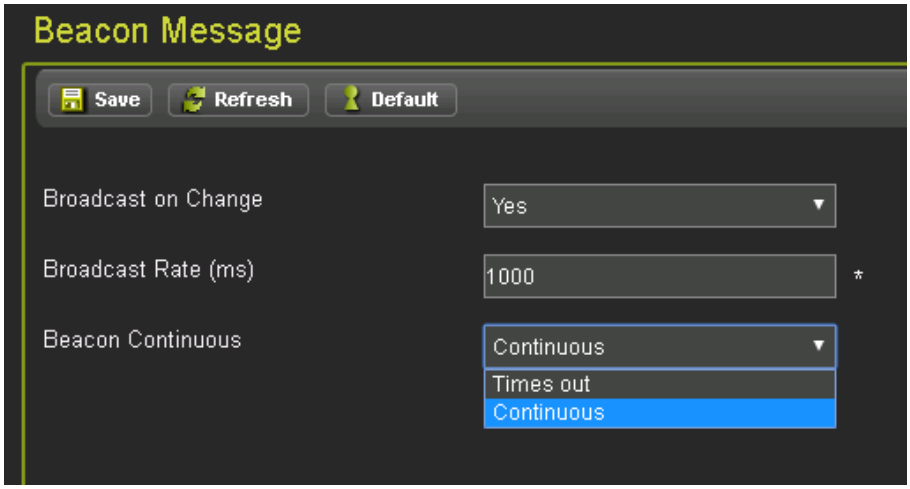

Figure 4-13 PTC - Beacon Message Configuration - Beacon Continuous

The PTC Beacon Message configuration with the Beacon Times Out option is shown in Figure 4-14 below.

Figure 4-14 PTC - Beacon Message Configuration - Beacon Times Out

- **PTC - Time Source Configuration**

Figure 4-15 displays the PTC Time Source configuration option with EMP selected.

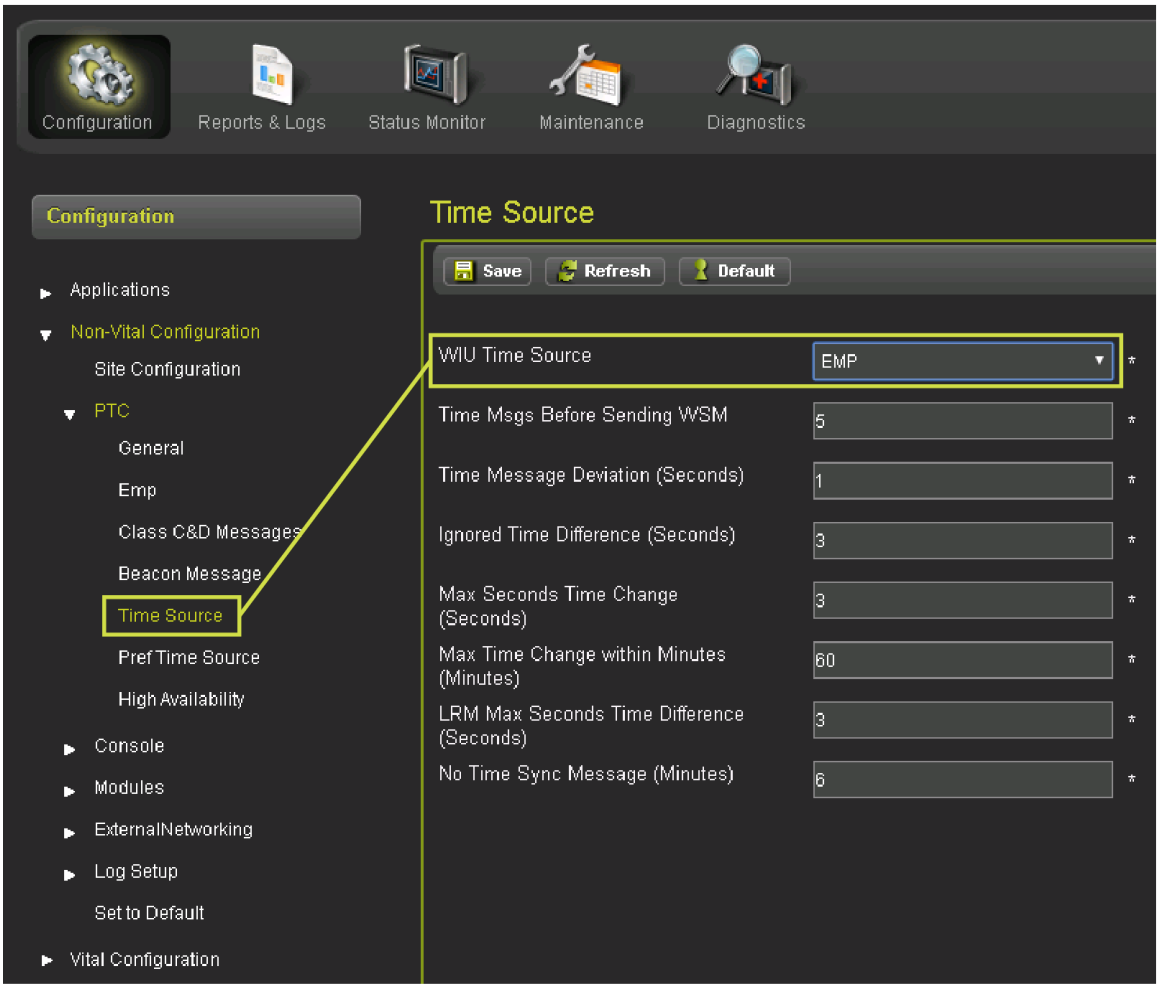

Figure 4-15 PTC - Time Source Configuration

- **PTC - Time Source Configuration - NTP Option**

The NTP option will expand the parameters to include the NTP parameters. These parameters are hidden until the NTP option is selected. In the **NTP Mode** field, if Unicast is selected the PTC Console requests time updates from a specific IP address: Primary NTP Time Source, or if that isn't available, the Backup NTP Time Source. If the **NTP Mode** is set to Multicast, the PTC Console will subscribe to a multicast group and receive time updates as they arrive, it will not request them.

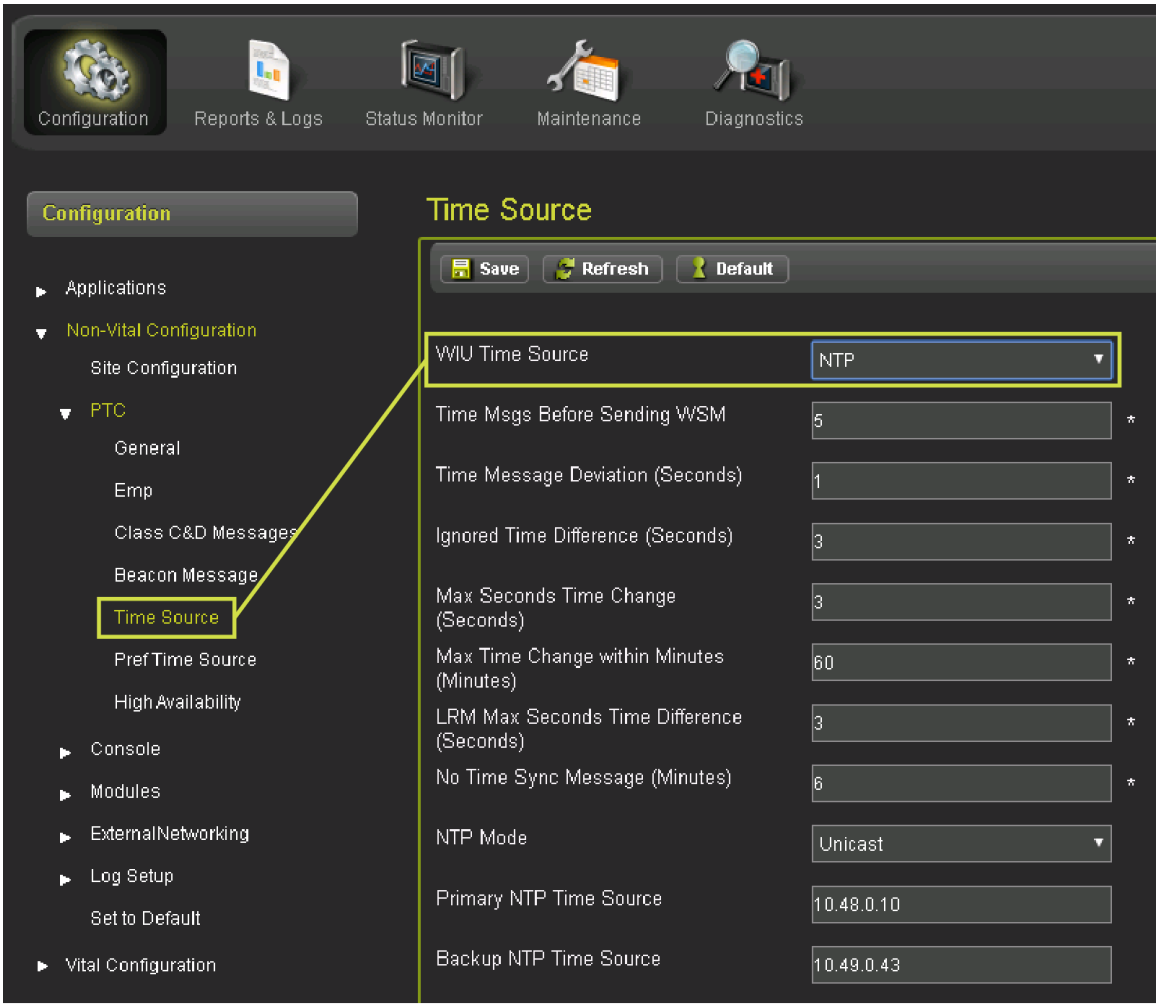

Figure 4-16 PTC - Time Source Configuration - NTP Option Parameters

- **PTC - Preferred Time Source**

The Preferred Time Source function can be enabled by the user to direct the PTC Console to a desired time source.

Figure 4-17 PTC - Preferred Time Source Enable

Up to six time sources can be selected and arranged in the desired priority. If a time source is not available the next available source is used. Should a higher priority source become available the PTC Console will be directed to that source.

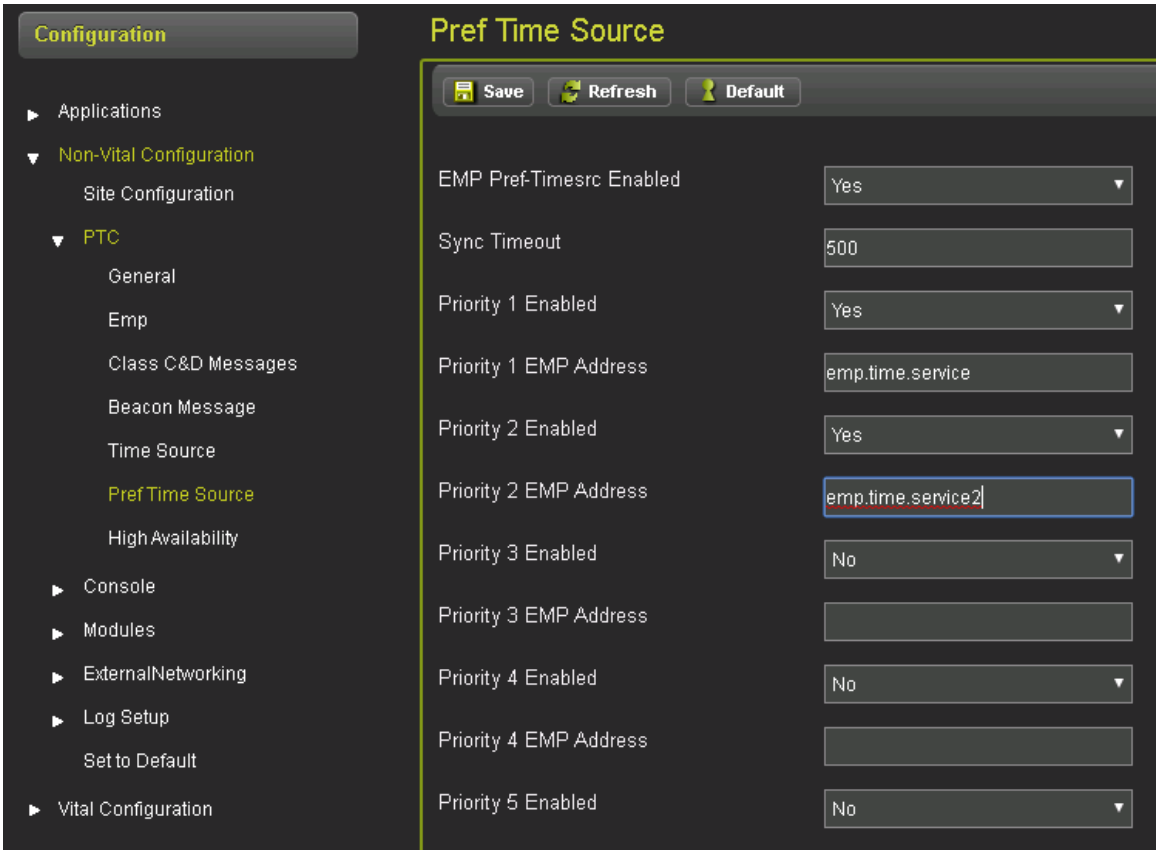

Figure 4-18 Preferred Time Source EMP Address Entry

- **PTC - High Availability**

The High Availability function enables the user to select up to twelve links to maintain availability to and from the PTC Console.

Figure 4-19 PTC - High Availability

- **PTC - High Availability Links**

Enabling the High Availability function will open a new screen with link connection setup positions for entry of High Availability Link IP Addresses. The High Availability setup screen is shown in Figure 4-20. The two High Availability Modes are Priority and Round Robin. Priority will cause the PTC Console to link to the first available IP address and stay connected. The Round Robin will continue attempts to connect to the first link even after establishing connection with a second or third IP address.

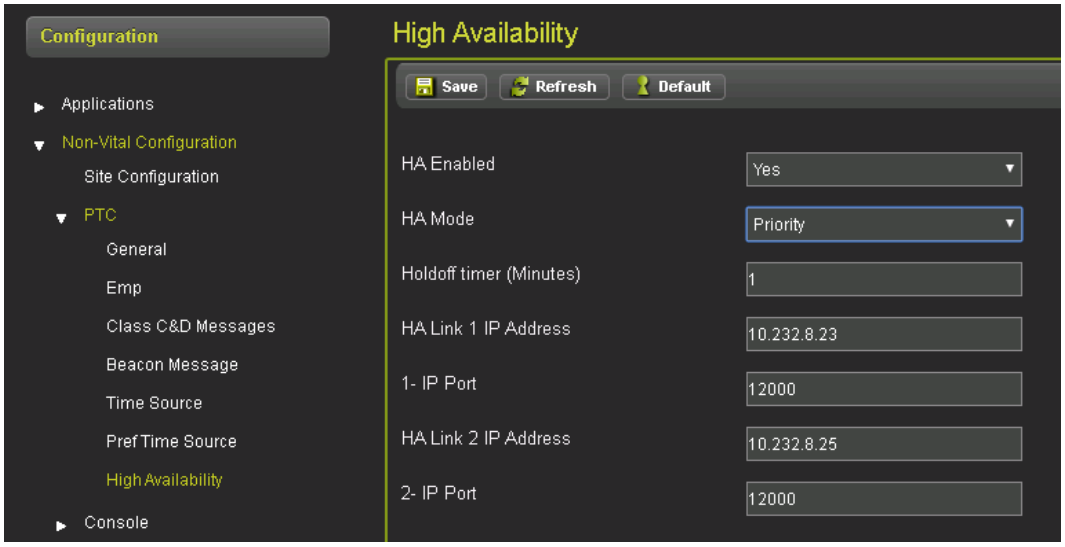

Figure 4-20 PTC - High Availability Setup - Priority

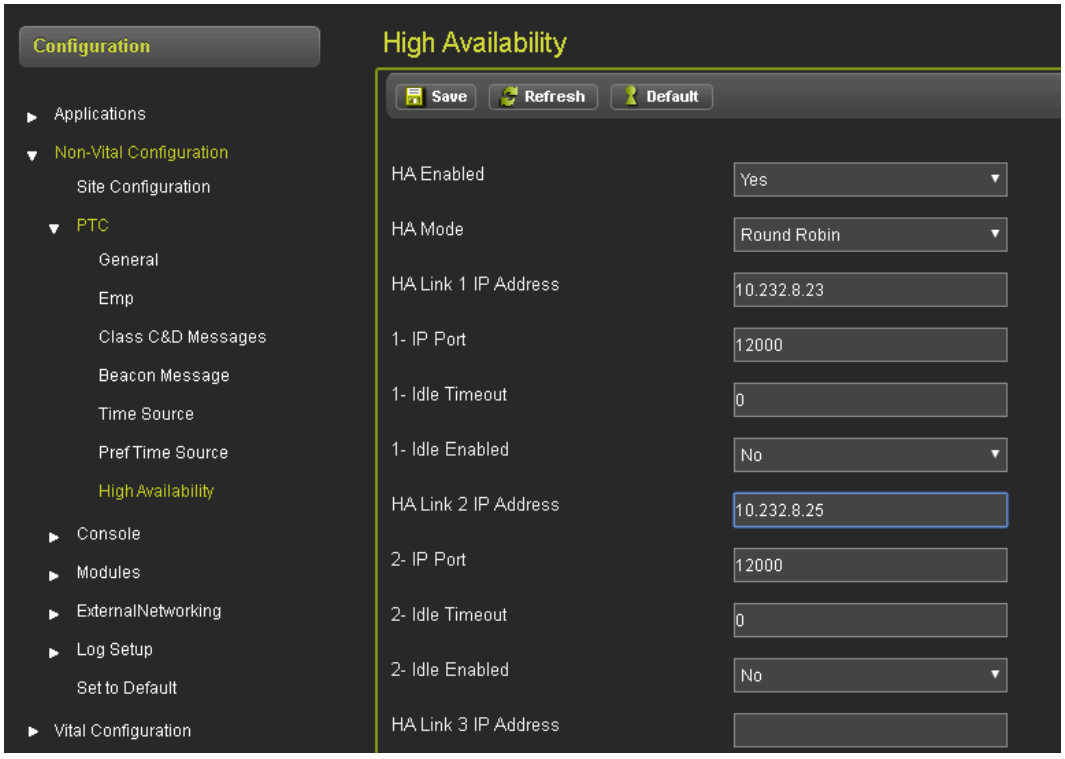

Figure 4-21 PTC - High Availability Setup - Round Robin

4.1.2.4 Console Configuration

The Console Configuration menu has four sub-menus for Serial Ports, Ethernet Ports, Security, and Web Server as shown in Figure 4-22.

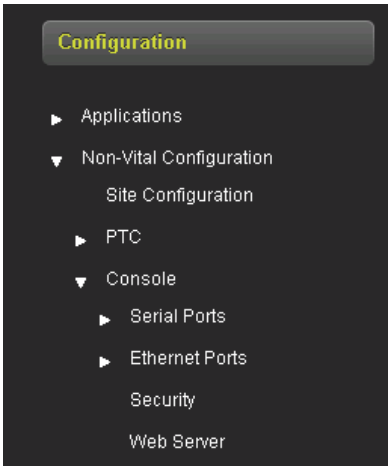

Figure 4-22 Console Configuration Menu

- **Console Configuration - Serial Ports**

Figure 4-23 displays the serial port configuration menu (left) and one of the four sub-menus for the Laptop port.

Figure 4-23 Configuration Serial Ports

Figure 4-24 shows the configurable parameters options for Serial Ports 1-3. Note that many of the protocols are not functional at this time and have been reserved for future applications. The primary protocol for the PTC Console is Genisys GEO used with the serial link to the GEO System with a CPU1.

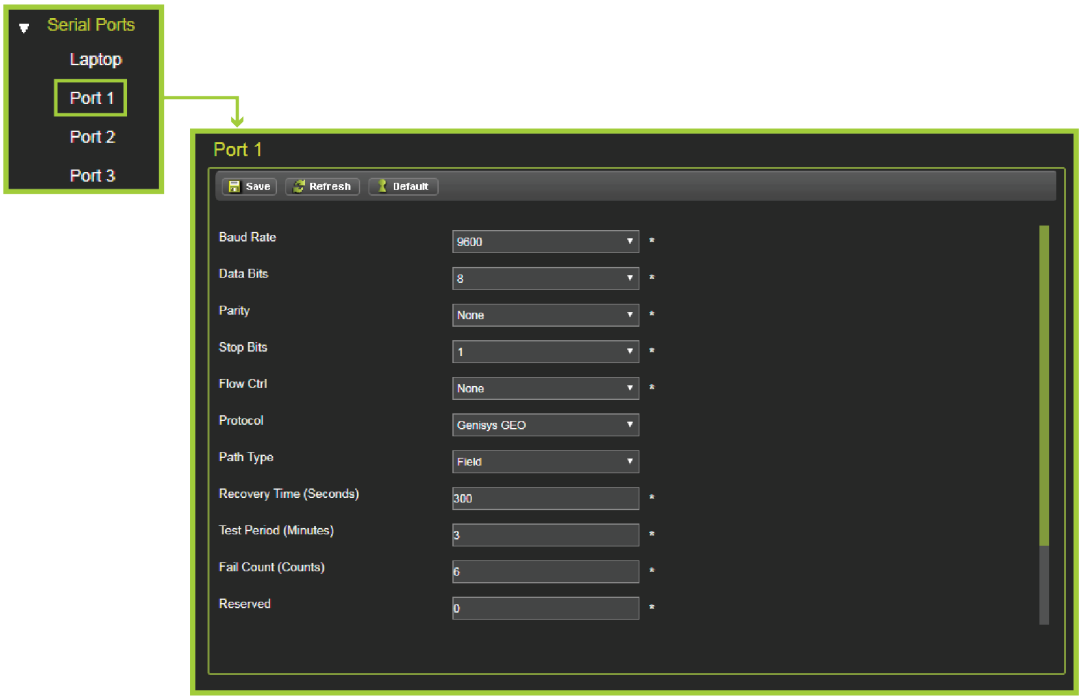

Figure 4-24 Serial Port Configuration Options

- **Serial Ports One through Three Protocol and Path Configuration**

There are 15 Protocols listed for serial ports 1 through 3, however, Genisys GEO is the only protocol currently supported. In addition, there are six Path Types choices while configuring the port, but **Field** is the only supported one in use with Genisys GEO.

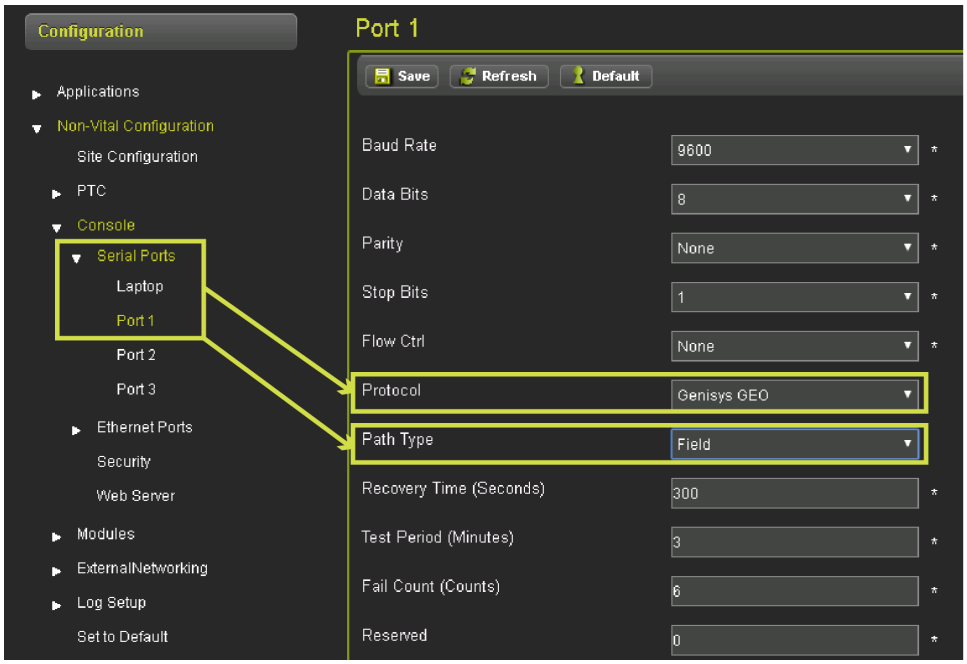

Figure 4-25 Serial Port Protocol Configuration

- **Console Configuration - Ethernet Ports**

Figure 4-26 displays the Ethernet Port configuration screen. Four tabs select the sub-menus. Port 1 through Port 3 are located on the bottom of the console. The DNS tab is used to set the DNS server IP Addresses.

Figure 4-26 Console Configuration - Ethernet Ports

- **Port 1-3 Configuration - Disabled**

The ETH1 through ETH3 Ethernet ports have the same configuration options which includes DHCP options (Disabled and Client), IP Address, Network Mask, Default Gateway, Path Type, Recovery Time, Test Period, Fail Count, Op Traffic Only, RSSI Value, and Protocol settings. No current applications use Office or Field Path types and should be configured with the default (NONE) path type.

- **ETH1, ETH2, ETH3 Port Configuration - Client**

The ETH1 through ETH3 Ethernet ports have the same configuration options which includes DHCP options (Client, and Disabled), Path Type, Recovery Time, Test Period, Fail Count, Op Traffic Only, RSSI Value, and Protocol settings. No current applications use Office or Field Path types should be configured with the default (“None”) Path Type.

NOTE

NOTE

Protocol and **Path Type** should always be set to **None**.

- **DNS Server Configuration**

Three DNS Server IP Address configurations are accessed by selecting the DNS menu as shown in Figure 4-27.

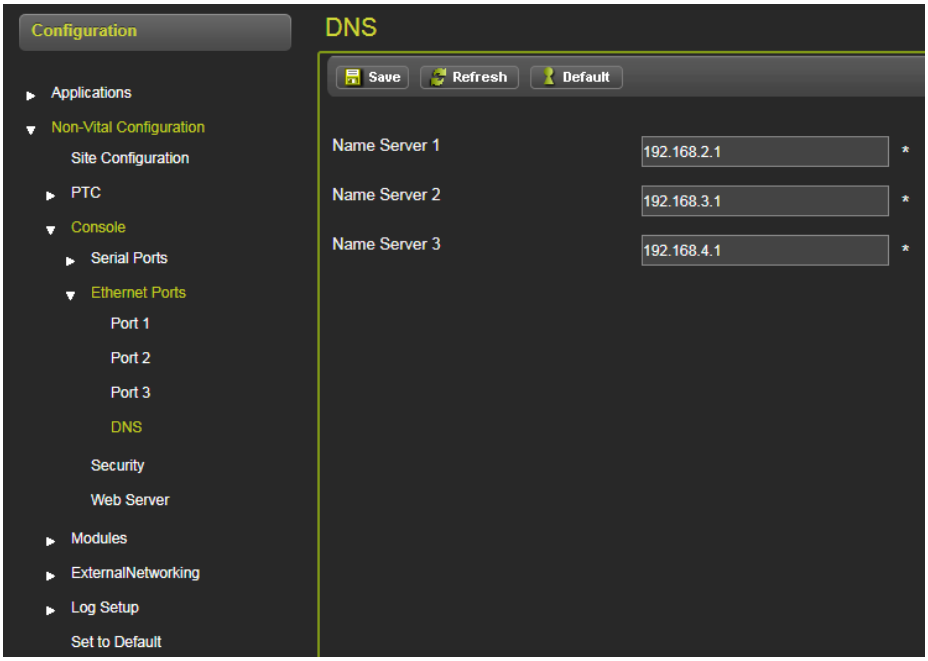

Figure 4-27 Ethernet Port Configuration - DNS

- **Console Configuration - Security**

The Security sub-menu enables configuration of passwords for the WebUI. A session inactivity timer can be set to close the session if left unattended. Display hibernation time and Keypad/Display password completes the list of parameters.

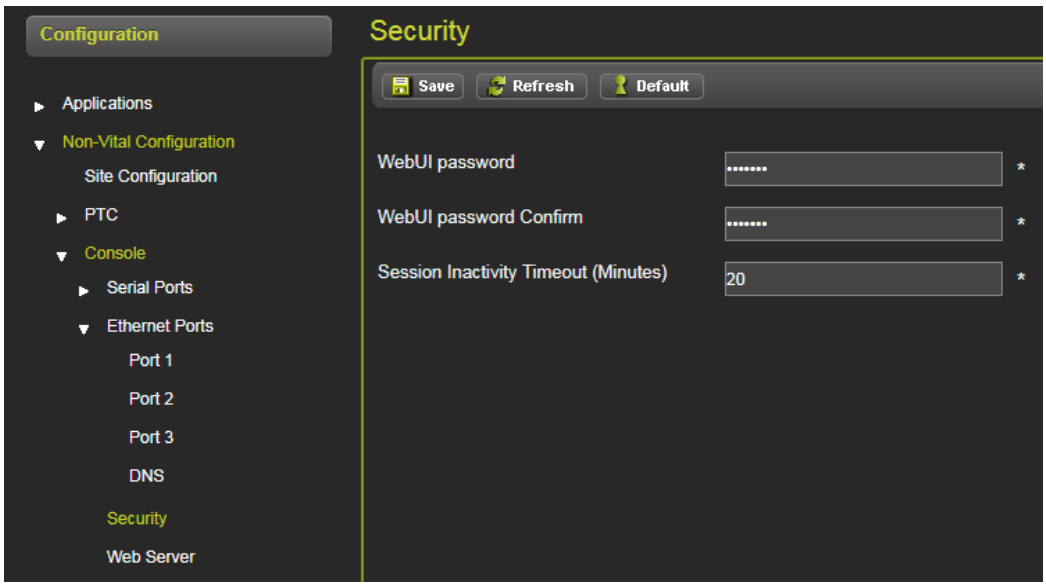

Figure 4-28 Console Configuration – Security

- **Web Server Configuration**

Click on the Web Server text (located below the Security menu) to open the Web Server screen. The Web Server parameter sets the WebUI access security to the PTC Console. Select Secure or Non-Secure (Secure is recommended) and click Save to save the selection.

Figure 4-29 Web Server Configuration

4.1.2.5 Modules

The Modules Menu has one sub-menu: Connections as shown in Figure 4-30.

- **Modules - Connections**

At this time the only module supported is the GEO. Additional modules will be included in future releases. The Connections screen displays the installed modules. To install a new module, click on the desire module slot in the MODULES column. A parameters screen will appear listing the required parameters for the module to be installed. It will be necessary to have the proper UCN number available to complete the installation. Drop-down menus are used on the module Type and Connection Type.

When a PTC GEO site has been selected, the OCE will automatically create connections for each GEO expected in the installation.

NOTE

NOTE

The user must enter the UCN for the GEO that is to be PTC enabled A UCN for each GEO connection is required. If this is not entered correctly, the PTC Console will not be able to PTC Enable that GEO.

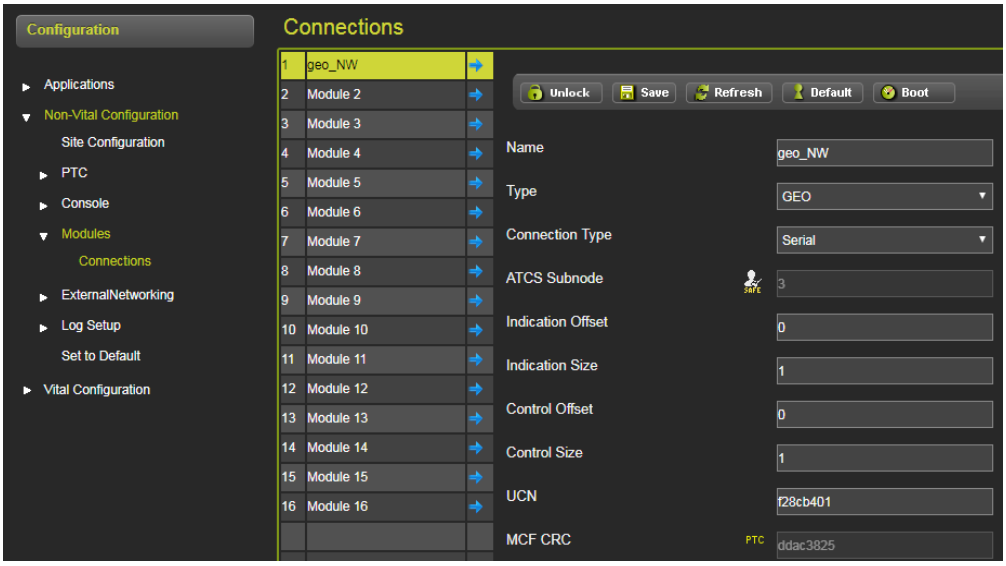

Figure 4-30 Modules - Connections

4.1.2.6 External Networking

To configure the various external networks, click on the External Networking menu. Five sub-menus will appear, but only, Echelon® networks and SNMP are supported external networking methods.

- **Echelon® Network**

The Echelon® menu is a single parameter for entry of the Gateway Node number.

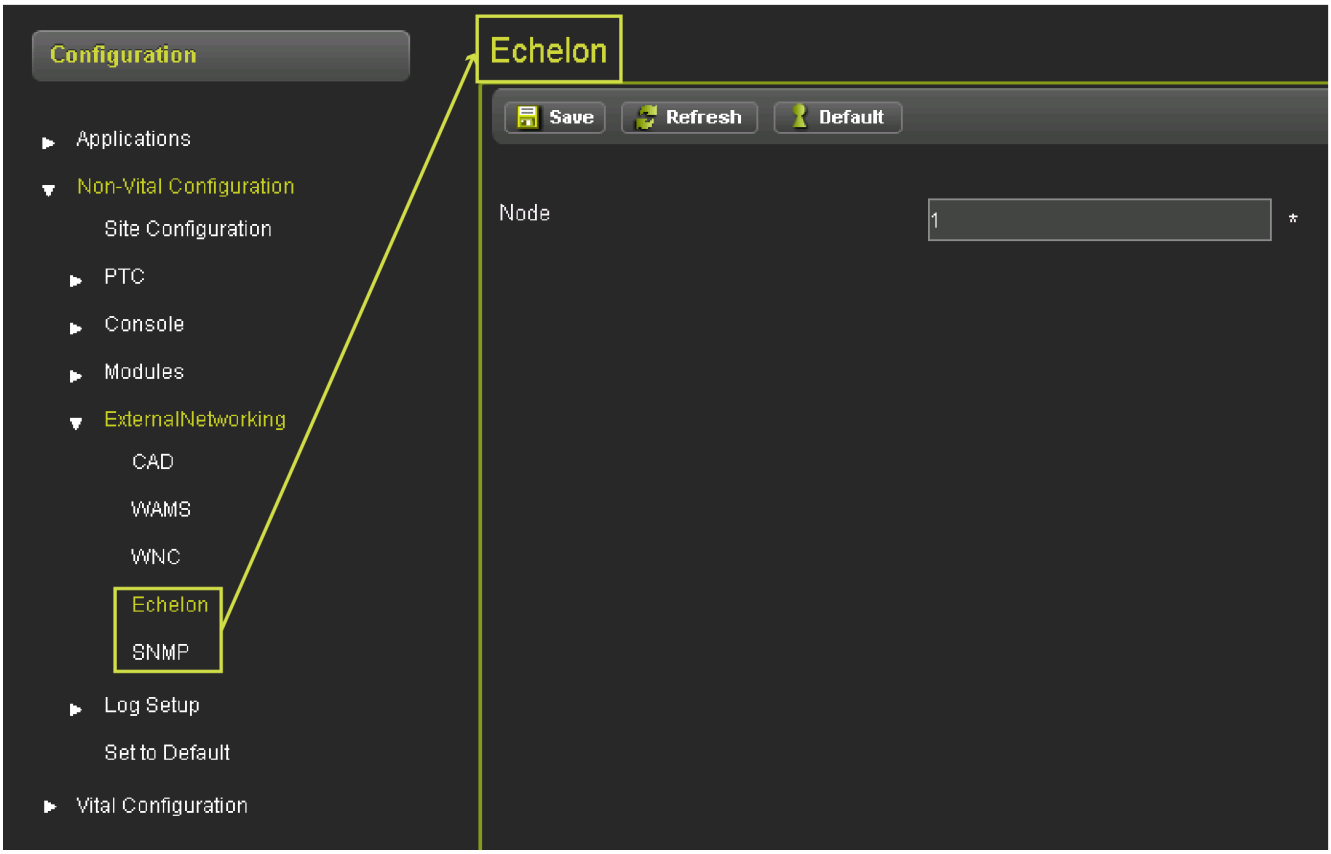

Figure 4-31 Echelon® Node Configuration

- **SNMP**

Enter each Destination IP and Port for up to four destinations [1]. Verify the information and click on the SAVE button [2a] to save any changes or click on the DISCARD button [2b] to remove any changes. The REFRESH button [3] refreshes the screen and the DEFAULT button [4] changes all entries to the original factory default values.

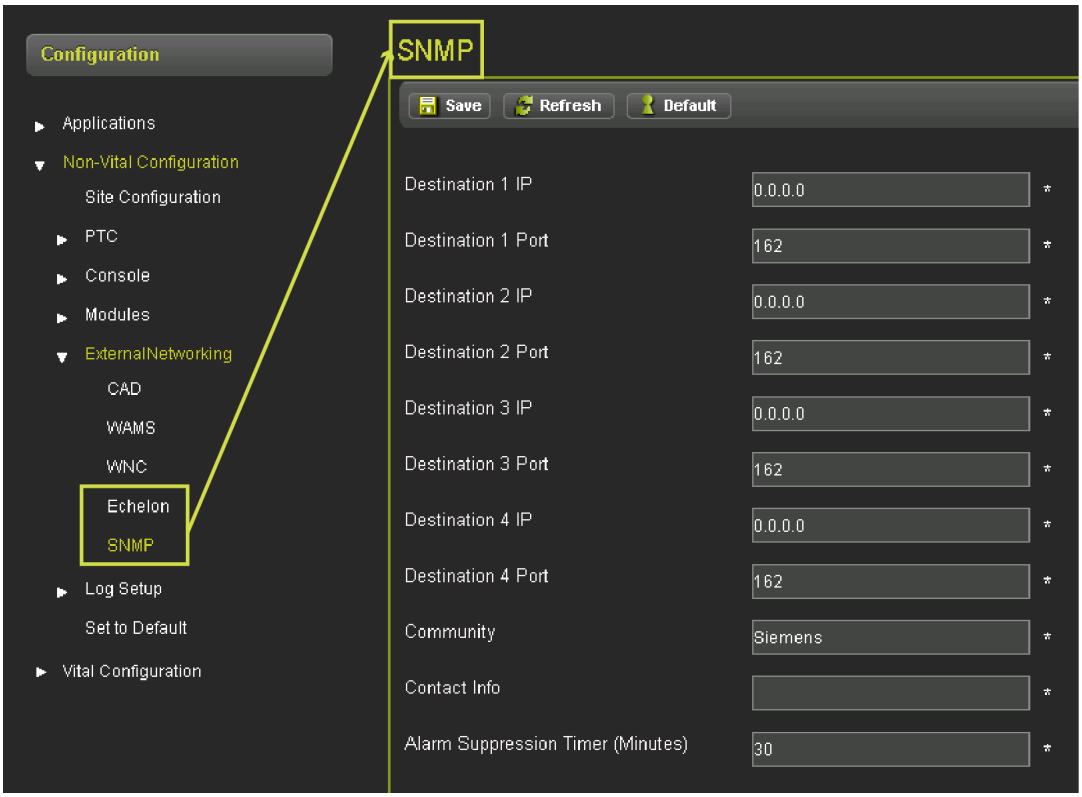

Figure 4-32 SNMP Network Configuration

The Alarm Suppression Timer sets the amount of time the console will suppress CDL applications and Alarms when the On-Site Personnel button is pressed on the console front panel by the Maintainer. The timer can be adjusted from 10 minutes to 180 minutes. The default value is 20 minutes. Operation of the On-Site Personnel function is detailed in Section 5 of this manual.

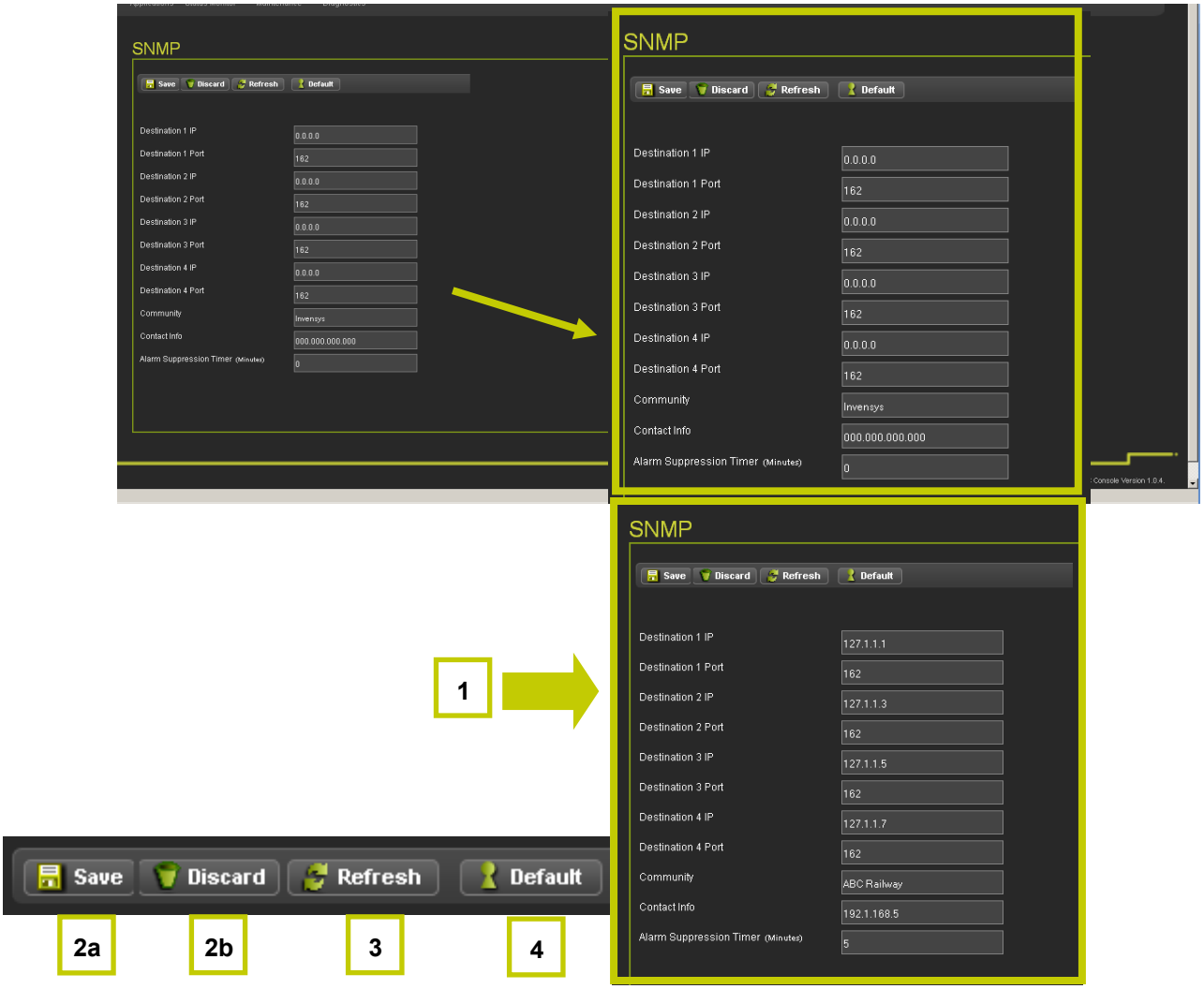

Figure 4-33 SNMP Setup

- **SNMP Traps**

SNMP messages sent from the PTC Console are received in the Back Office. The CDL program defines which alarms are sent.

Table 4-1 SNMP Information

SNMP OID	VALUE	DESCRIPTION
deviceType.0	iVIU	Defines the type of equipment that sent the SNMP trap. For the PTC Console, this field will always contain “iVIU”
dateTime.0	03-May-2012 18:56:13	Date and Time the system created the alert
siteName.0	CP_Safetran_312	This field contains the Site Name, as set in the PTC Console configuration settings.
milePost.0	35.2	This field contains the Milepost Number, as set in the PTC Console configuration settings
spareText2.0		Not used. Reserved for future use.
spareText1.0	2950240fd20218	Not used. Reserved for future use.
alarmPriority.0	4	The priority of the alarm as set by the iVIU’s CDL logic. This value is specific to each alert (see the manual for the specific CDL program).
alarmClearFlag.0	0	Indicates whether this is the alarm or the corresponding clear for the alarm.
alarmText.0	Alarm Enabled Message	The Alarm text as programmed into CDL logic. This value is specific to each alert (see the manual for the specific CDL program).
alarmID.0	2	The Alarm ID number as programmed in the CDL logic. This value is specific to each alert (see the manual for the specific CDL program).
trapNum.0	3	The Trap Number as programmed in the CDL logic. This value is specific to each alert (see the manual for the specific CDL program).
snmpTrapOID.0	1.3.6.1.4.1.3064.3.20.2.2	The ID of the trap in the unit’s MIB. This value is specific to each alert (see the manual for the specific CDL program).
sysUpTime.0	1days22h55m24.59s	System Up Time

4.1.2.7 Log Setup

The Log Setup Menu has three sub-menus for Consolidated Logging, Diagnostic Message Logging Options, and Log Verbosity.

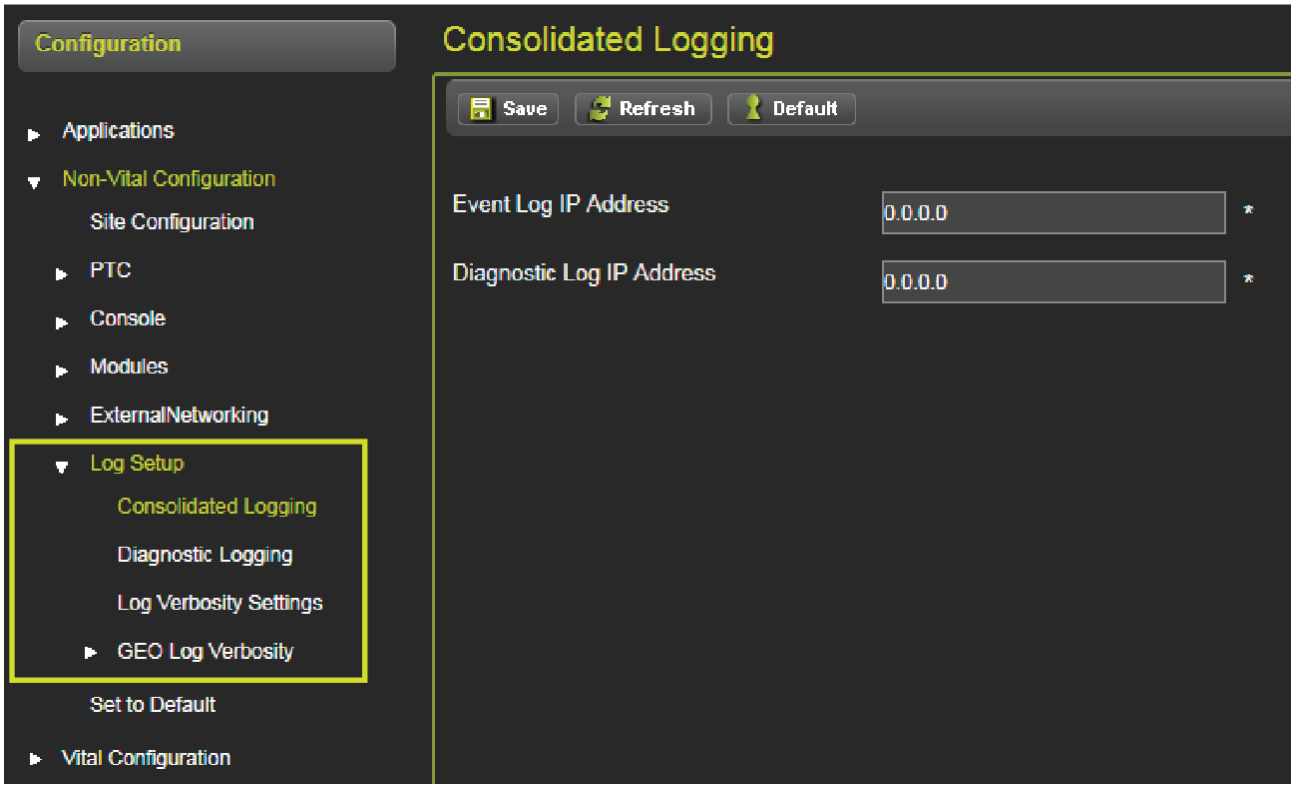

Figure 4-34 Log Setup (Consolidated Logging

- **Consolidated Logging**

Consolidated Logging enables logs to be consolidated to a single location. A log is still held locally, however, reports will be forwarded to a single location. The IP Address for the "collecting" location is entered into the text box. An address is setup for the Event Log and the Diagnostic Log as shown in Figure 4-34.

- **Diagnostic Message Logging Options**

The Diagnostic Message Logging Options screen provides the User the ability to enable or disable thirteen options as shown in Figure 4-35. All options are disabled by default. Each option may be enabled or disabled as desired.

CAUTION

ENABLE ONLY THE LOGGING PARAMETERS NECESSARY. ENABLING TOO MANY PARAMETERS WILL REDUCE THE PERFORMANCE OF THE SYSTEM.

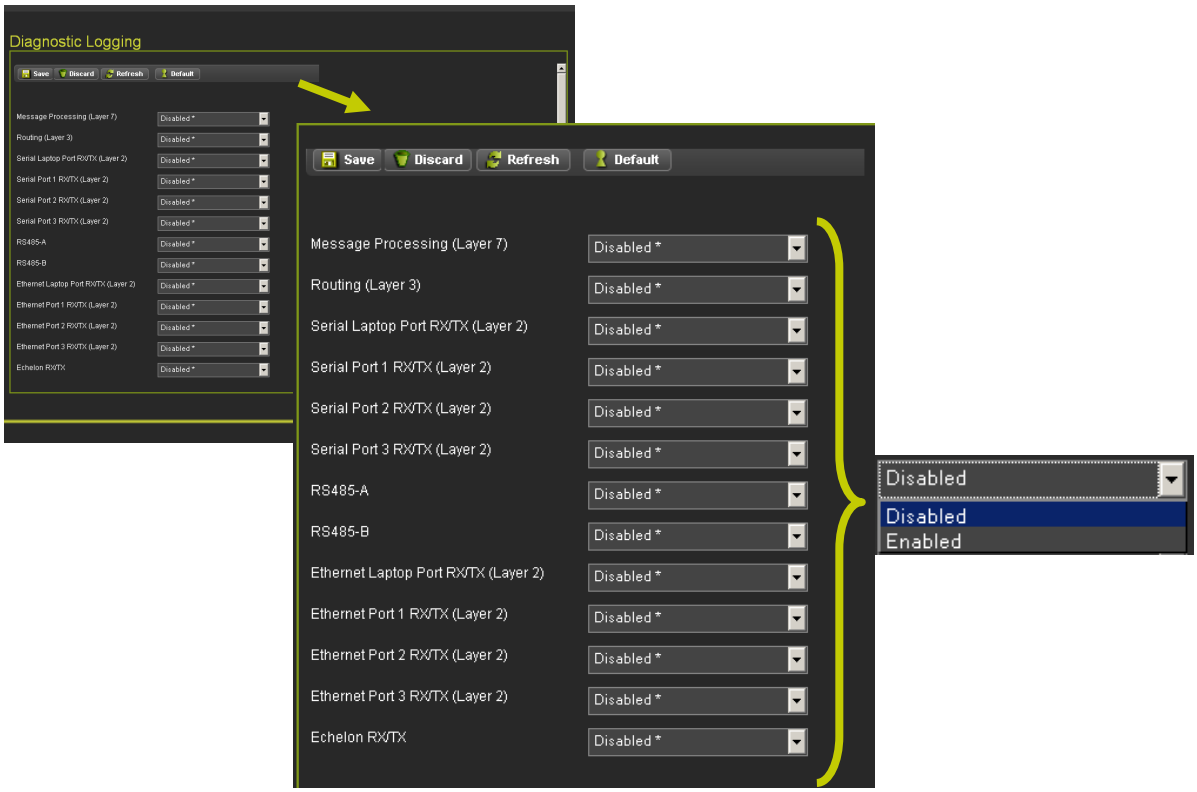

Figure 4-35 Diagnostic Message Logging Options

- **Log Verbosity Settings**

The Log Verbosity may be set to gather information at various levels. Default is Basic which gathers general information. The Error setting will log only error messages while the Warning setting gathers warnings. The Info setting collects the minimum amount of data. On the other hand, the Debug setting gathers all information for troubleshooting purposes.

⚠ CAUTION

CAUTION

ENABLE ONLY THE LOGGING PARAMETERS NECESSARY. ENABLING TOO MANY PARAMETERS WILL REDUCE THE PERFORMANCE OF THE SYSTEM.

Figure 4-36 Log Verbosity Settings

- **GEO Log Verbosity**

The GEO Log Verbosity menu allows the user to set the verbosity level for each GEO slot. The opening screen has a drop-down menu listing the available GEO unit(s). Click on the GEO Address of the unit desired.

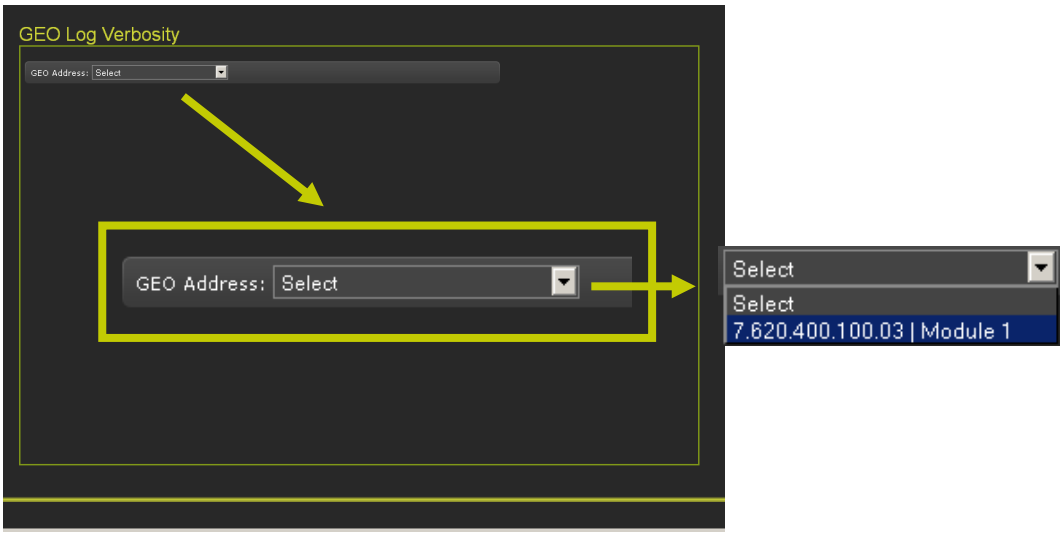

Figure 4-37 GEO Log Verbosity - GEO unit selection

- **GEO Log Verbosity - Slot Selection and GEO Log Verbosity/Level**

After selecting the desired GEO unit, a new screen will display the drop-down menus for Slot selection and GEO Log Verbosity/Level.

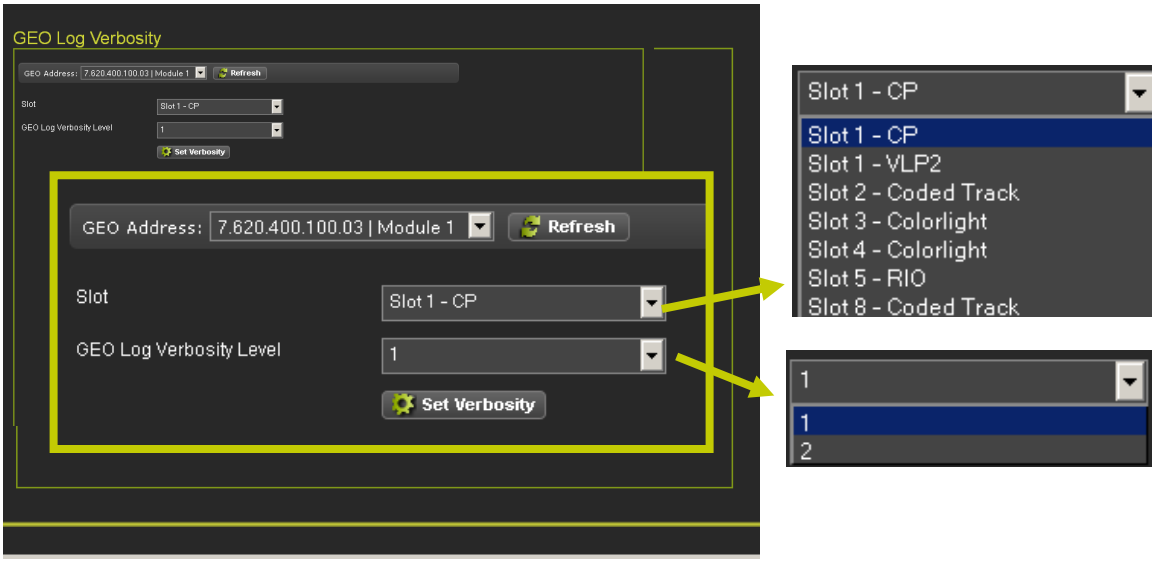

Figure 4-38 GEO Slot Selection and GEO Log Verbosity/Level

4.1.2.8 Non-Vital Set to Defaults

The final configuration menu is the Non-Vital **Set to Default** function. Activation of this function will reset all parameters to their original factory settings. All previous user settings will be lost and are not recoverable.

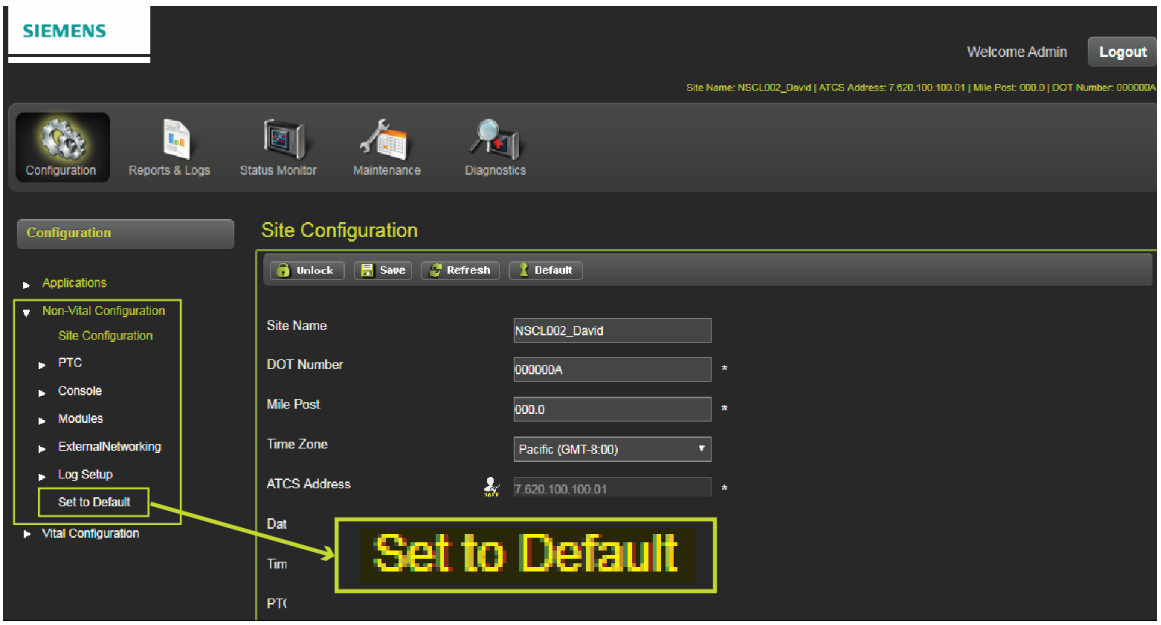

Figure 4-39 Set to Default

NOTE

Setting all parameters to factory default will clear any configuration parameters and return all settings to the factory default. This may cause the PTC Console to enter safe mode and will require new configuration and setup to restore the console operation.

4.1.3 Report and Logs

The Reports and Logs menu has five sub-menus: Event Logs, Reports, GEO Configuration Report, GEO Logs, and GEO Software Info, as shown in Figure 4-40.

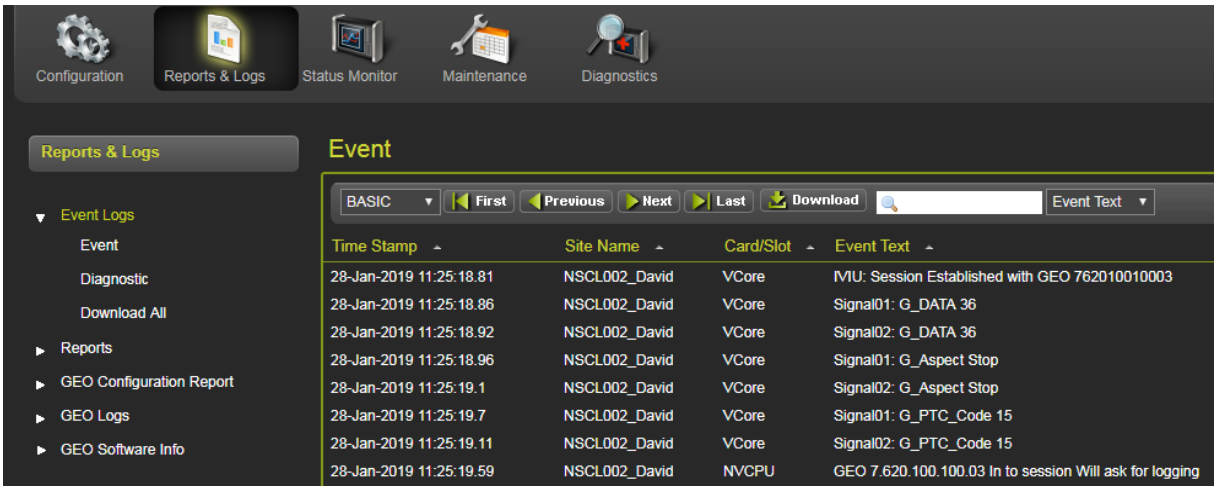

Figure 4-40 Reports and Logs Menus

4.1.3.1 Event Log

The Event Log records events based on the configured verbosity. There are three retrieval methods available.

- **Event Log - Basic**

The Basic log is the default retrieval method. The Basic search of the Event Log is shown in Figure 4-41. Buttons are included to navigate to the beginning or the end of the log. The number of entries is selectable from 50 to 500 entries per page in six increments. An All Events button may be selected to download all available events.

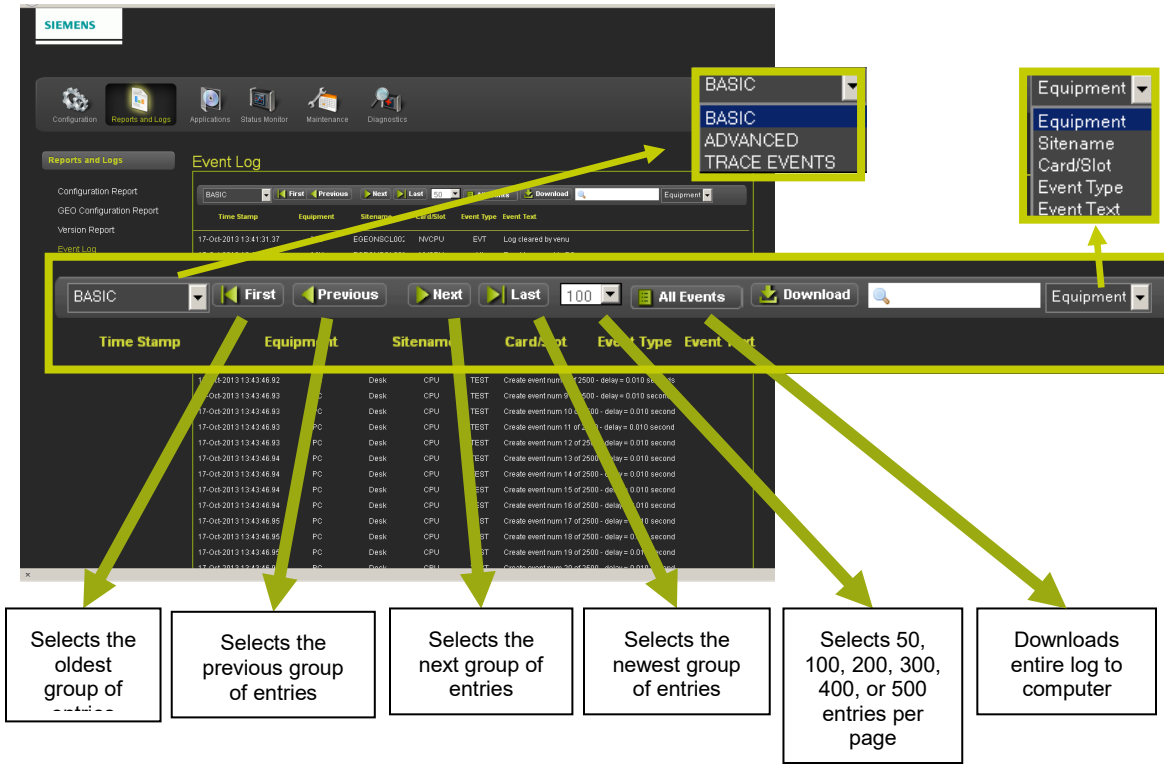

Figure 4-41 Event Log - Basic Search

- **Event Log - Advanced**

The Advanced search of the Event Log enables the user to search a particular time period in the log, saving searching the entire log for information desired. The same Basic search navigation is included in addition to the Advanced search features as shown in Figure 4-42.

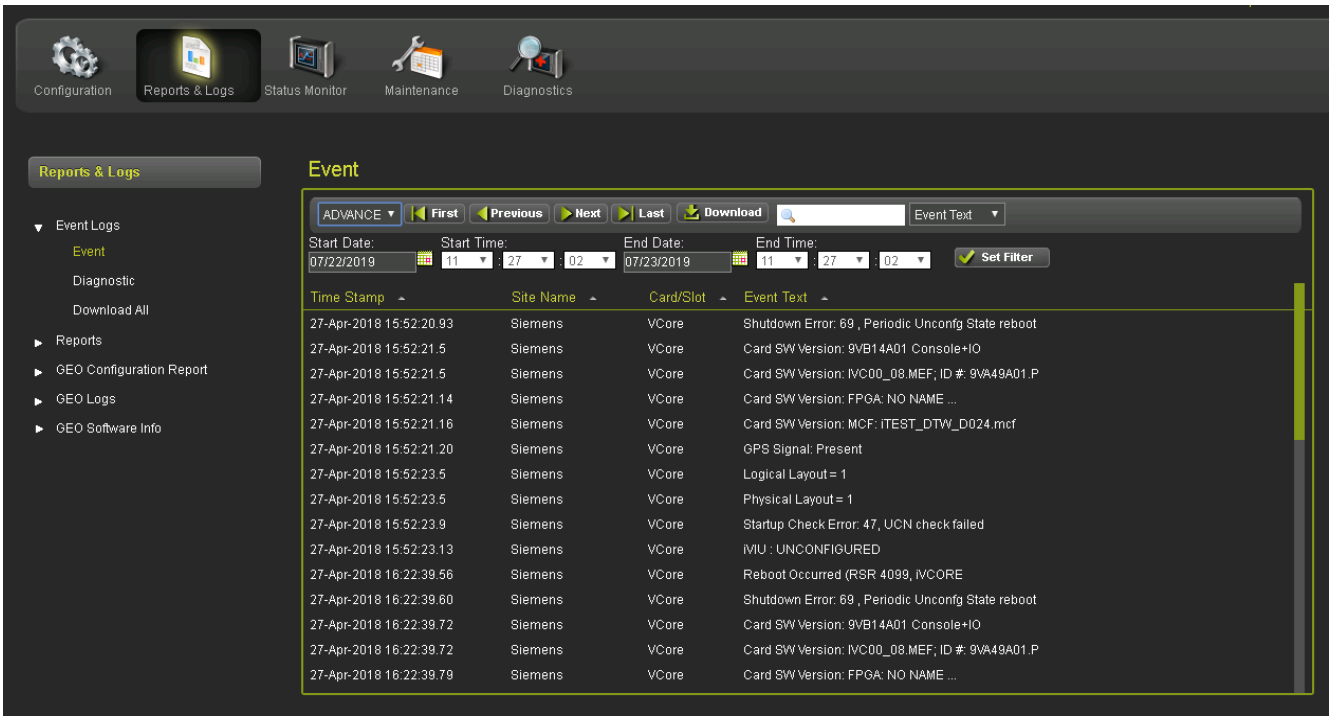

Figure 4-42 Event Log - Advanced

- **Event Log - Trace Events**

The Trace Events option enables the User to see events as they come in. Click on the **Start** button to start tracing events. The screen refreshes every five seconds so events can be viewed in near real time. Click the **Stop** button to halt tracing events. Figure 4-43 displays the Trace Events navigation buttons.

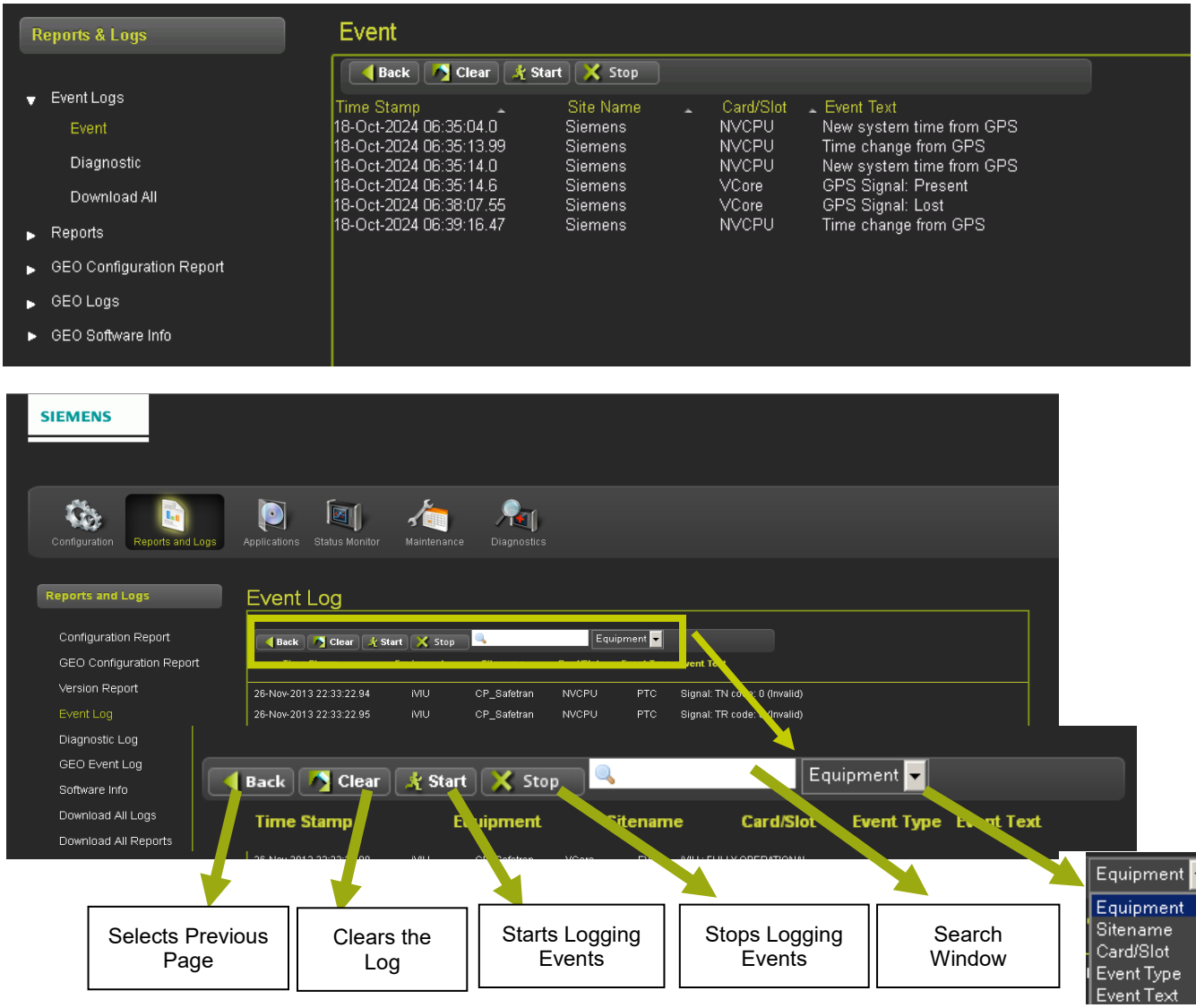

Figure 4-43 Event Log - Trace Events

4.1.3.2 Configuration Report

The configuration reports lists all of the parameter settings currently programmed into the system. Click on the **Create** button to generate the Configuration Report or click on **Download** to download the report to a computer.

Figure 4-44 Create or Download Configuration Report

Figure 4-45 shows a completed creation of a Configuration Report.

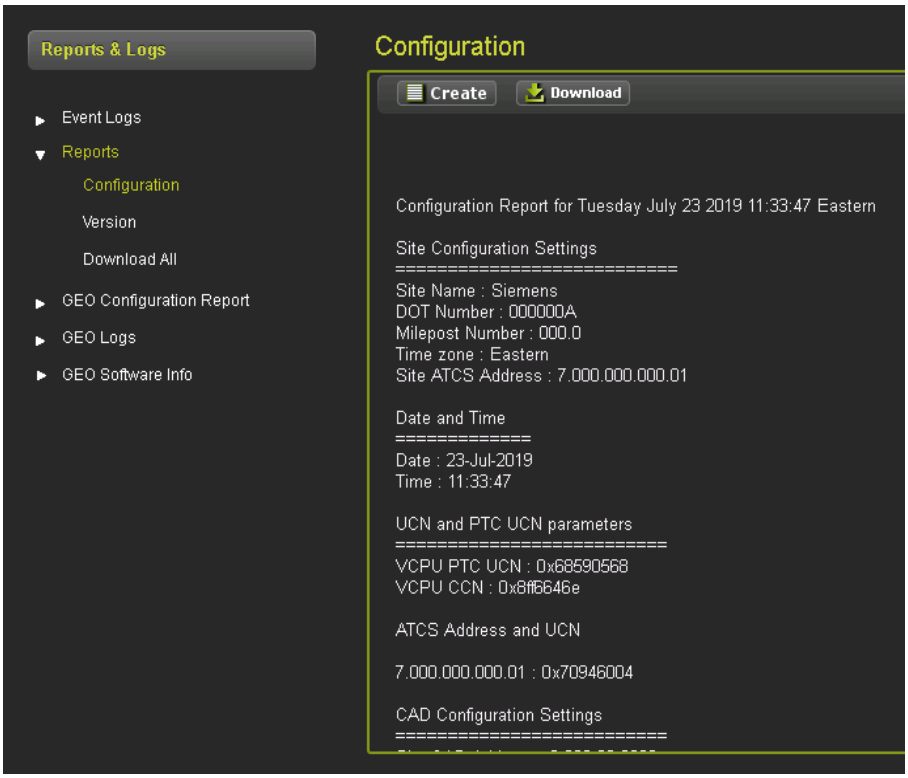

Figure 4-45 Configuration Report display

4.1.3.3 GEO Configuration Report

The GEO Configuration Report provides software and hardware information for the modules installed in the GEO unit. Figure 4-46 shows an example of the GEO Configuration Report.

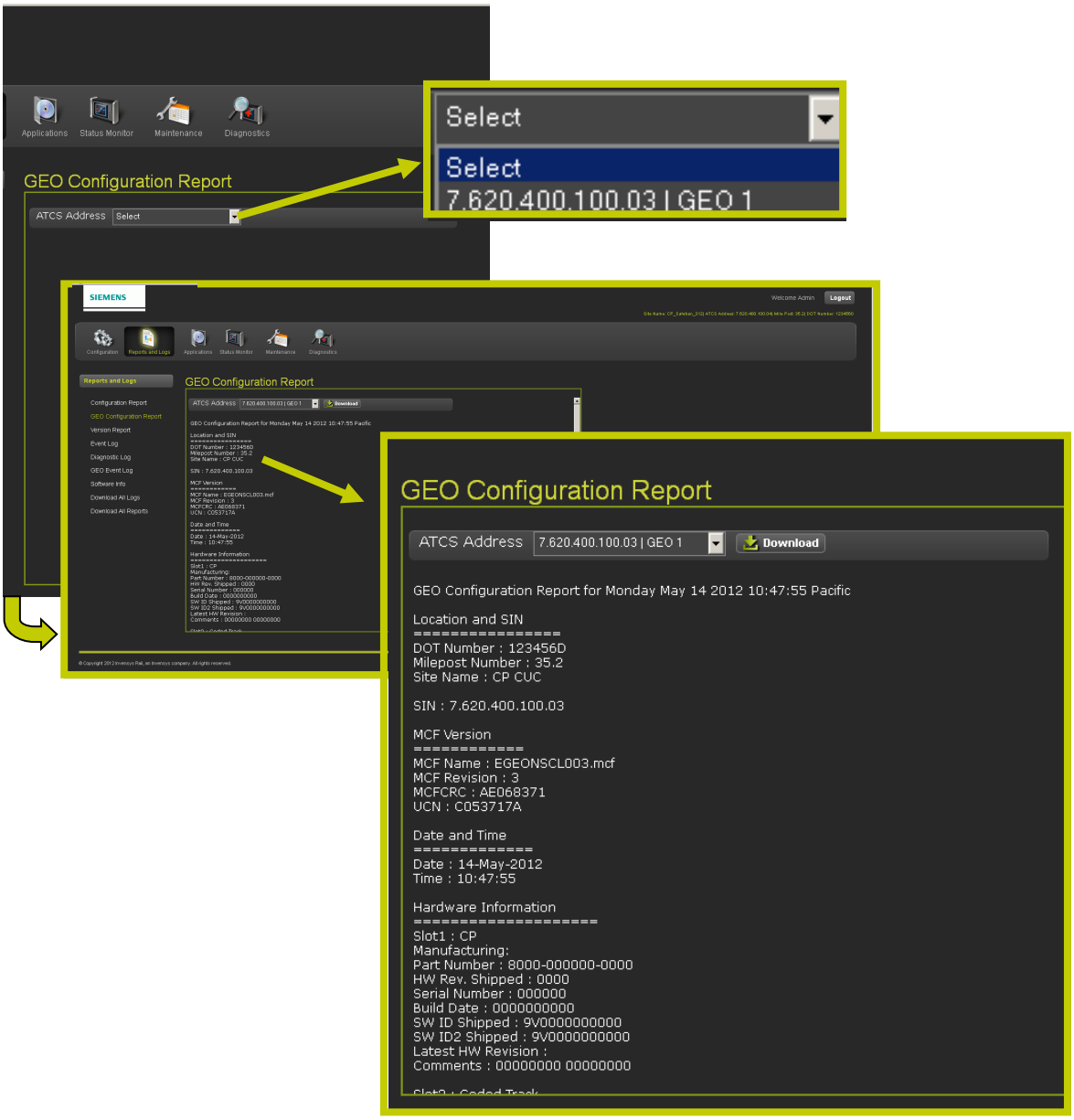

Figure 4-46 GEO Configuration Report

4.1.3.4 Version Report

The Version report lists all the hardware and software version information. Click on the "Create" button to generate the Version Report or click on "Download" to download the report to a computer.

Figure 4-47 Create or Download Version Report

Figure 4-48 shows a completed creation of a Version Report

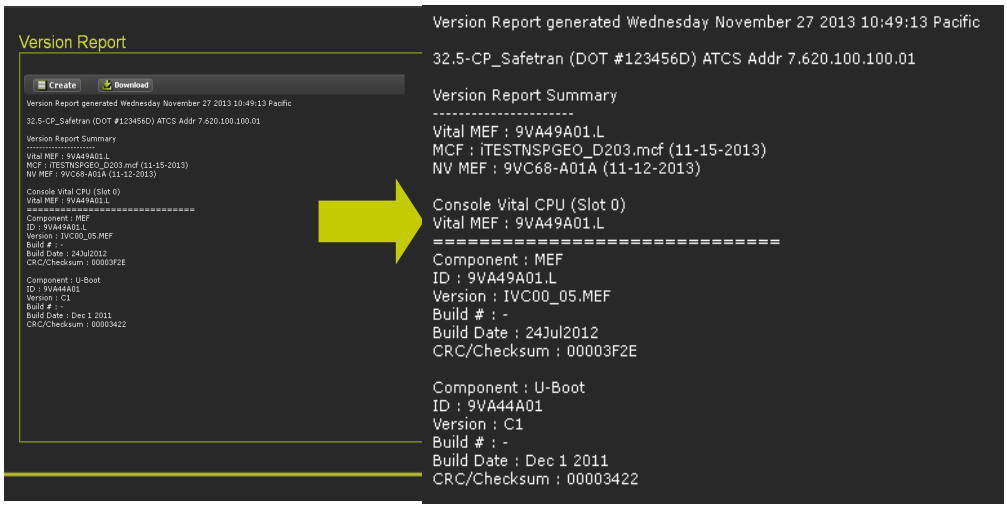

Figure 4-48 Version Report

4.1.3.5 Diagnostic Log

The Diagnostic Log records events based on the configured verbosity. There are three retrieval methods available.

- **Diagnostic Log - Basic**

The Basic search of the Event Log is shown in Figure 4-49. Buttons are included to navigate to the beginning or the end of the log. The number of entries is selectable from 40 to 80 entries per page in 10 entry increments or All entries may be selected.

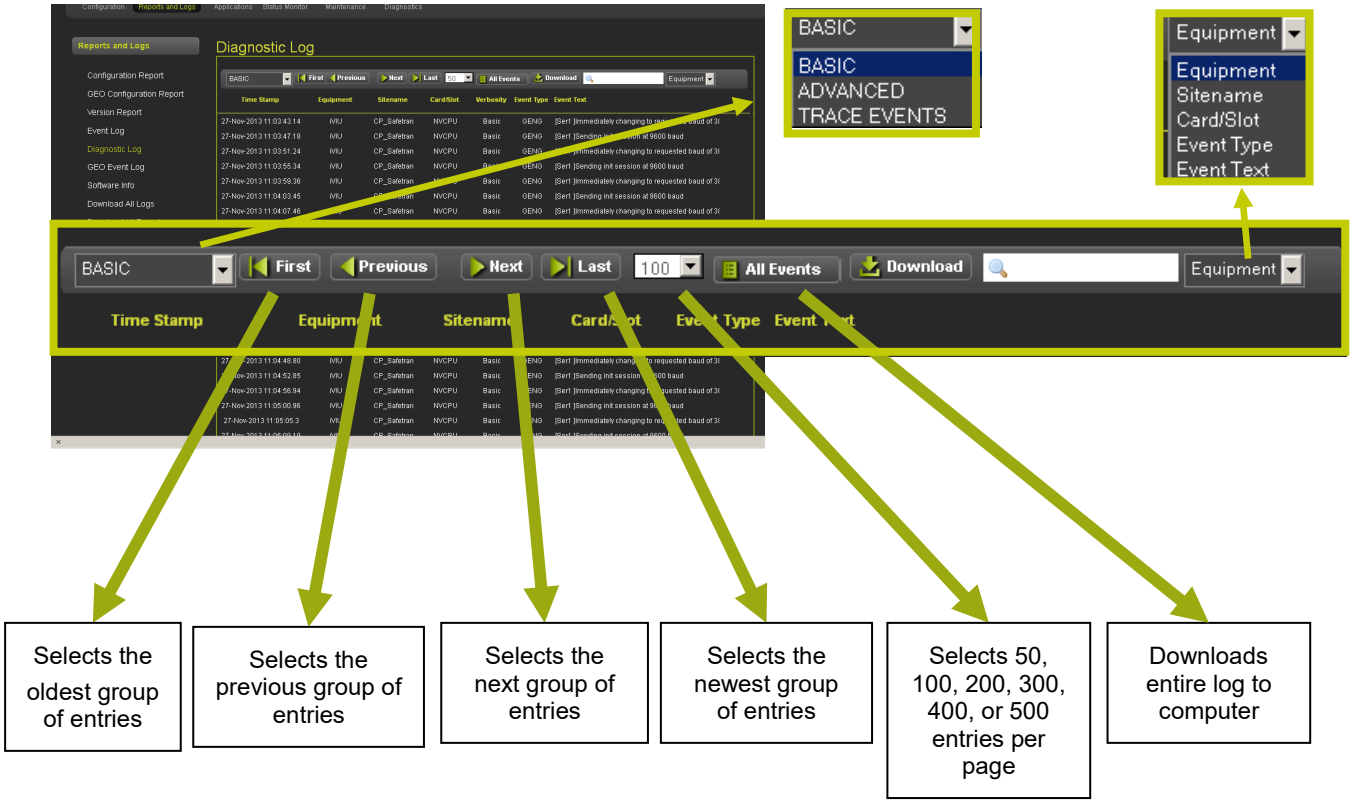

Figure 4-49 Diagnostic Log - Basic

- **Diagnostic Log - Advanced**

The Advanced search of the Diagnostic Log enables search a particular time period in the log saving searching the entire log for information desired. The same Basic search navigation is included in addition to the Advanced search features as shown in Figure 4-50.

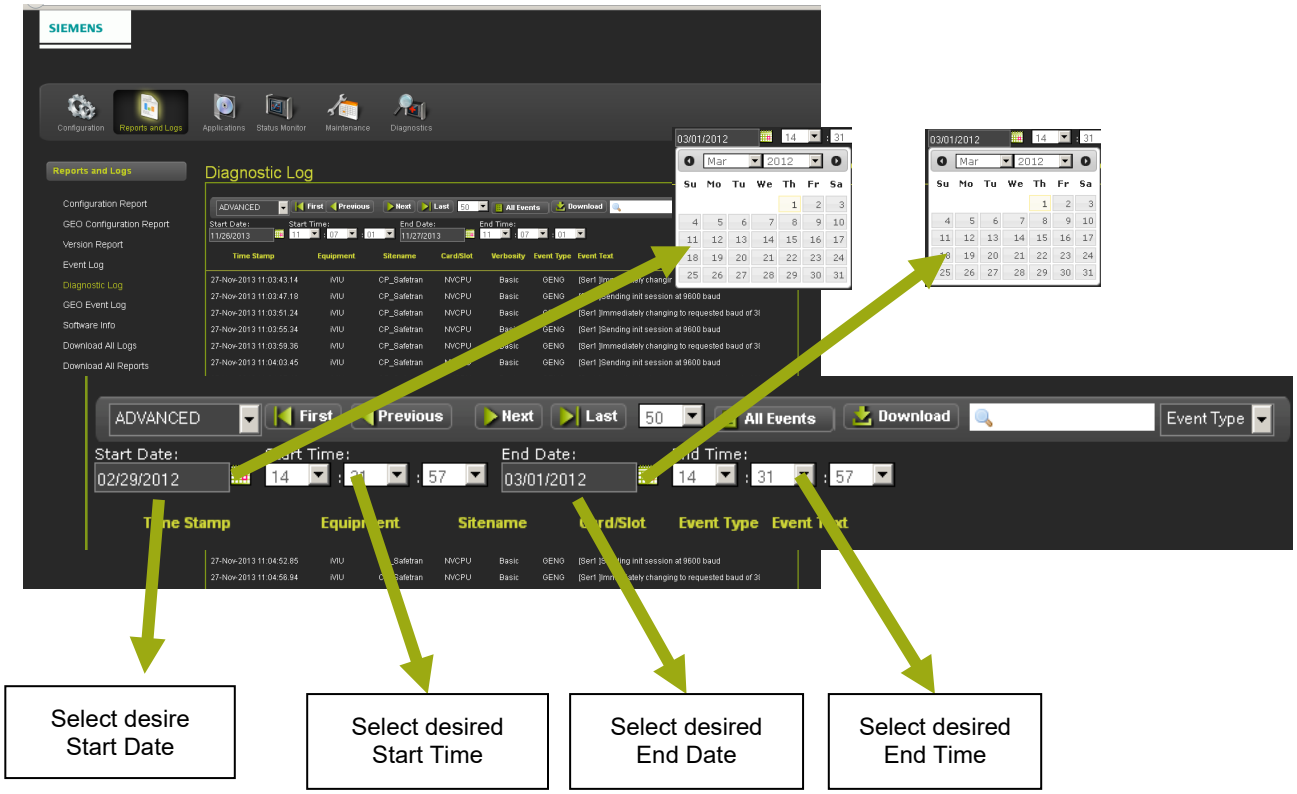

Figure 4-50 Diagnostic Log - Advanced

- **Diagnostic Log - Trace Events**

The Trace Events option enables the User to see events as they come in. Click on the START button to start tracing events. The screen refreshes every five seconds so events can be viewed in near real time. Click the STOP button to halt tracing events. Figure 4-51 displays the Trace Events navigation buttons.

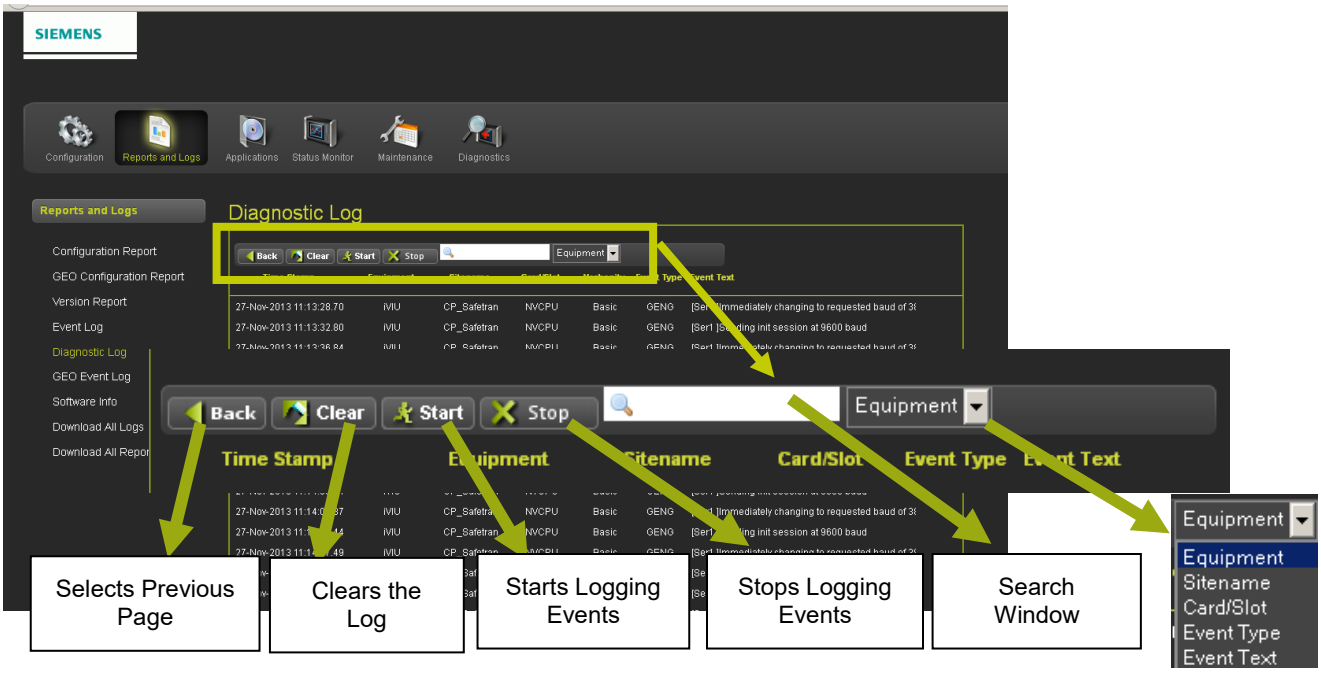

Figure 4-51 Diagnostic Log - Trace Events

4.1.3.6 GEO Event Log

If one or more GEO devices are installed a GEO Event Log is available to track GEO Status or Error events. A separate log is generated for each device. Logs are retrieved by selecting the ATCS Address of the GEO and the Slot number.

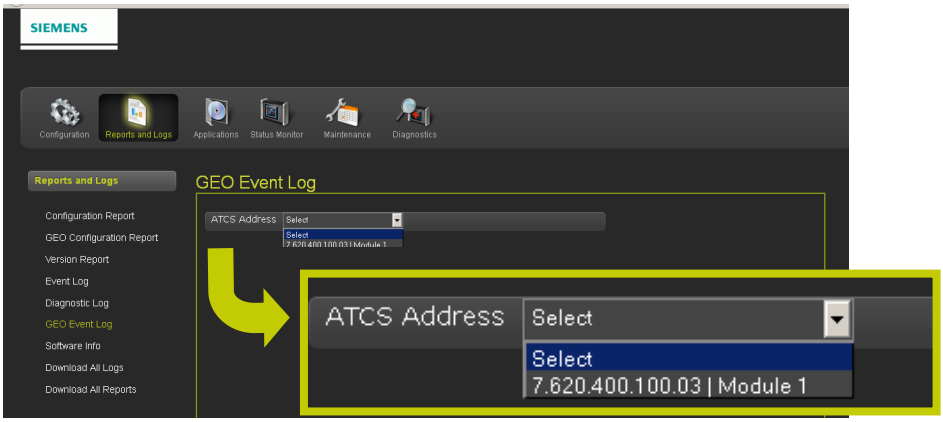

Figure 4-52 GEO Event Log

- **GEO Event Log Navigation**

Navigation for the GEO Event Log has status or summary log selection and a Slot drop-down menu that enables selection of each available slot. Navigation buttons enable selection of the desired portion of the log for viewing.

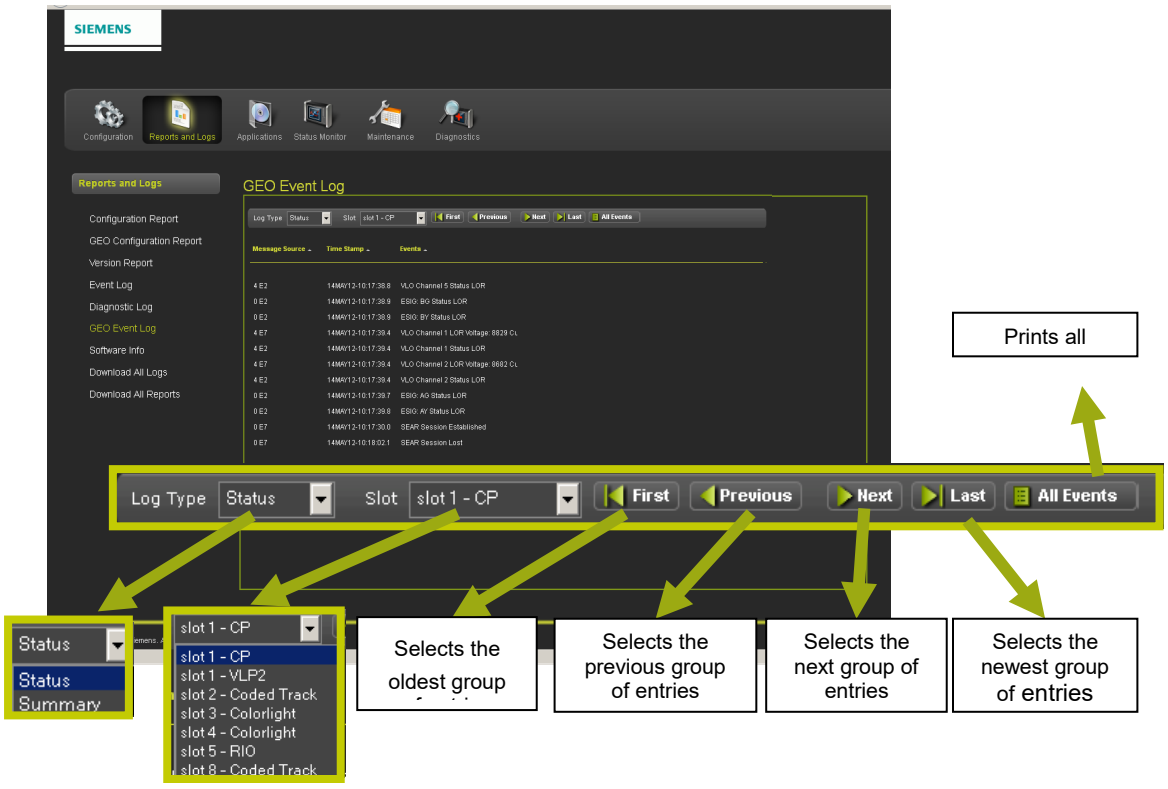

Figure 4-53 Geo Event Log Navigation

4.1.3.7 Software Info

The Software Info Menu opens with a drop-down menu listing the available module ATCS Addresses. Click on the desired module.

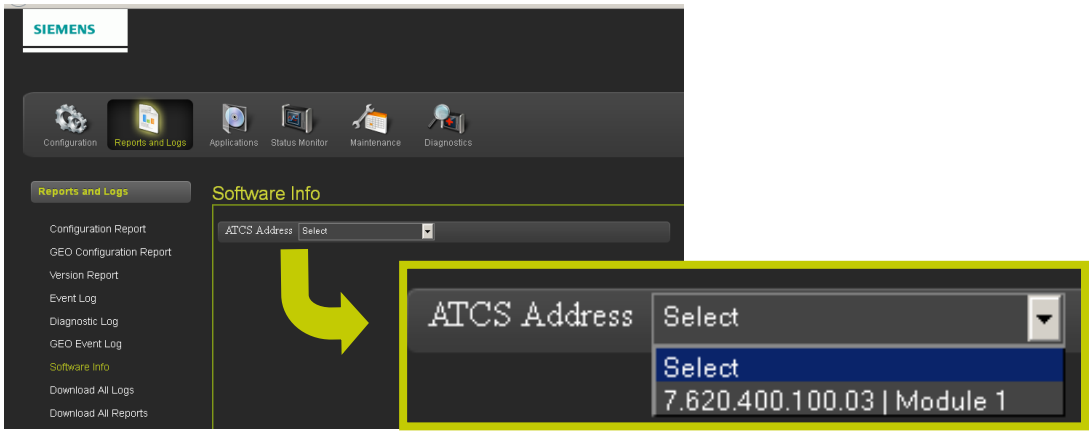

Figure 4-54 Software Info - Select Module ATCS Address

An information list will generate with information on the software installed including version, UCN, MCFCRC, Slot location, current verbosity setting depending on the type of software. Click the DOWNLOAD button to save the listing to a computer file.

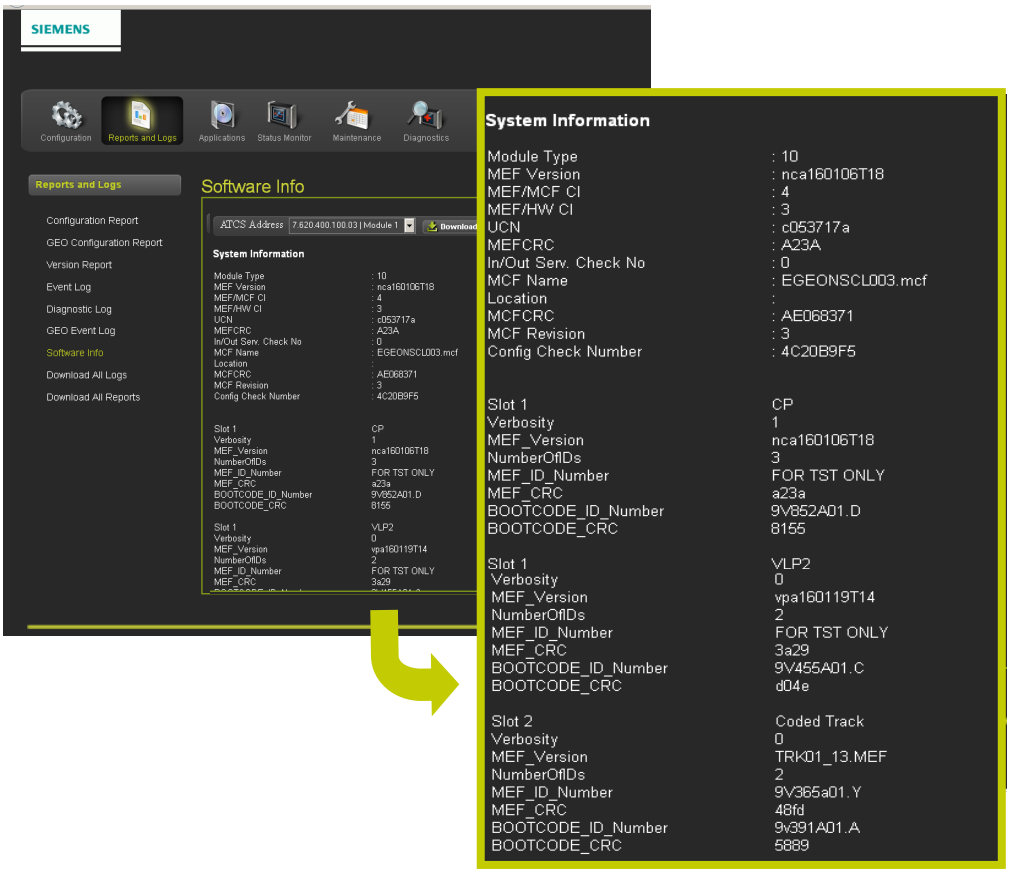

Figure 4-55 Software Info List

4.1.3.8 Download All Logs

The Download All Logs menu will download all three logs. The date and time may be selected to define the time frame of the logs. The Date is selected using pop-up calendars on the Start Date and End Date text boxes. The Time is selected using the drop-down boxes for hours, minutes, and seconds for the start time and the end time as shown in Figure 4-56.

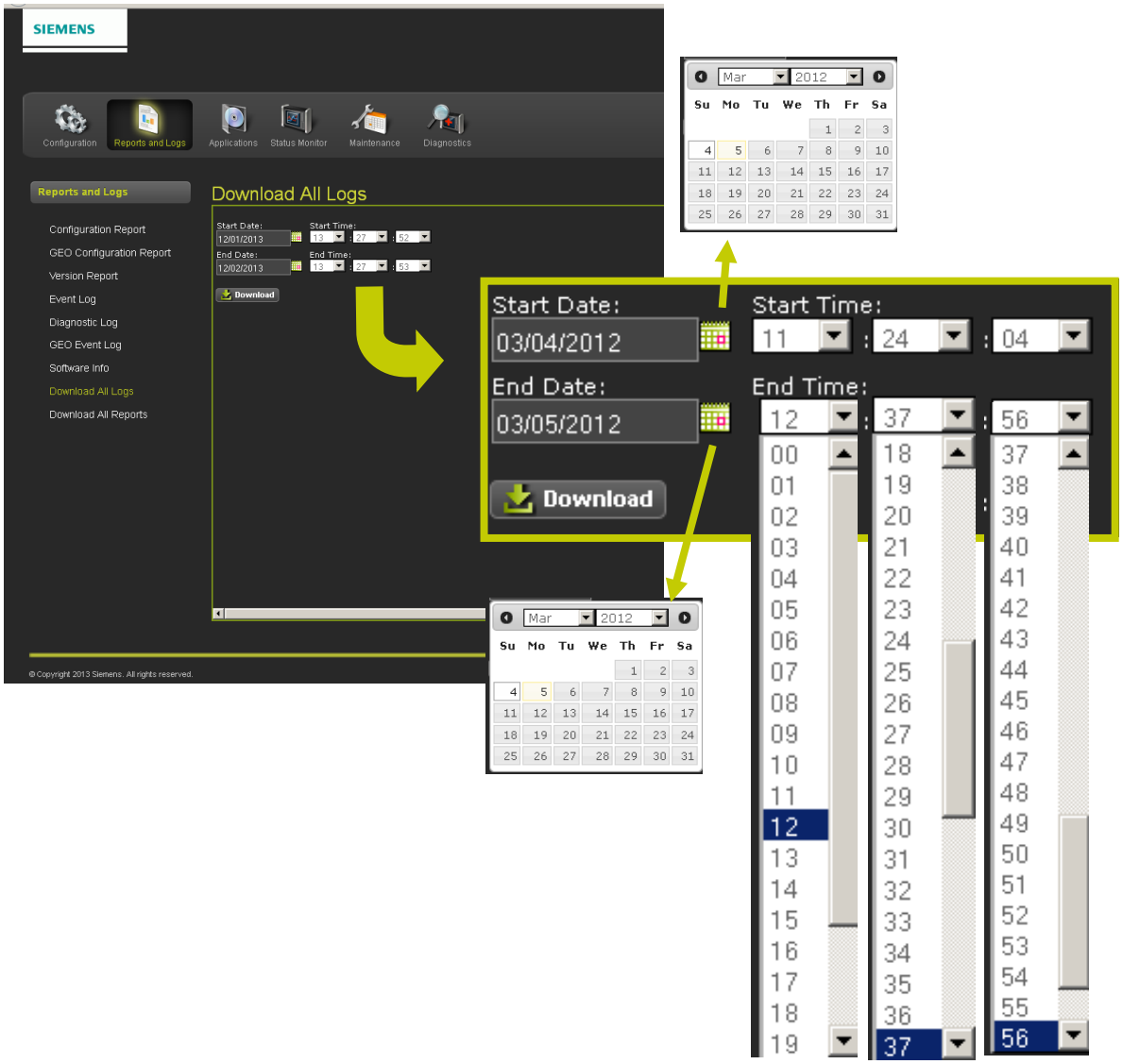

Figure 4-56 Download All Logs - Start and End Date/Time

- **Download All Logs - Viewing and Saving**

Once the starting and ending date and time has been selected, click on the download button. The download will start and will show progress on the screen. When the download is complete a pop-up window will appear to enable viewing or saving the logs as shown in Figure 4-57 below.

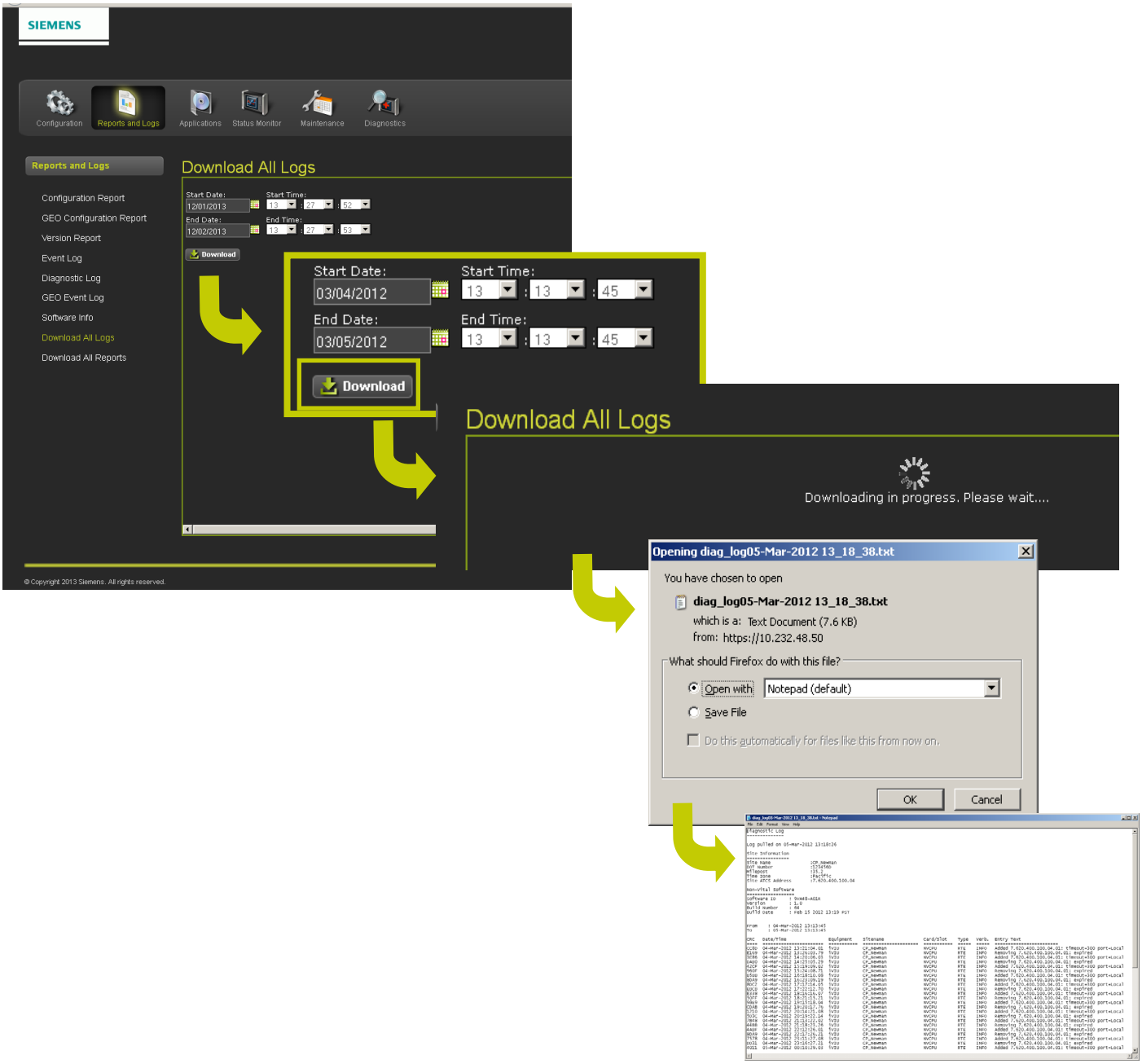

Figure 4-57 Viewing and Saving Logs

4.1.3.9 Download All Reports

The Download All Reports menu has a single DOWNLOAD button. Click on the button to download all of the reports. When the download is complete, a pop-up will appear for viewing or saving the reports as shown in Figure 4-58.

Figure 4-58 Downloading All Reports

4.1.3.10 CDL (Control Description Language) Files

To access CDL Menu, select Applications icon from menu bar, then, under Applications column, select CDL.

The CDL Menu enables uploading and running CDL applications. To upload a CDL file, click on the Upload CDL button. Click on the Browse button [4] and select the desired CDL file from the stored location and click on the Open button [5]. The selected CDL file will appear in the CDL File text box. Click on the Upload File button [6] to upload the file.

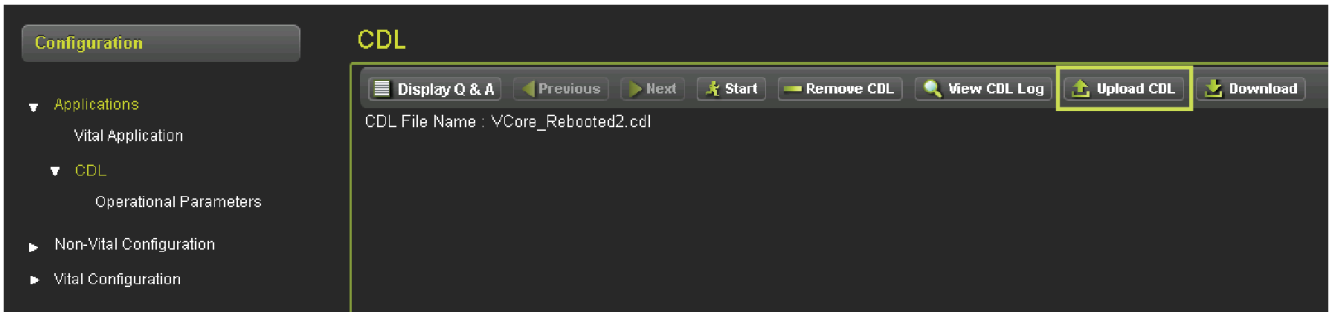

Figure 4-59 Selecting CDL

- **Running CDL Files**

To run a CDL file, click on the **Start** button. A CDL may have more than one file. A list of files will appear. Select the desired CDL file.

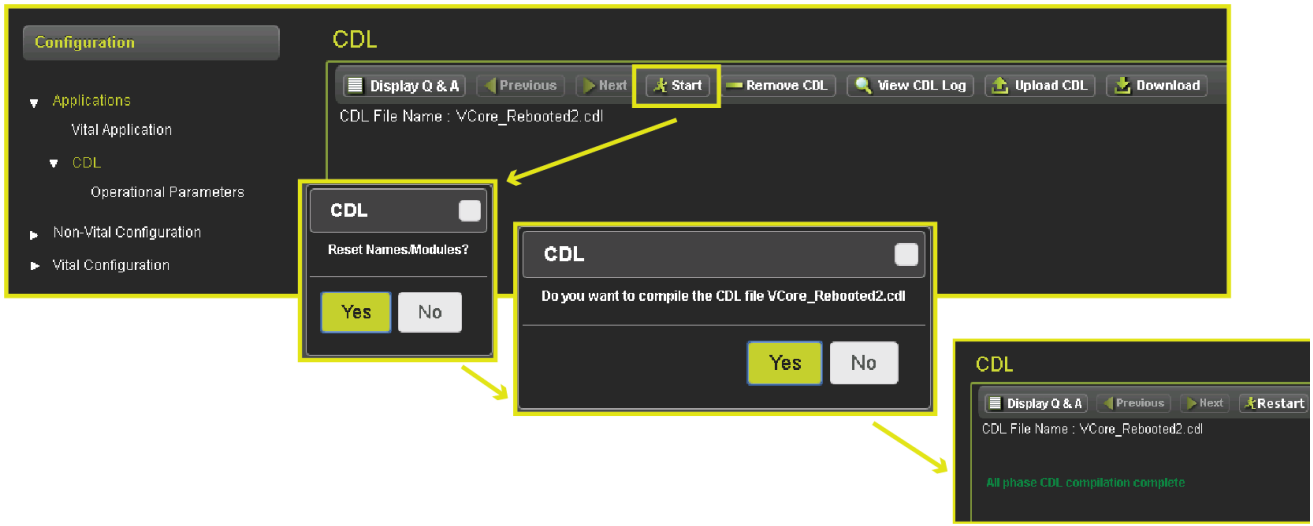

Figure 4-60 Running CDL Files - Start File

Select the answer to the next question (in this case Yes or No)

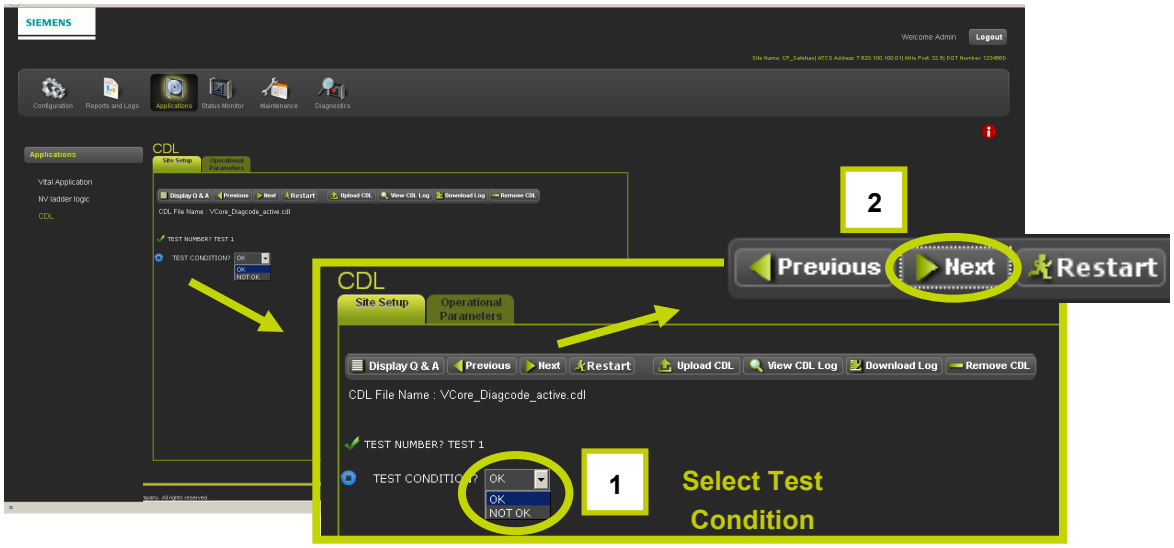

Figure 4-61 Running CDL Files - Sequence File

Continue to click the NEXT button to continue until the end of the sequence is reached. All tests should have a green check if the test was successful.

\

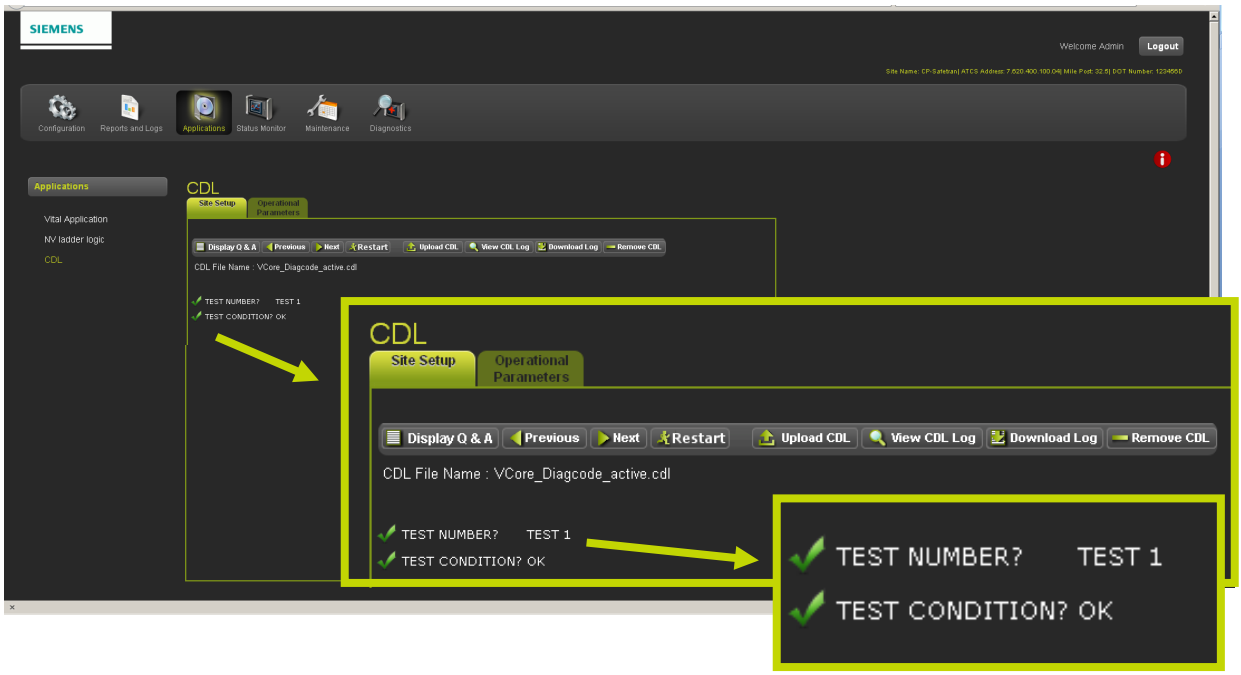

Figure 4-62 Successful CDL File Run

The final step is to compile the CDL file. Click the **Next** button [1] as shown below.

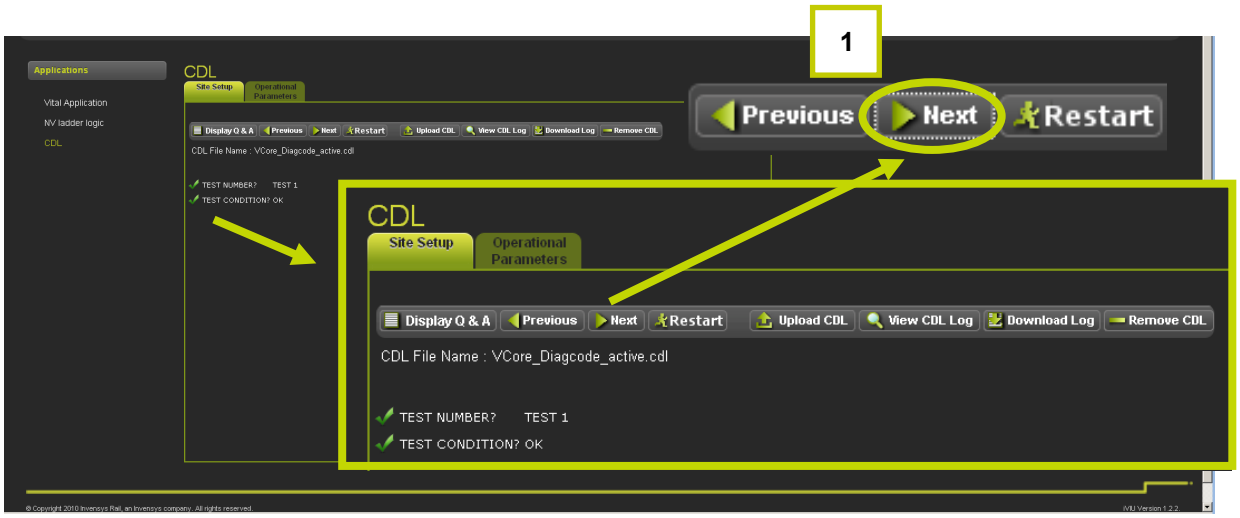

Figure 4-63 Compile CDL File

A pop up window will appear asking to the user if they want to compile the CDL file. Click on the OK button to continue as shown in the figure below.

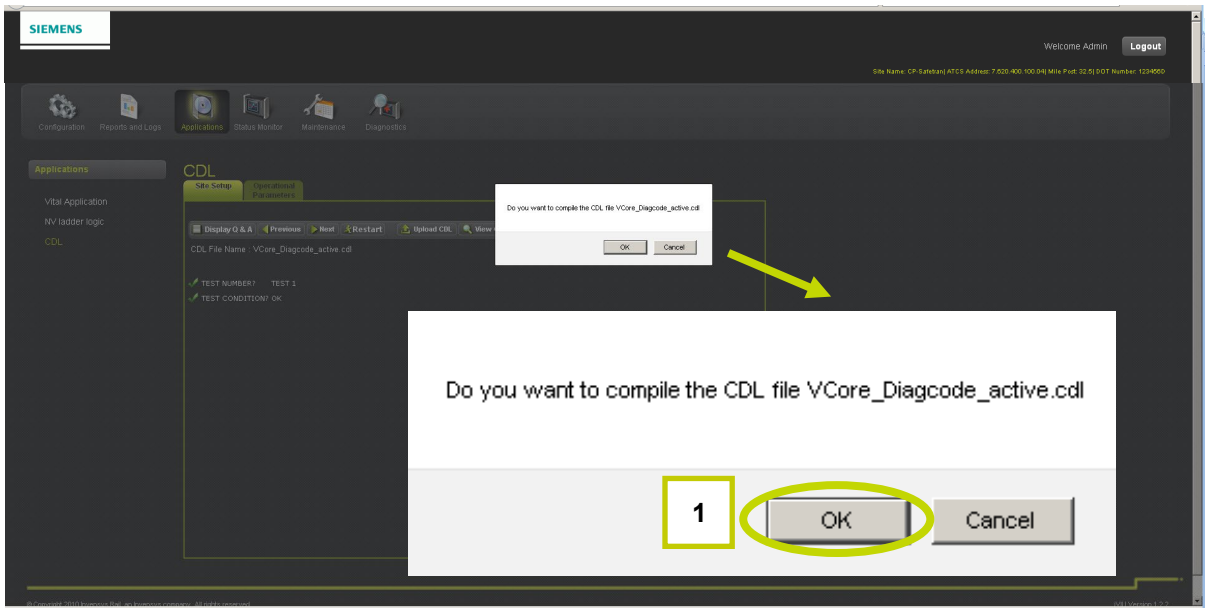

Figure 4-64 Confirm CDL Compilation

A confirmation text will appear to confirm the compilation was successful.

Figure 4-65 Verification of Successful CDL Compilation

- **View or Download CDL Log**

The CDL Log displays the compiling of the CDL file (both successful and failed files). To view the CDL Log, click on the View CDL Log button. To download the log to a computer file, click on the Download Log button.

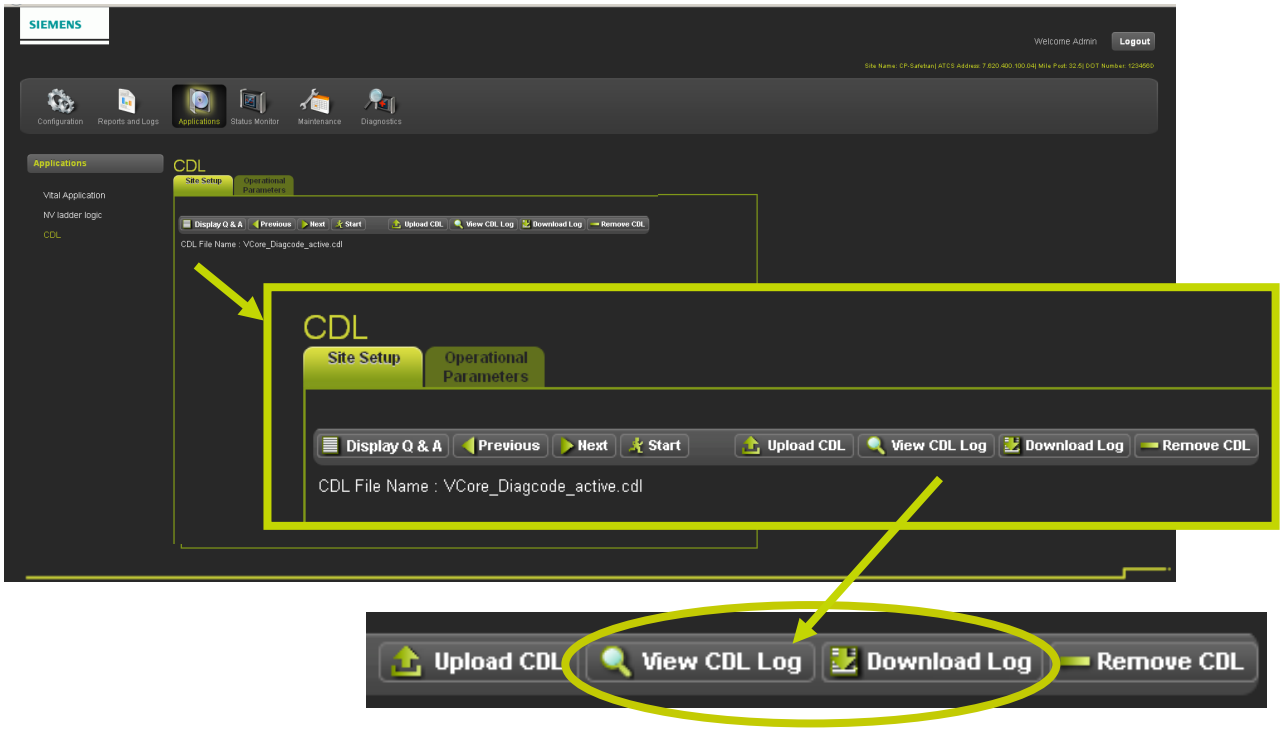

Figure 4-66 View or Download CDL Log

- **CDL Log Printout**

The CDL Log will appear in the window for local viewing as shown in Figure 4-67.

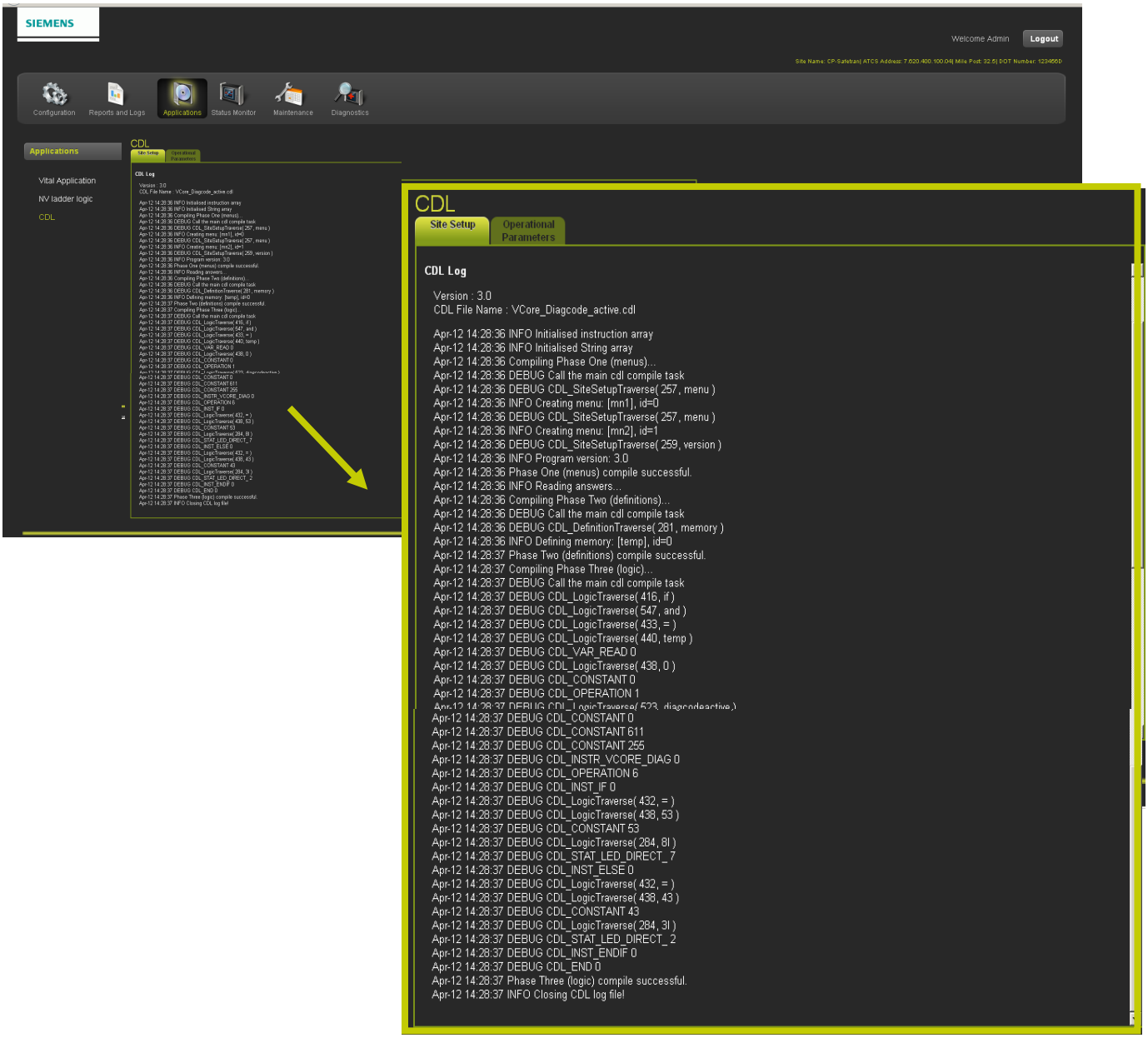

Figure 4-67 CDL Log Printout

- **Removing a CDL File**

To remove a CDL file from the PTC Console, click on the Remove CDL button as shown in Figure 4-68. A confirmation message will appear confirming the CDL has been removed as shown in Figure 4-69.

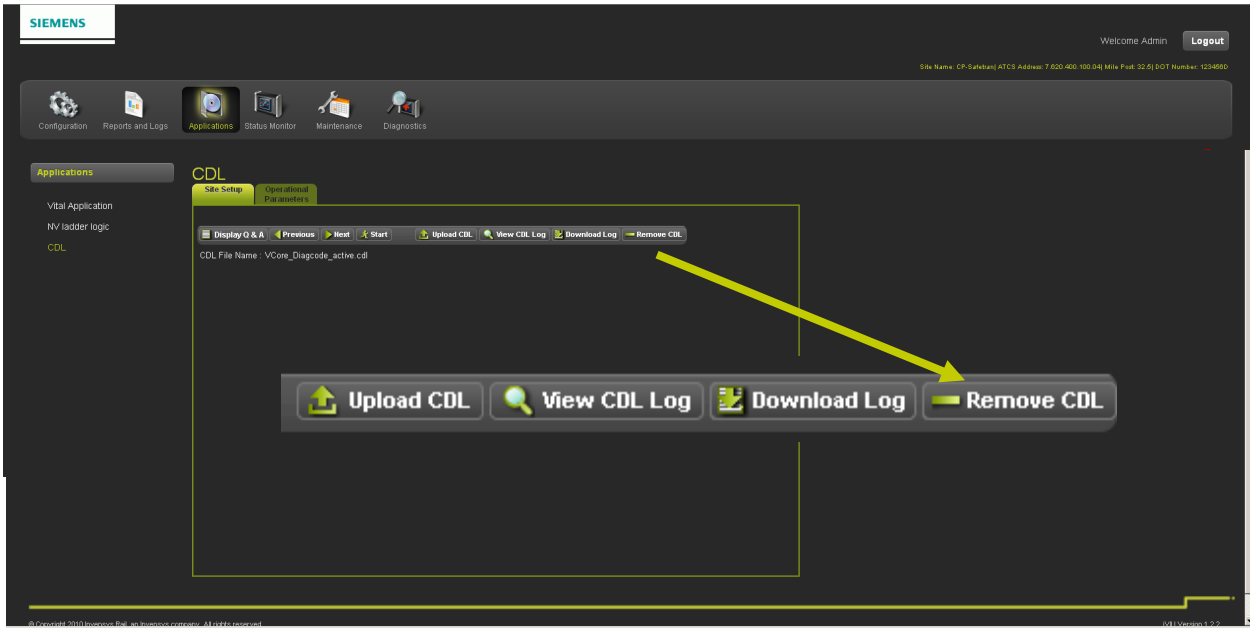

Figure 4-68 Removing a CDL File

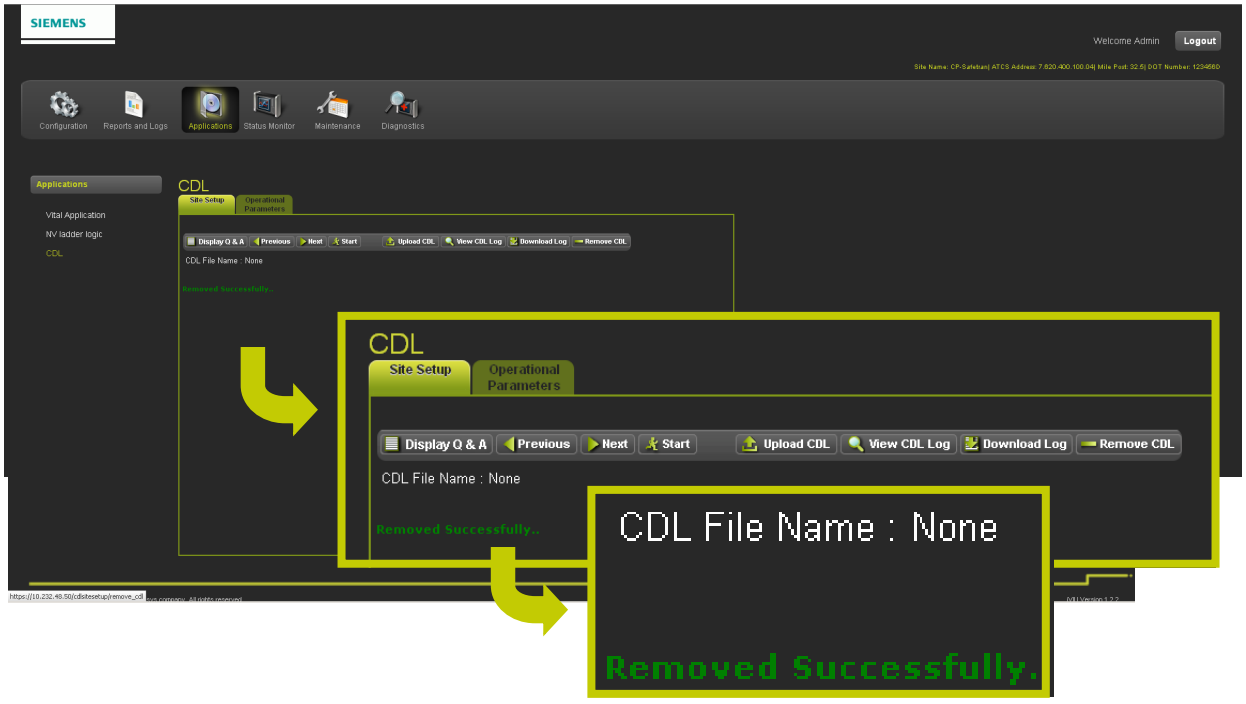

Figure 4-69 CDL File Removal Confirmation

4.1.4 Status Monitor

The Status Monitor has nine sub-menus for monitoring status, PTC Status, High Availability, System State View, Echelon Statistics, Ethernet Status, Online Status, GEO IO Module, ATCS Comm, and UI Sessions..

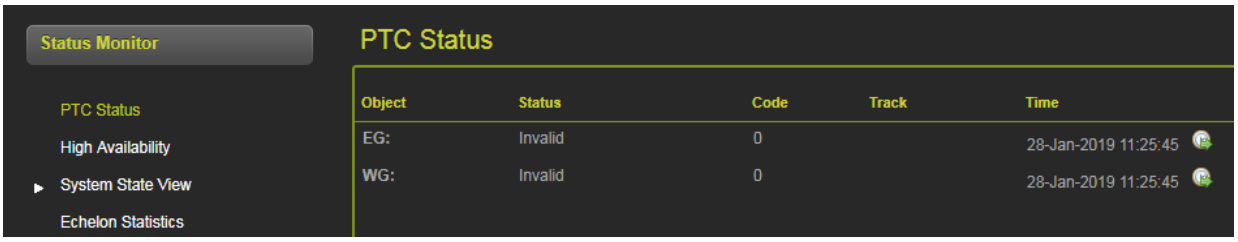

Figure 4-70 Status Monitor Menus

4.1.4.1 Status Monitor - PTC Status

The PTC Status function in the Status Monitor menu displays real-time Signal and Switch information being sent to the locomotive. A typical display is shown in Figure 4-71.

NOTE

PTC Codes will be displayed when a location is being polled or if the PTC Beacon has been set for Continuous. This function will vary in appearance depending on the GEO Model.

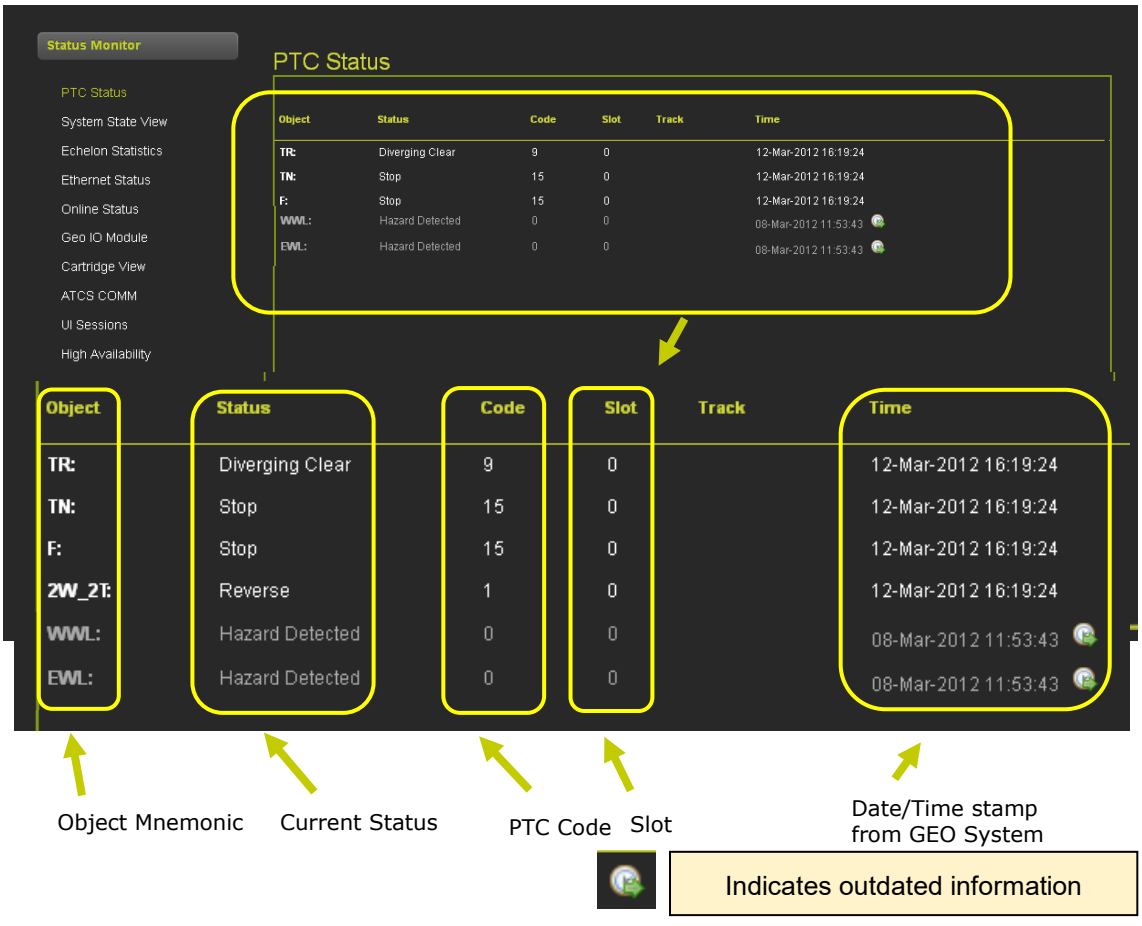

Figure 4-71 Status Monitor - PTC Status

4.1.4.2 Status Monitor - System State View

Figure 4-72 displays the System State View which displays information for the PTC Console and connected devices. In this example two GEO units and the PTC Console is available. Select the STATUS MONITOR icon to open the sub-menus. Select the SYSTEM STATE VIEW sub-menu. A drop-down menu will appear listing the available ATCS addresses to view. Select the GEO or Console address and click the mouse on the text.

Figure 4-72 Status Monitor - System State View

- **System State View - Geographic Objects**

In the example below, a list of Geographic Objects are displayed. Select the desired object and expand as needed.

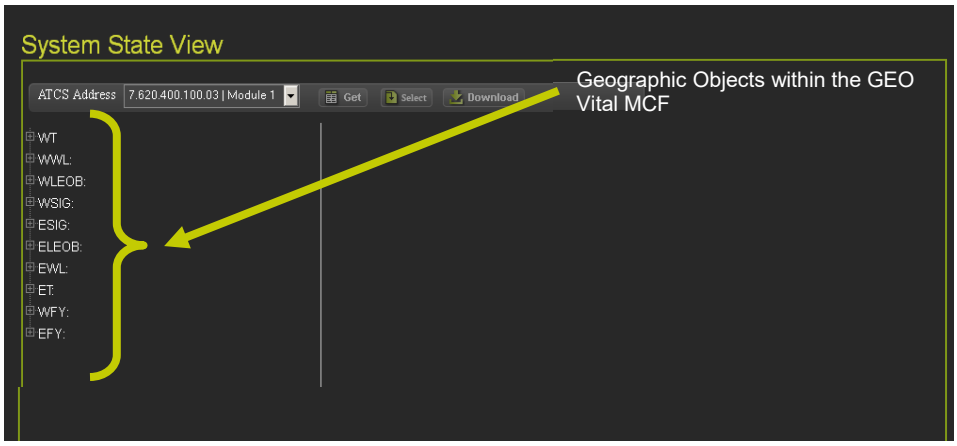

Figure 4-73 System State View - Geographic Objects

- **Status Monitor - System State View - View Connections**

Figure 4-74 displays GEO Objects in the left column. Objects can be expanded [1] and selected. Click on the GET button [2] to retrieve the data available.

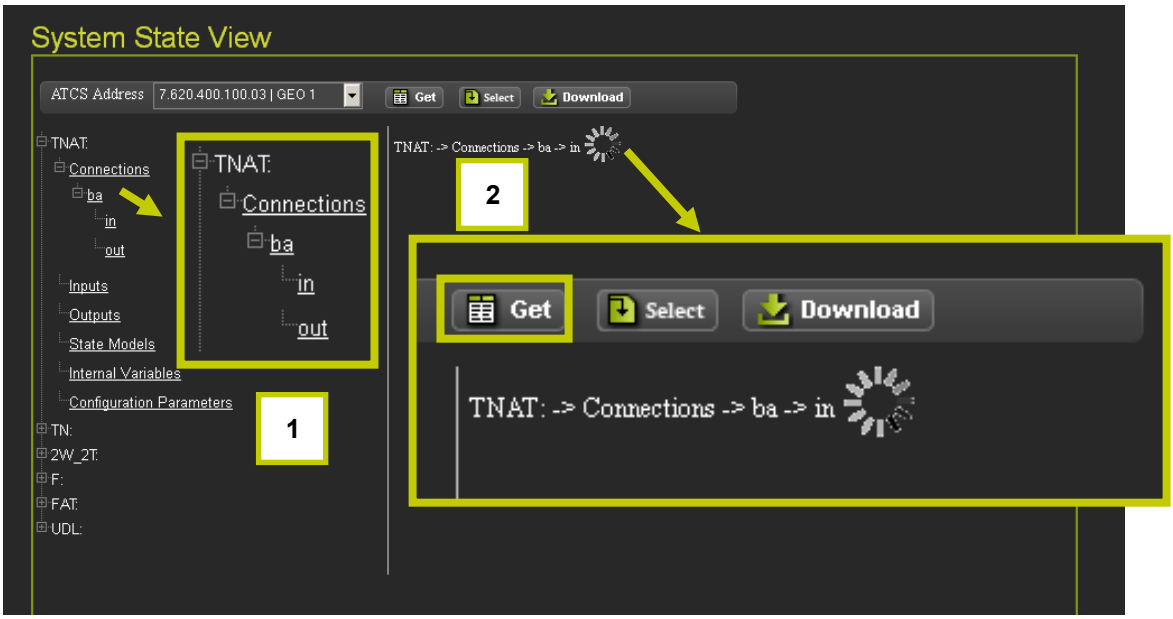

Figure 4-74 System State View - View Connections

Select the desired variable Name and Value and click the SELECT icon.

Figure 4-75 System State View - View Object Values

The Select Range screen will appear with edit text boxes for First Logic State and Late Logic State. Enter the first and last logic states in the range to be displayed (value in the Last Logic State box must be equal to or less than the total number of variables assigned to the object category).

NOTE

NOTE

Some variables may have multiple elements, each with its own logic state.

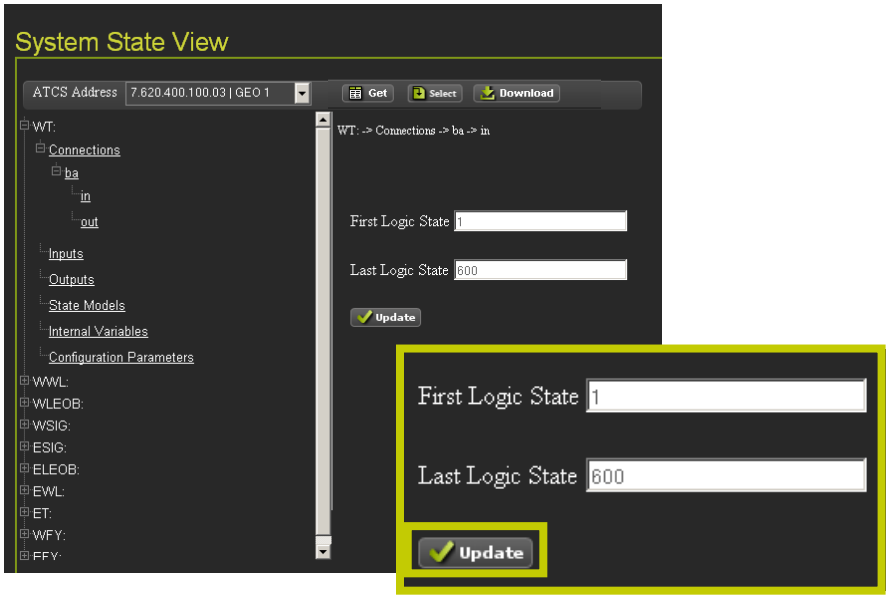

Figure 4-76 First and Last Logic States

The Connections category includes all the Geographic Messages that are transmitted from and received on each Geographic Connection. In this example the state of each Geographic Message is transmitted from the base (ba) connection of Signal WSIG.

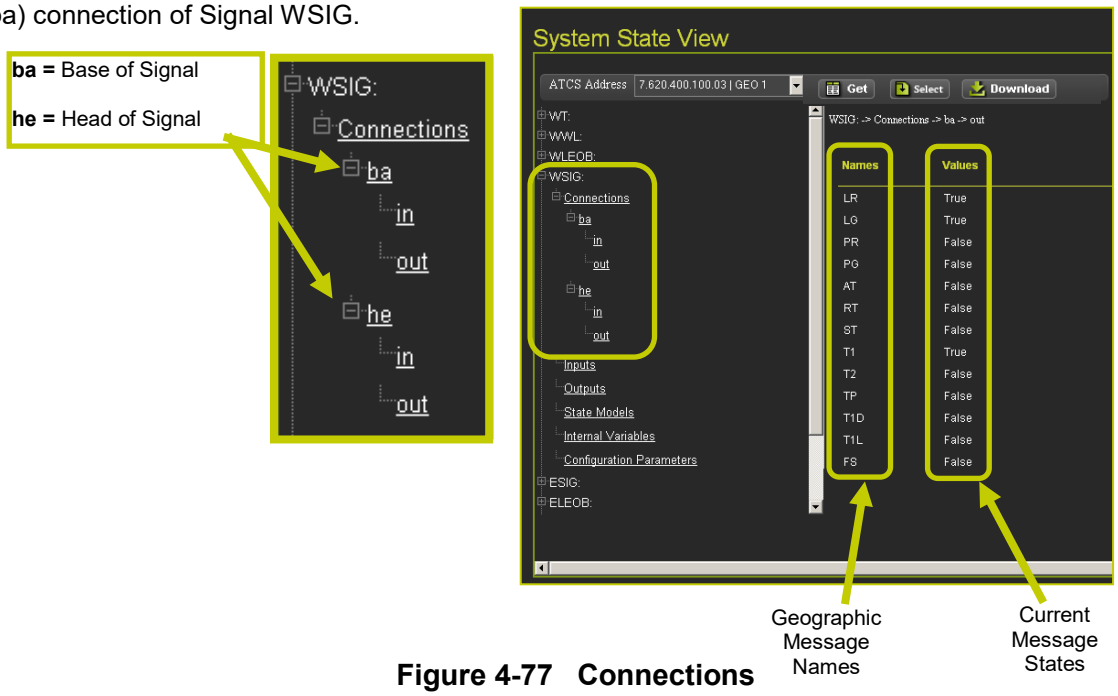

Figure 4-77 Connections

- **System State View - Inputs**

The Input category includes all controls and physical inputs associated with each Geographic Object including relay inputs, searchlight signal mechanism inputs, and coded track inputs. In this example the state of controls and physical inputs of signal ESIG are displayed.

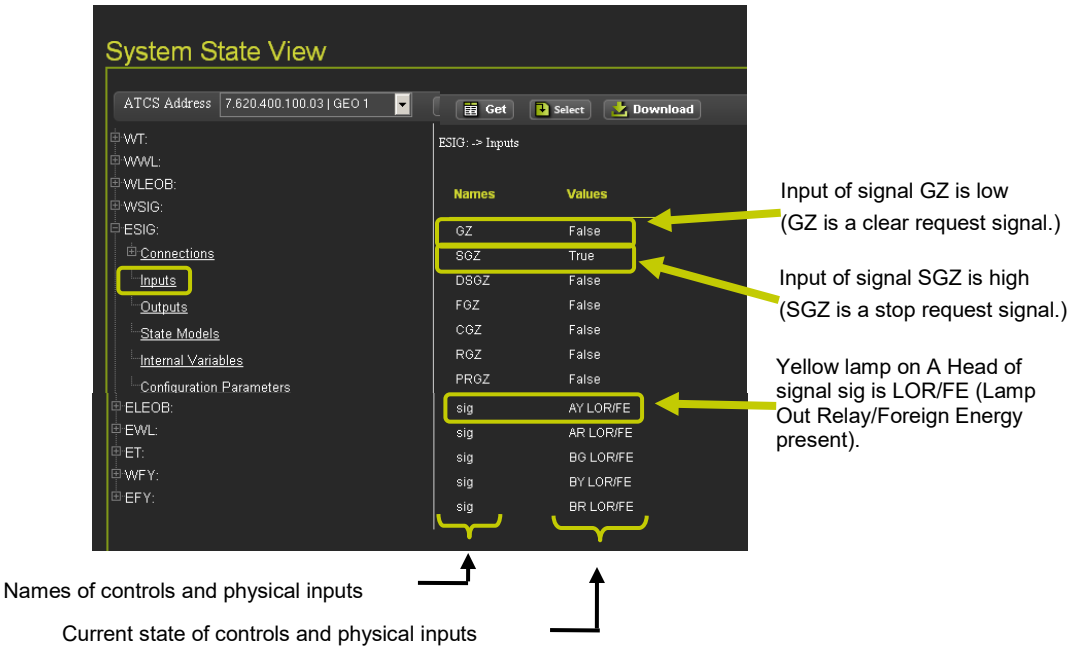

Figure 4-78 System State View - GEO Inputs

- **System State View - Outputs**

The Outputs category includes all indications and physical outputs associated with each Geographic Object including lamp outputs, relay outputs, searchlight signal mechanism outputs, and coded track outputs. In this example the state of indications and physical outputs of signal ESIG are displayed.

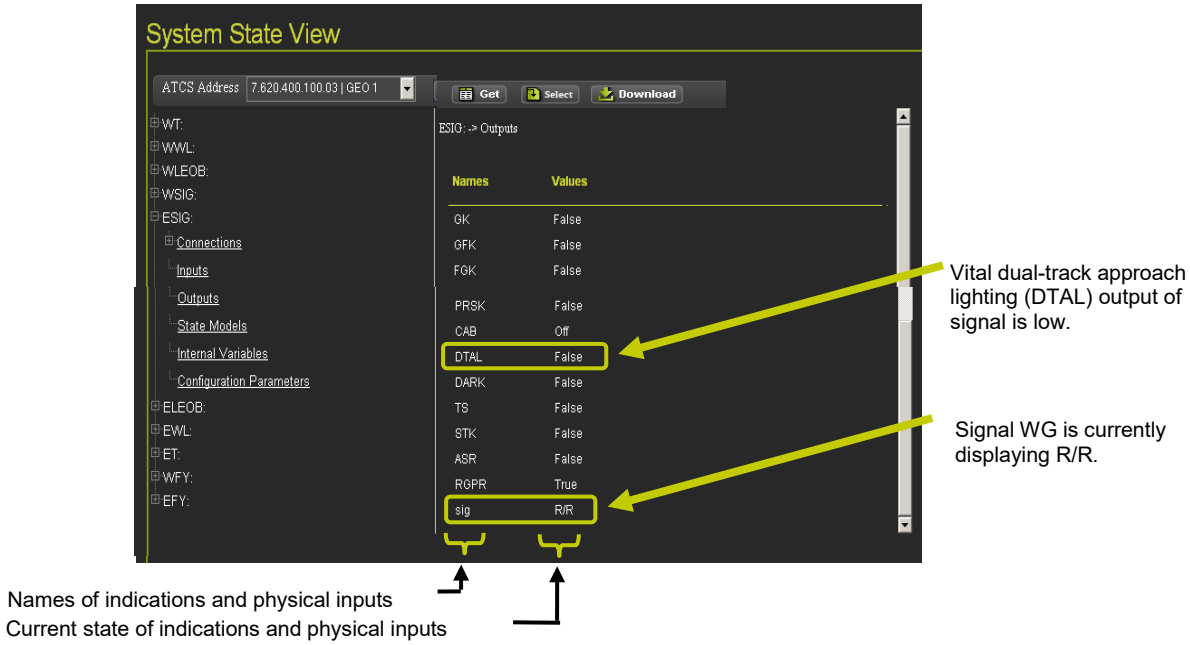

Figure 4-79 System State View - GEO Outputs

- **System State View - State Models**

The State Models category includes the current state of all state models defined in the Geographic Object Library. In this example the current state of the State Models of signal ESIG are displayed.

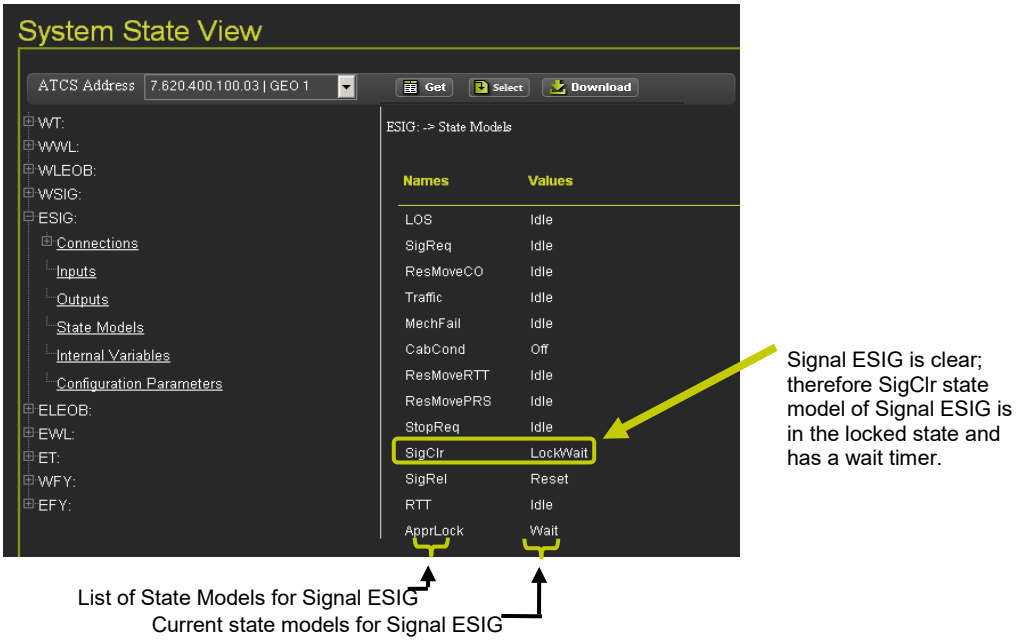

Figure 4-80 System State Views - State Models

- **System State Views - Internal Variables**

The Internal Variables category includes the current state or value of all other variables defined in the Geographic Object Library.

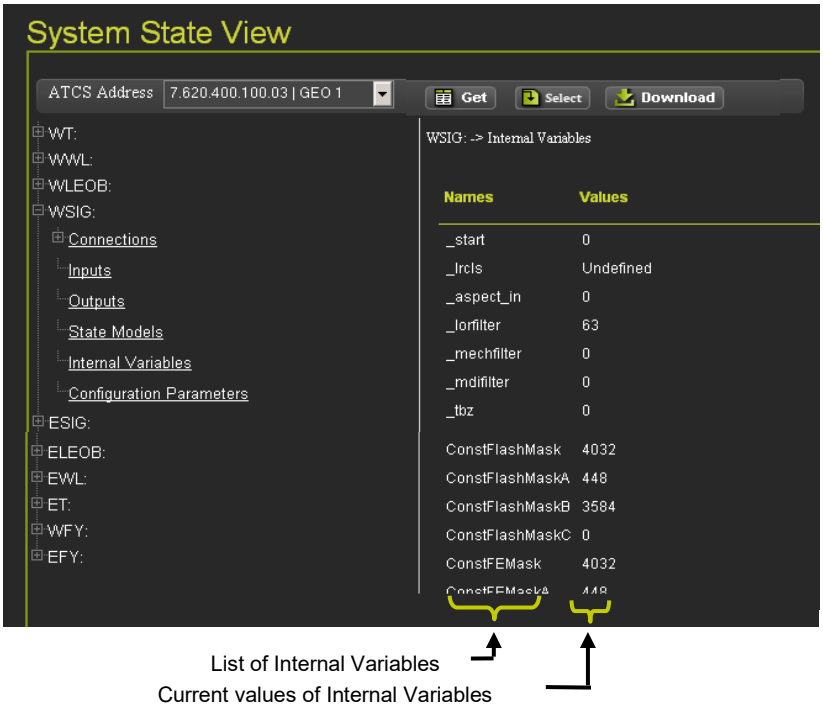

Figure 4-81 System State Views - Internal Variables

- **System State Views - Configuration Parameters**

The Configuration Parameters category includes a list of parameters and the current configuration of each parameter.

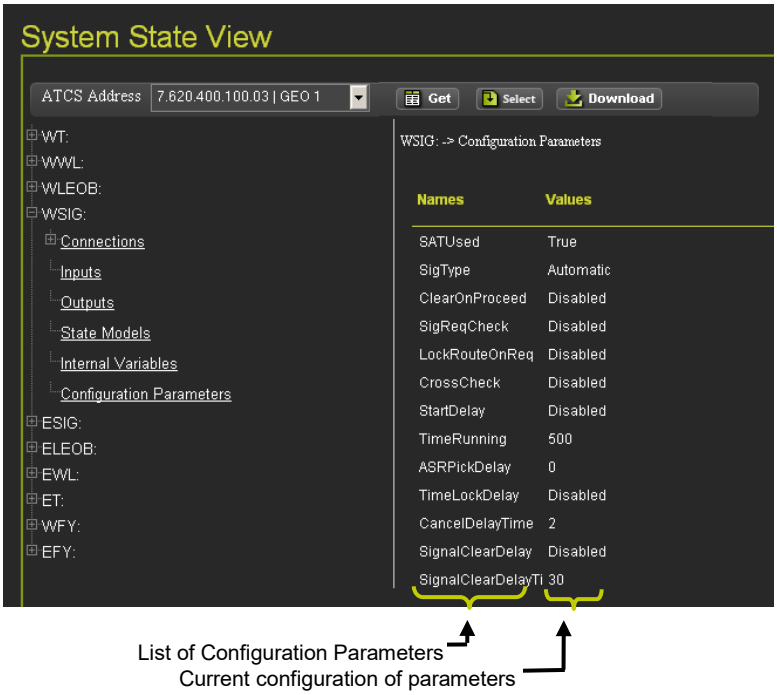

Figure 4-82 System State Views - Configuration Parameters

- **Download Object Values**

To download the Object Values to a file click on the Download button [1] to bring up a pop-up window. The window provides optional selections for viewing data in a Notepad file or saving the data to a file [2] as shown in Figure 4-83.

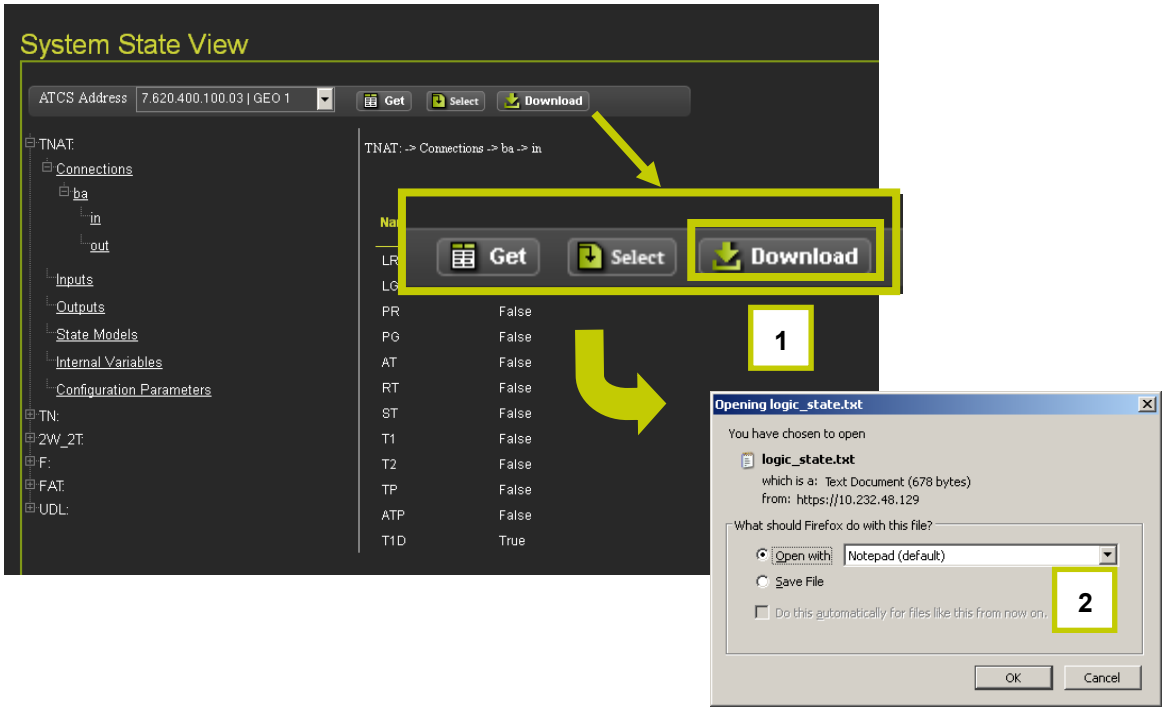

Figure 4-83 System State View - Download Object Values

Figure 4-84 displays an example of a download printout of Aspect Signal information.

```
SATUsed|True
ASPECT_01|Clear
ASPECT_02|Approach Diverging
ASPECT_03|Advance Approach
ASPECT_04|Approach Restricted
ASPECT_05|Approach
ASPECT_06|Approach
ASPECT_07|Diverging Clear
ASPECT_08|Diverging Approach Restricted
ASPECT_09|Diverging Approach
ASPECT_10|Restricting
ASPECT_11|Stop
ASPECT_12|Stop
ASPECT_13|Stop
ASPECT_14|Invalid
ASPECT_15|Invalid
ASPECT_16|Invalid
ASPECT_17|Invalid
ASPECT_18|Invalid
ASPECT_19|Invalid
ASPECT_20|Invalid
```

Figure 4-84 Example System State View - Aspect information

4.1.4.3 Echelon Status

The Echelon Status category includes the Module Name, Node Number, TX Count, RX Count, Acknowledge Fails, and Neuron Resets. The current tally for each column is displayed.

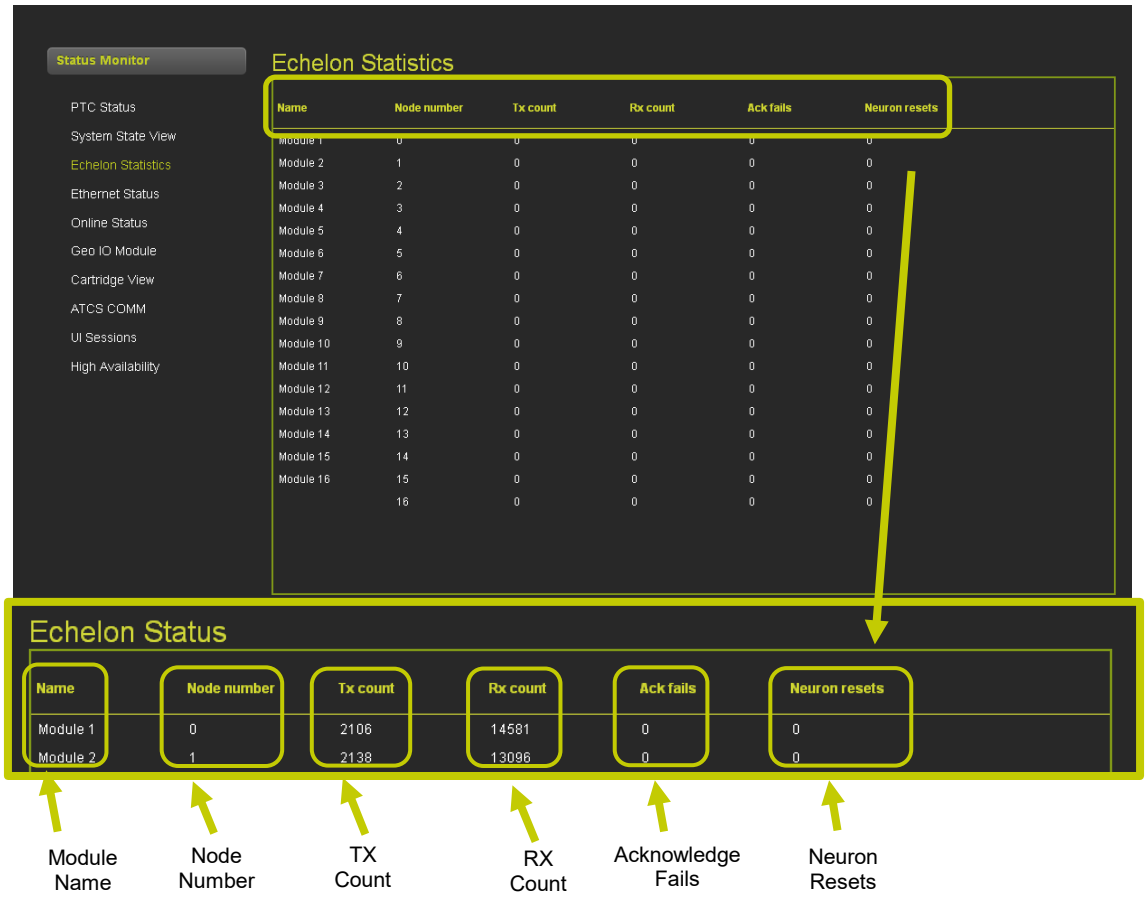

Figure 4-85 Status Monitor - Echelon Status

4.1.4.4 Ethernet Status

The Ethernet Status screen shows the four Ethernet ports and their current settings and connection status.

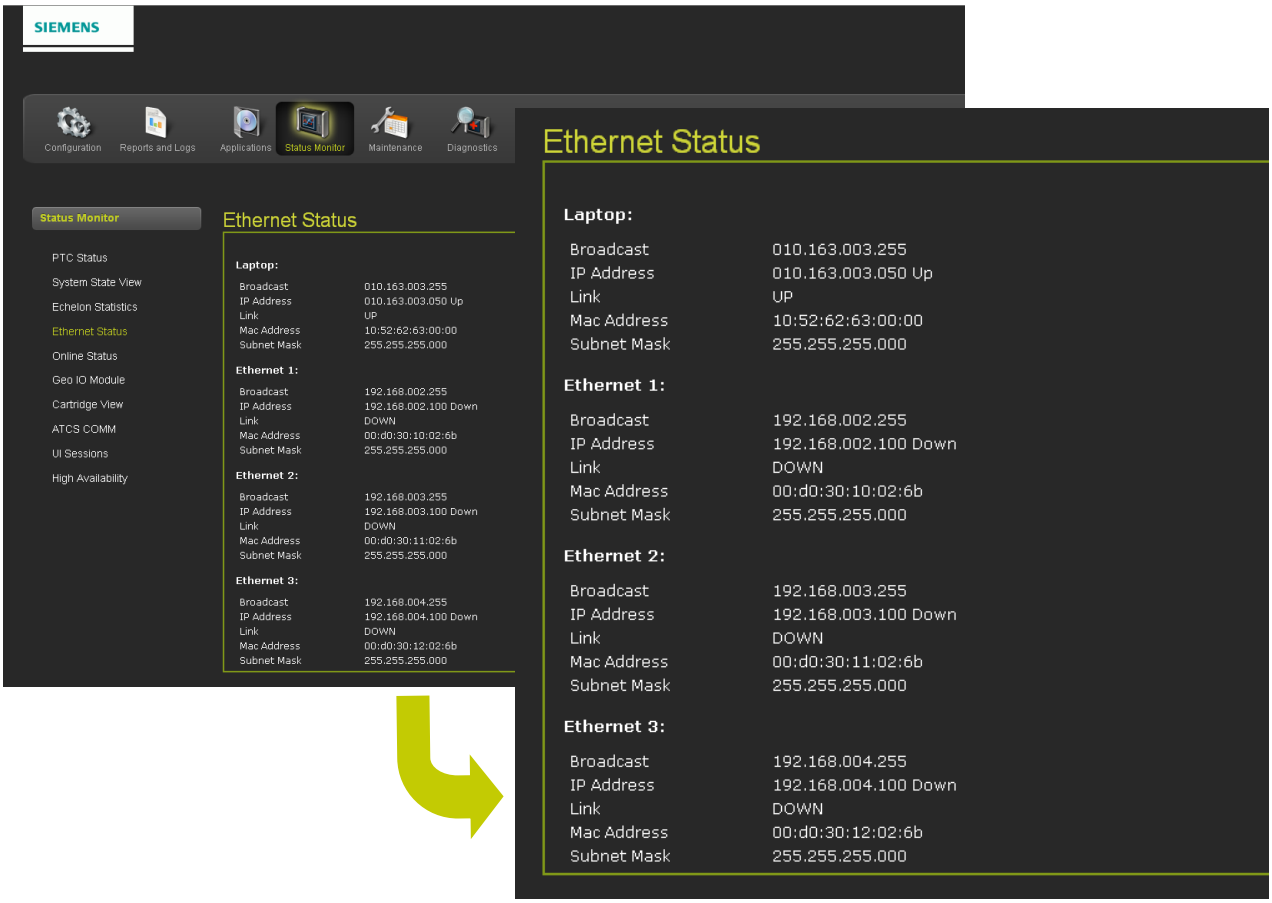

Figure 4-86 Status Monitor - Ethernet Status

4.1.4.5 Online Status

The Online Status lists in real time the status of the components of the selected device. The Online Status comes up running and collecting data. To stop the Online Status stream click on the **Stop** button. To restart the Online Status stream click on the **Start** button. Save the Online Status data collected by clicking on the **Save** button. A pop-up screen will appear providing options for viewing the data or saving to a file. Click on the **Clear** button to erase the data collected.

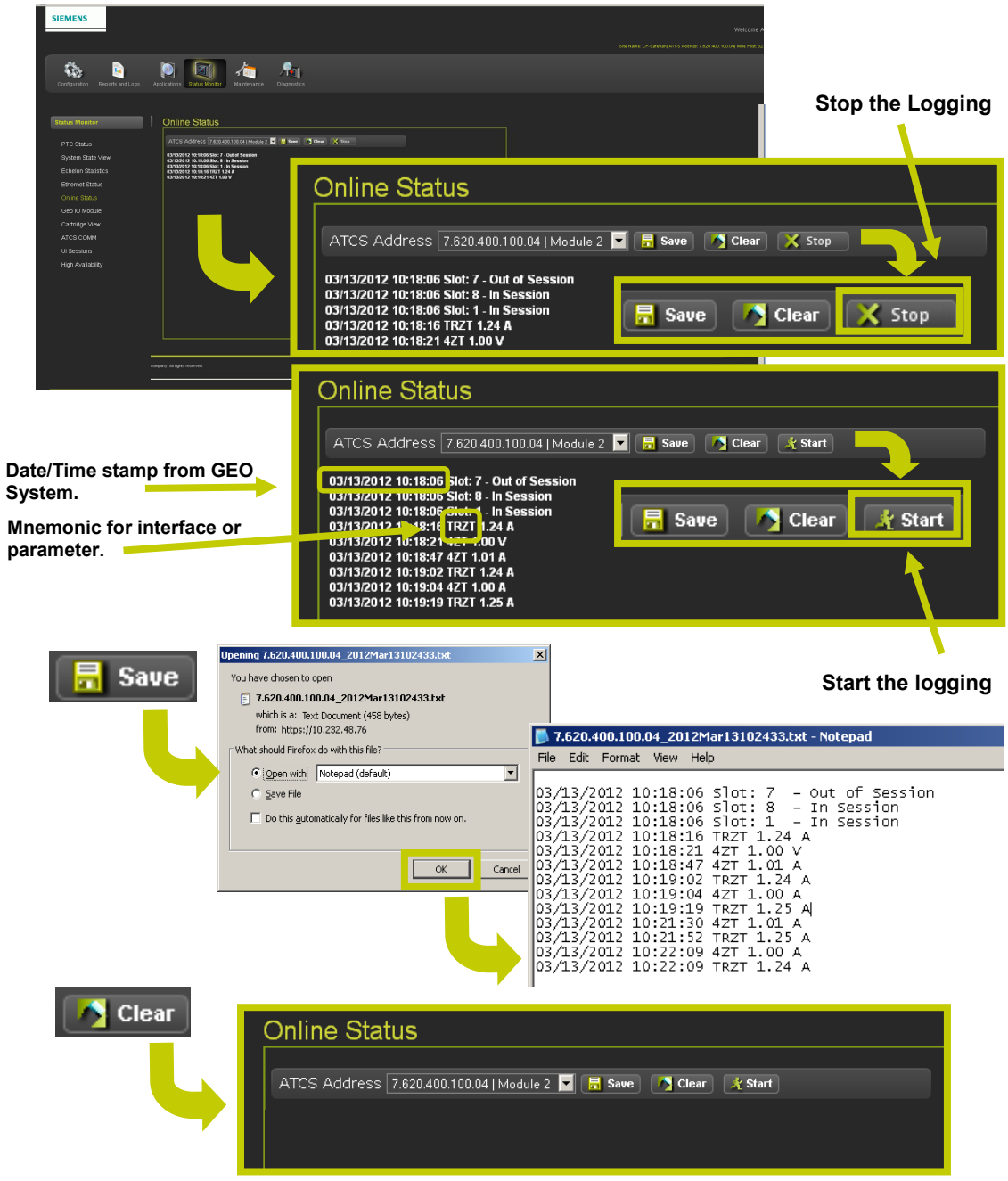

Figure 4-87 Status Monitor - Online Status

4.1.4.6 Status Monitor - GEO I/O Module

The GEO I/O Module screen shows a graphic display of the GEO modules of the selected unit. The display is near real time with a snapshot refreshed every few seconds.

Module Labels: GREEN when operational; RED when not communicating with CPU; <Empty> when not used.

Figure 4-88 Status Monitor - GEO I/O Module Display

- **GEO I/O Module Displays**

The following are detailed views of the individual modules displayed on the GEO I/O Module real-time screen.

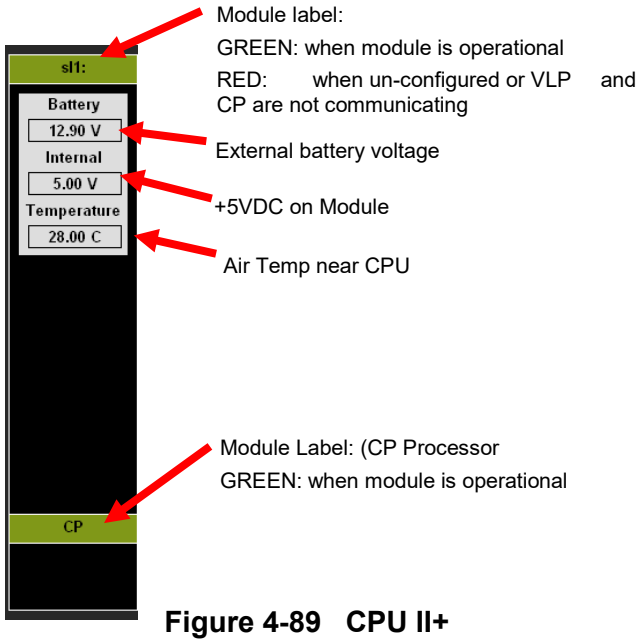

Figure 4-89 CPU II+

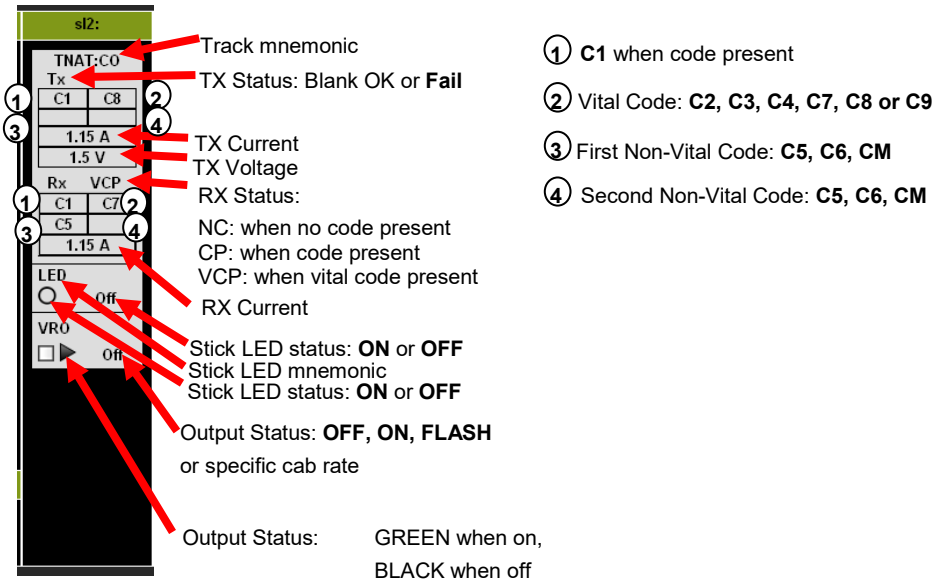

Figure 4-90 Coded Track

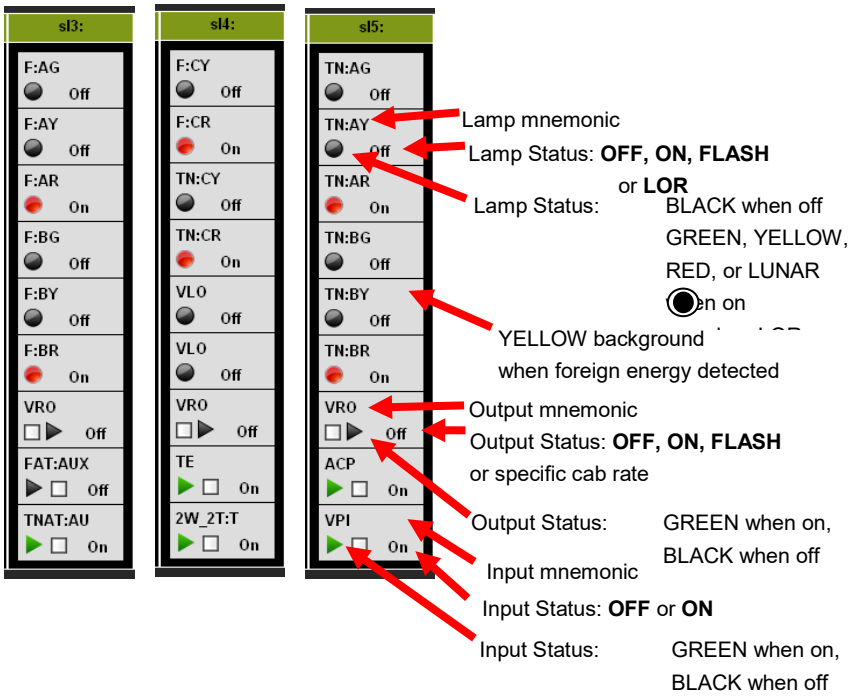

Figure 4-91 Colorlight

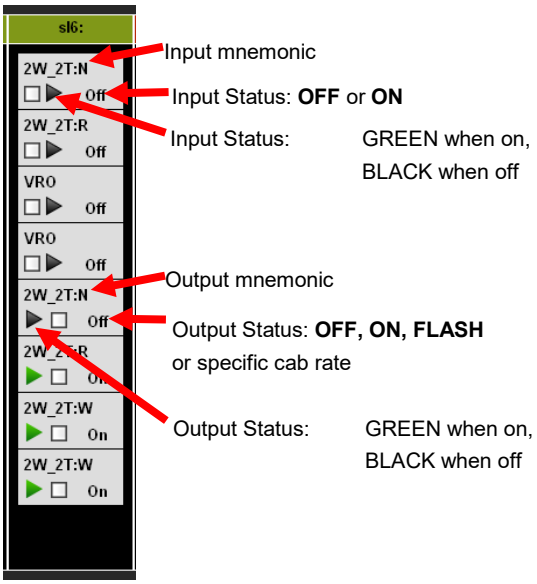

Figure 4-92 RIO

- **GEO I/O - Module Information**

GEO Module information may be retrieved by RIGHT CLICKING the mouse on the Module Label. A pop-up menu will appear, select MODULE INFORMATION and click the mouse. A pop-up window will appear displaying the module parameters and that parameter's value.

NOTE

NOTE

Verify the browser's pop-up blocker is NOT on to allow the information window to appear.

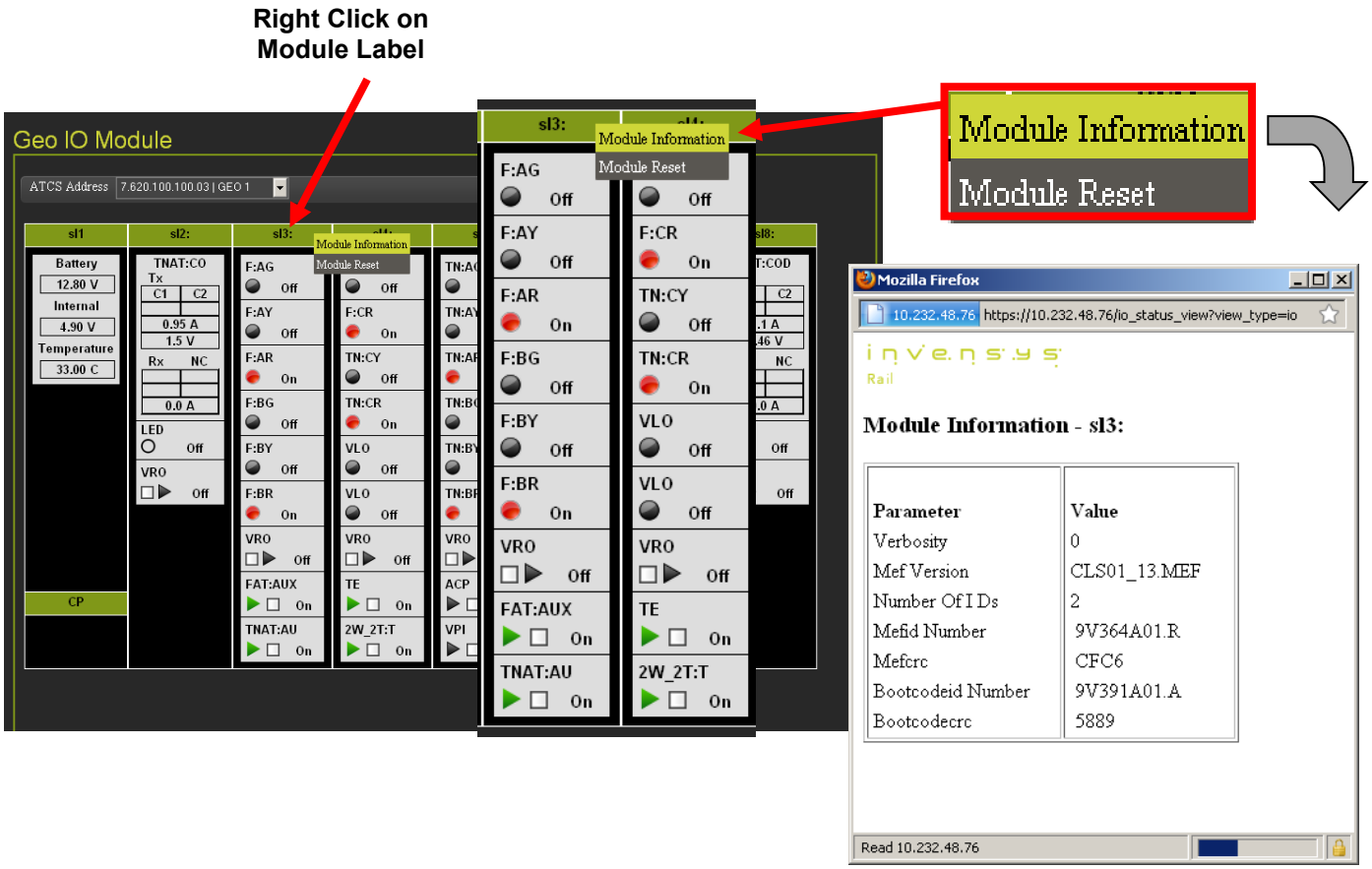

Figure 4-93 GEO I/O - GEO Module Information

- **GEO I/O - Module Reset**

A GEO module can be reset by right clicking the mouse on the Module Label. A pop-up menu will appear, select **Module Reset** and click the mouse. A pop-up window will appear displaying the module is being rebooted.

WARNING

SITE EQUIPMENT MUST BE PLACED IN THE MAINTENANCE MODE AND APPLICABLE SAFETY PRECAUTIONS IN PLACE TO PROTECT VEHICLES, PEDESTRIANS, AND RAILWAY TRAFFIC. THE RESETTING OF MODULES WILL CAUSE THE GEO TO ENTER A RESTRICTIVE/SAFE STATE. IT IS THE RESPONSIBILITY OF THE RAILROAD OR AGENCY TO ENSURE QUALIFIED PERSONNEL PERFORM FILE UPLOADING AND ADEQUATE TESTING PRIOR TO PLACING EQUIPMENT BACK INTO SERVICE.

NOTE

Verify the browser's pop-up blocker is NOT on to allow the information window to appear.

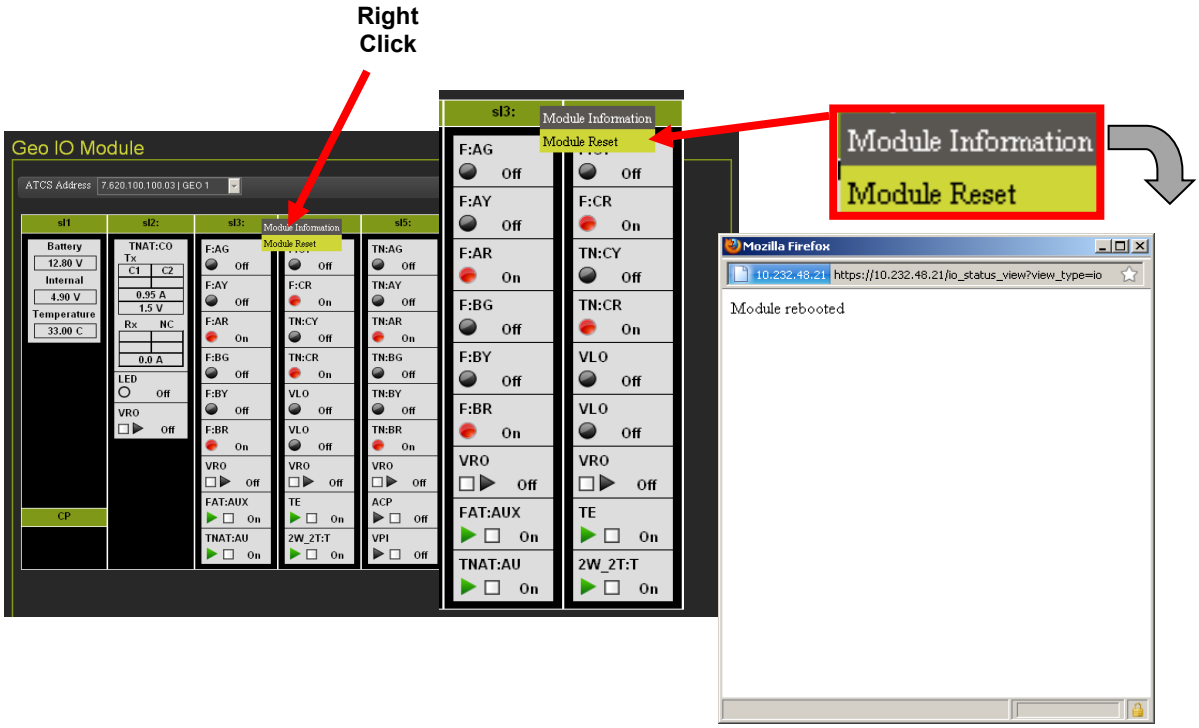

Figure 4-94 GEO I/O - GEO Module Reset

4.1.4.7 Status Monitor - ATCS Comm

The ATCS Communication Links (ATCS Comm) function displays the ATCS links between the GEO and connected devices. Figure 4-95 details the ATCS Comm display.

Figure 4-95 ATCS Communications Links

- **ATCS Communication Link - Message Field Status**

When navigating the cursor over the message fields the state of the field will appear, 1 = Set (Green field) and 0 = Clear (Red field) as shown below:

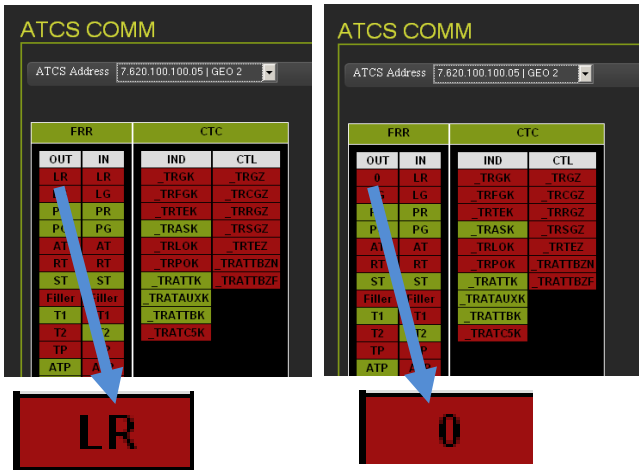

Figure 4-96 ATCS Comm Link - Message Field Status

4.1.4.8 UI Sessions

The UI Sessions function displays the configured ATCS addresses and their current status as shown in Figure 4-97.

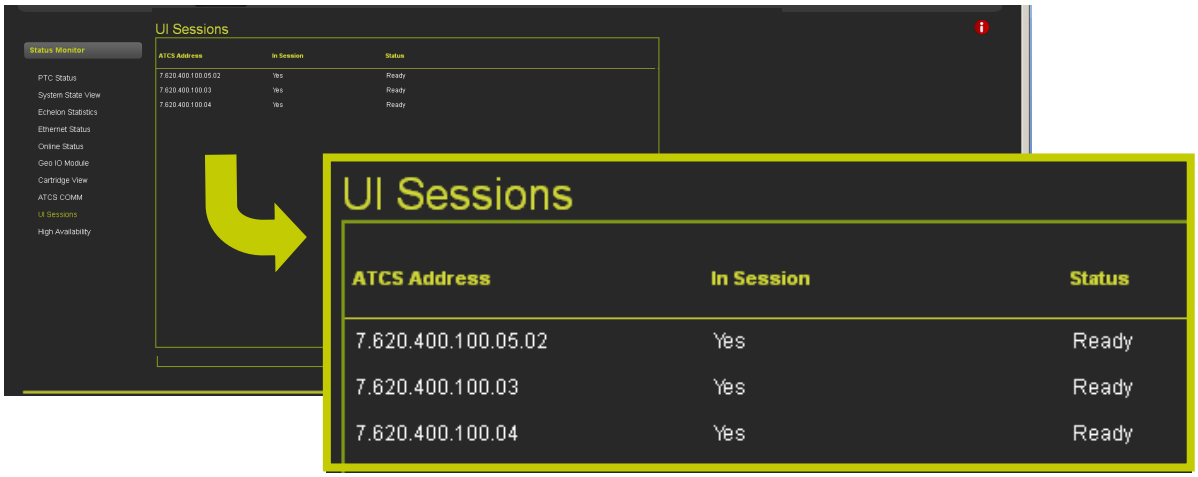

Figure 4-97 UI Sessions

4.1.4.9 High Availability

The High Availability status displays the communication links available. If a link fails the PTC Console will configure the next link available prioritizing the connection by its availability. If a link becomes available with a higher priority the PTC Console will reconfigure to that link.

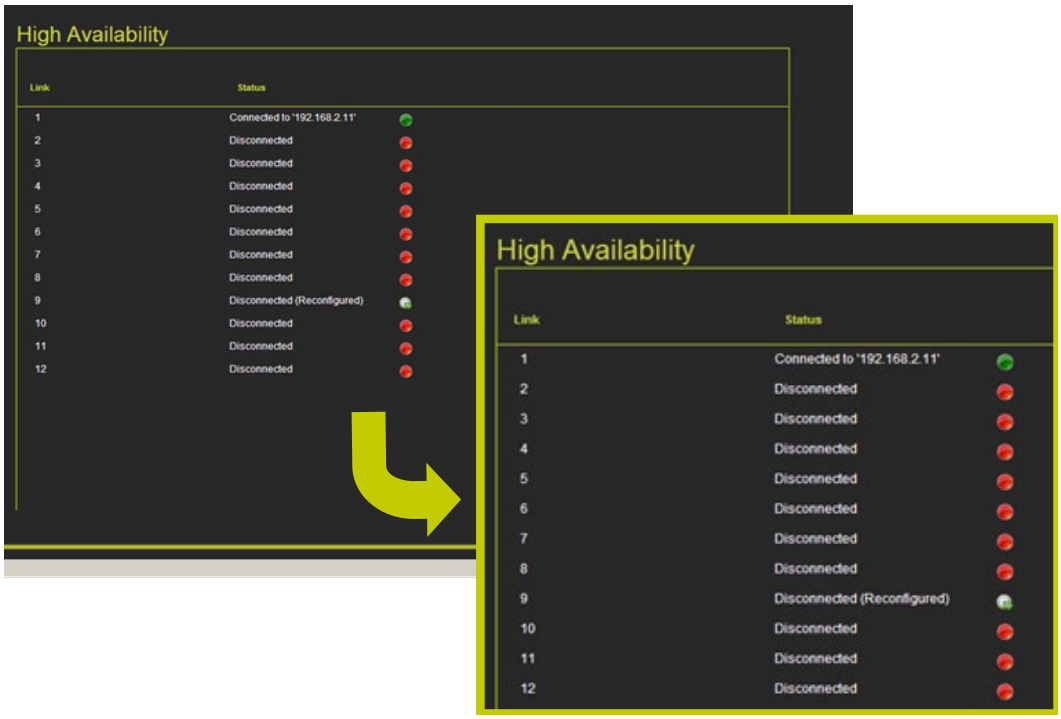

Figure 4-98 High Availability Status Display – Round Robin

4.1.5 Maintenance

The Maintenance Menu enables software updates to the PTC system and the attached components.

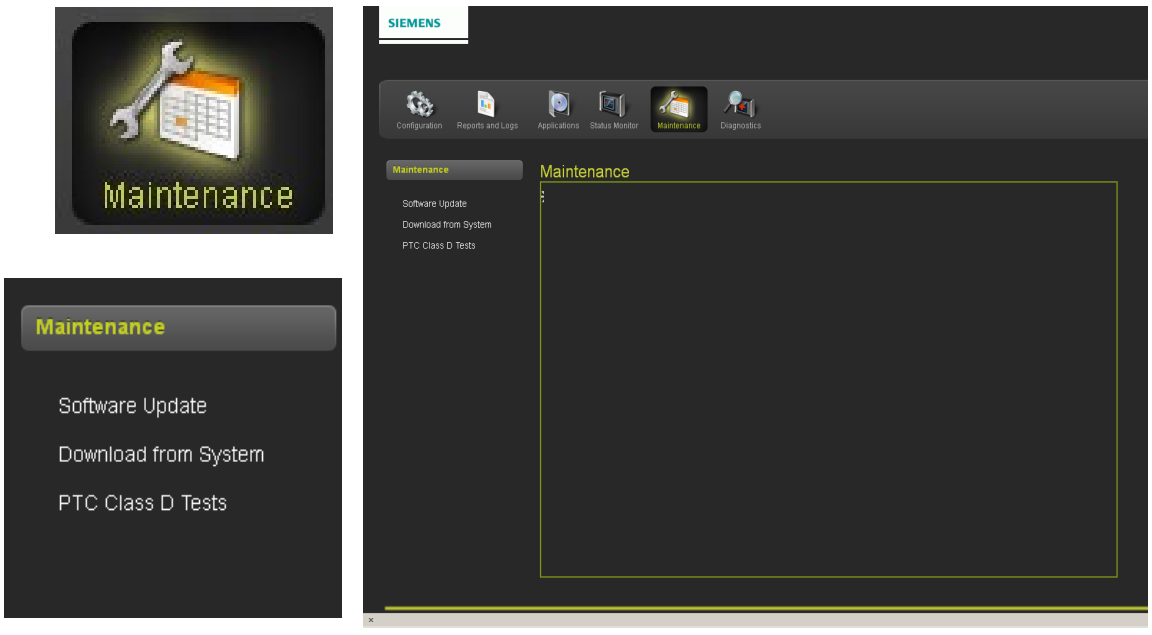

Figure 4-99 Maintenance

4.1.5.1 Maintenance - Software Update

When performing a software update using WebUI from a location outside of the equipment site it is necessary for an authorized technician be present at the site. The technician will need to approve access to the console before the outside source can perform any uploading functions.

⚠ WARNING

WARNING

IN ORDER TO PERFORM ANY SOFTWARE UPGRADES USING WEBUI THERE MUST BE AN OPERATOR AT THE EQUIPMENT SITE TO SECURE THE SITE TO MAINTAIN SAFETY TO PEDESTRIANS, VEHICULAR TRAFFIC, AND TRAINS. THE SITE OPERATOR MUST APPROVE ACCESS TO THE EQUIPMENT BEFORE THE REMOTE COMPUTER CAN PERFORM ANY SOFTWARE UPDATES.

- **Software Update - Unlocking PTC Console**

To start a software update it is necessary to unlock the PTC Console. Click on the UNLOCK button [1], this will bring up a pop-up screen [2] advising continuing will place the system in a restrictive/safe state. Click the OK button to proceed. A screen will appear on the PTC Console at the equipment site, a qualified technician at the equipment site will press the ENTER key on the console keyboard to allow remote access to the console.

Figure 4-100 Unlocking PTC Console

When the on-site technician approves the remote access to the console, an authentication message will appear on the WebUI screen. The software update can now be performed.

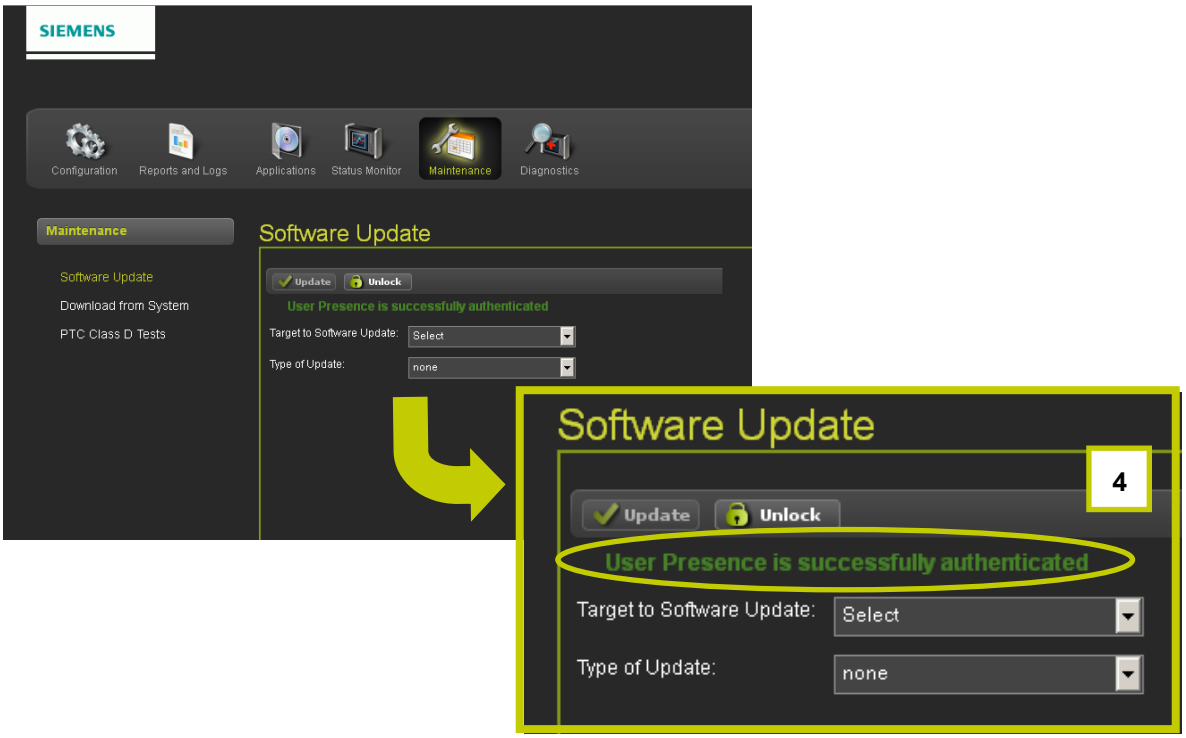

Figure 4-101 Unlocking PTC Console - Authenticated

- **Software Update Options**

The Software Update screen has a drop-down menu with eight sub-menus as shown below.

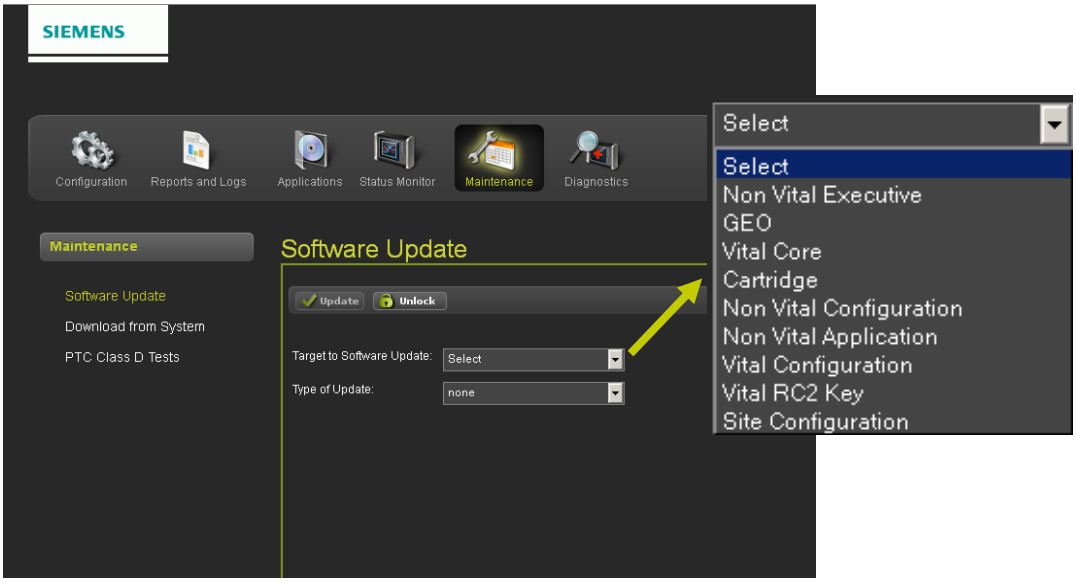

Figure 4-102 Software Update Sub-Menus

- **Software Update - Sub-Menu Screens**

The following figures display the nine software update sub-menu screens.

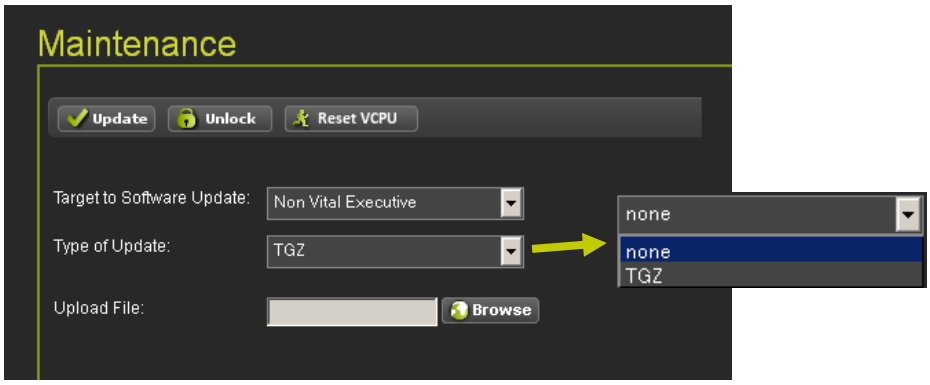

Figure 4-103 Non-Vital Executive Software Update

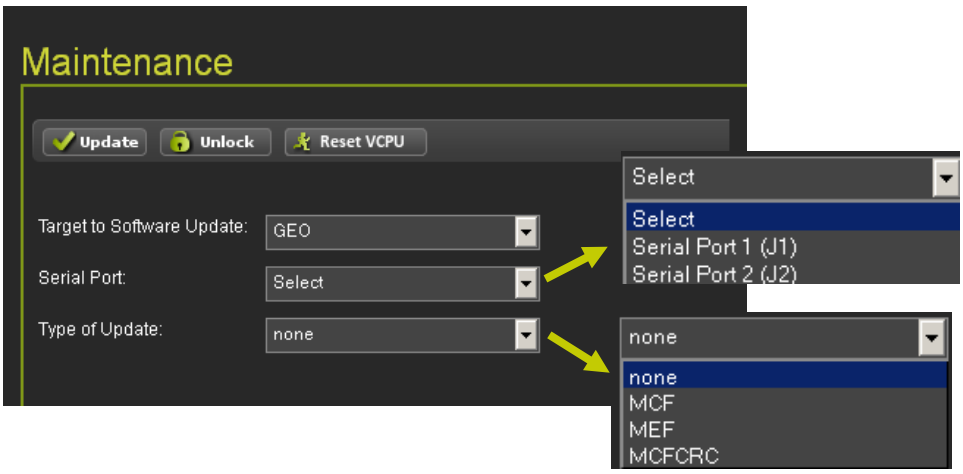

Figure 4-104 GEO Software Update

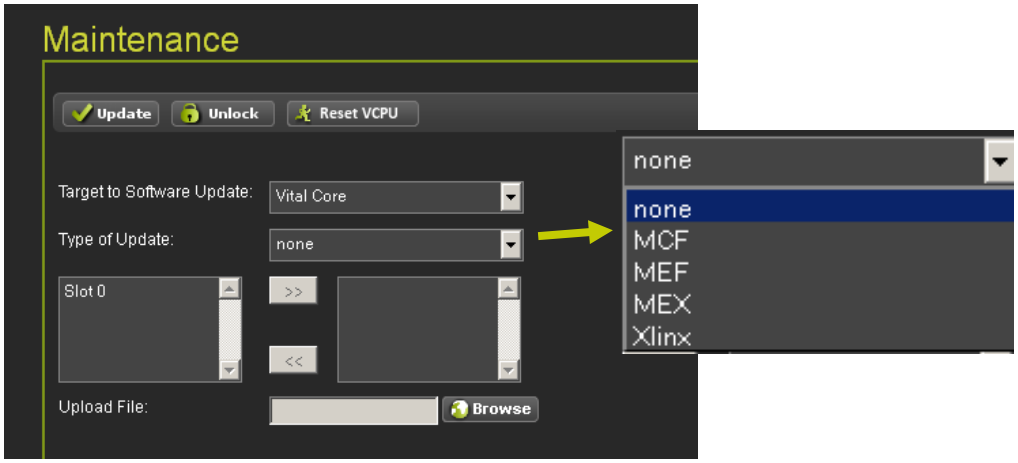

Figure 4-105 Vital Core Software Update

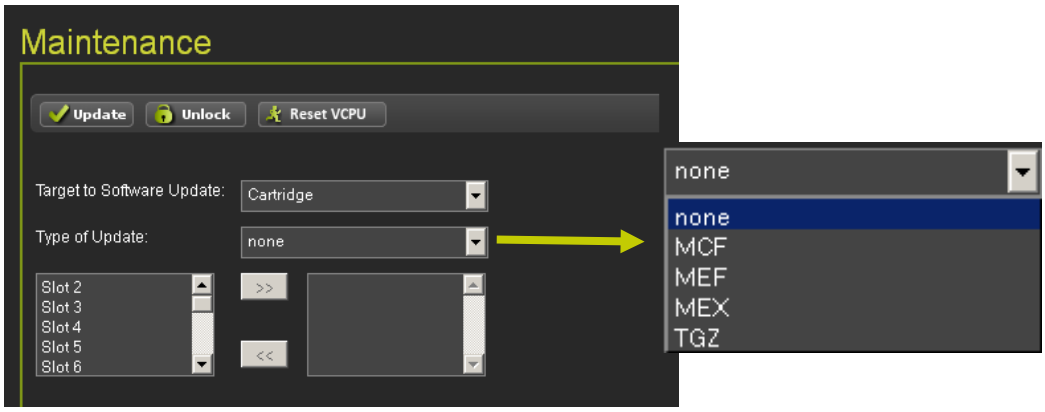

Figure 4-106 GEO Cartridge Software Update

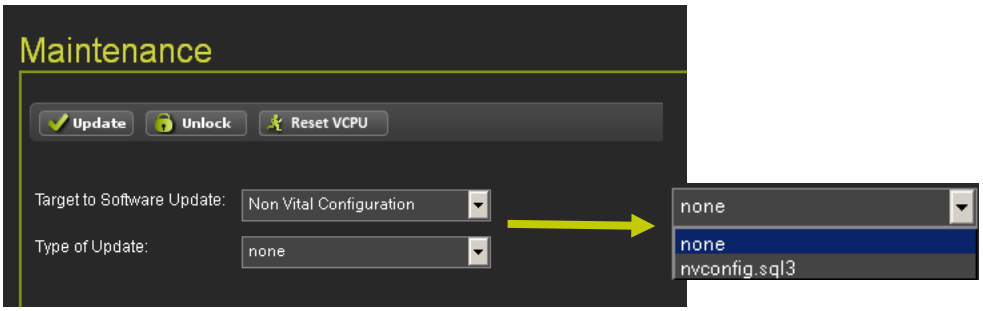

Figure 4-107 Non-Vital Configuration Software Update

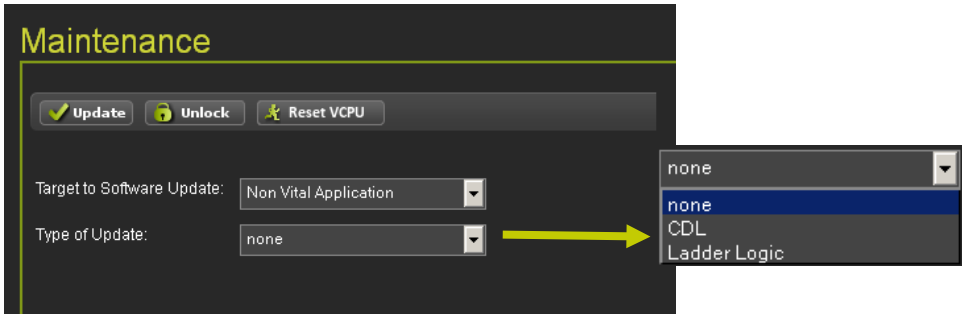

Figure 4-108 Non-Vital Application Software Upgrade

Figure 4-109 Vital Configuration Software Upgrade

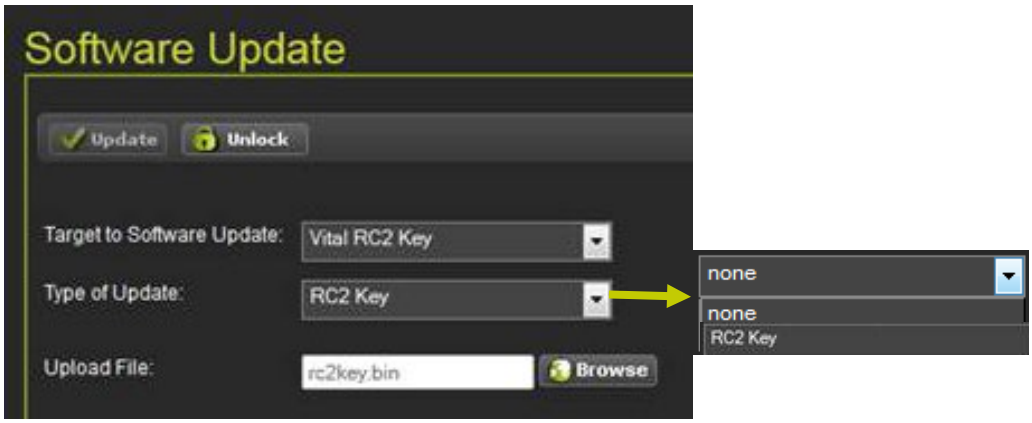

Figure 4-110 RC2 Key Software Upgrade

Figure 4-111 Site Configuration Software Upgrade

- **Download From System**

The following screens display the sub-menus for downloading Vital and Non-Vital Configuration and Application files from the PTC Console.

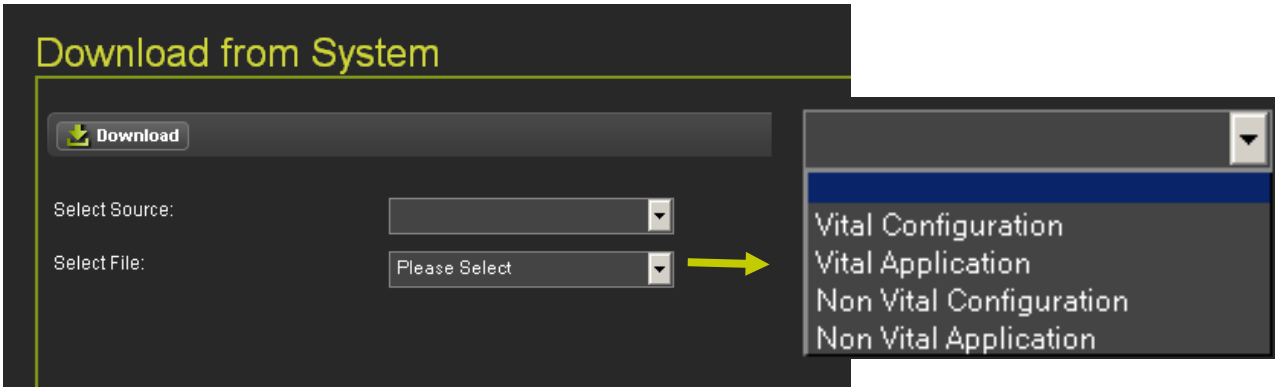

Figure 4-112 Download Configuration and Application Files

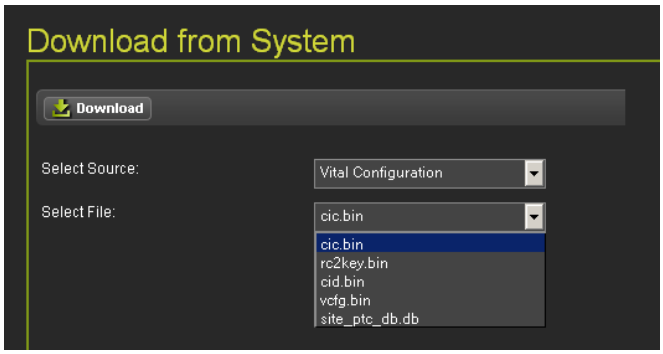

Figure 4-113 Vital Configuration Download

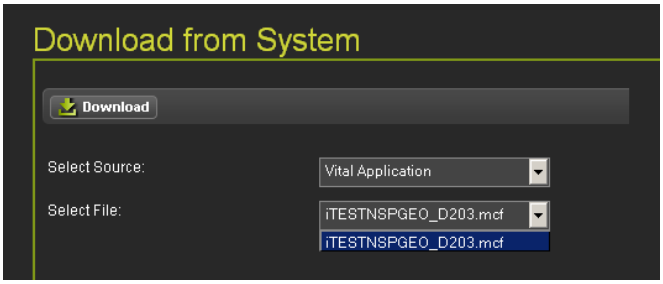

Figure 4-114 Vital Application Download

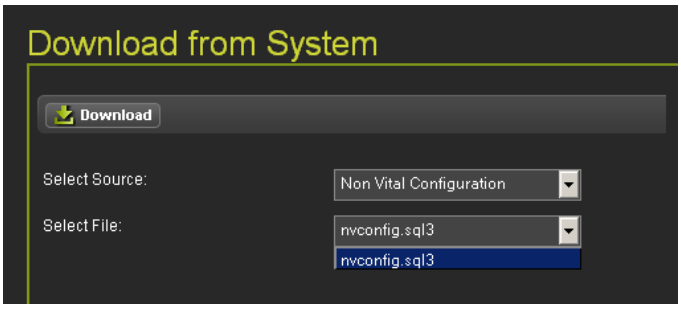

Figure 4-115 Non-Vital Configuration Download

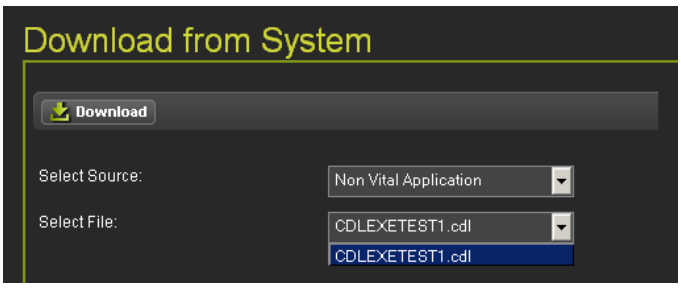

Figure 4-116 Non-Vital Application

- **PTC Class D Tests**

PTC Class D Tests verify the IP based point to point protocol for messaging. Test message can be enabled and sent to a test server. The test results are logged for review later.

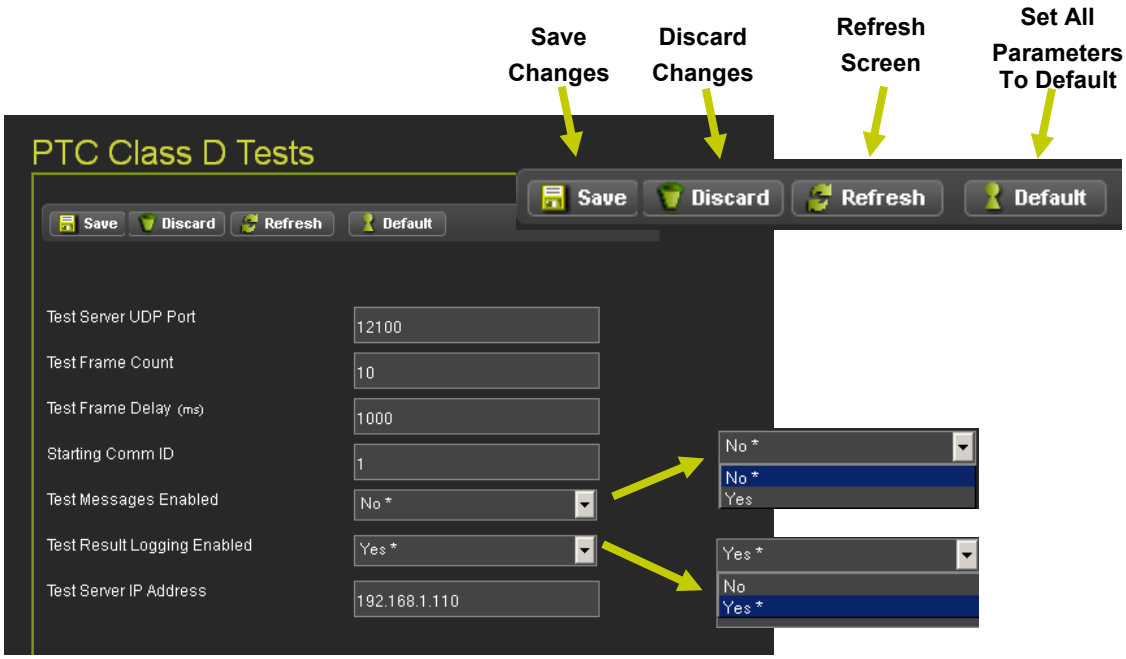

Figure 4-117 PTC Class D Tests

4.1.6 Diagnostics

The Diagnostic menu has three sub-menus, Information, GEO Statistics, and CDL Status as shown in Figure 4-118 below.

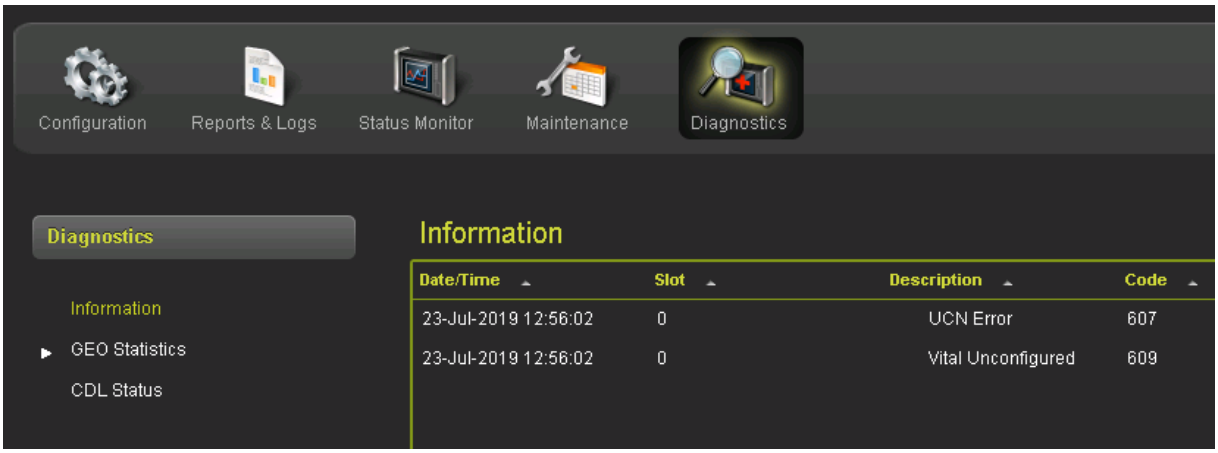

Figure 4-118 Diagnostics

4.1.6.1 GEO Statistics

The GEO Statistics diagnostics menu has eight statistics screens as shown in Figure 4-119.

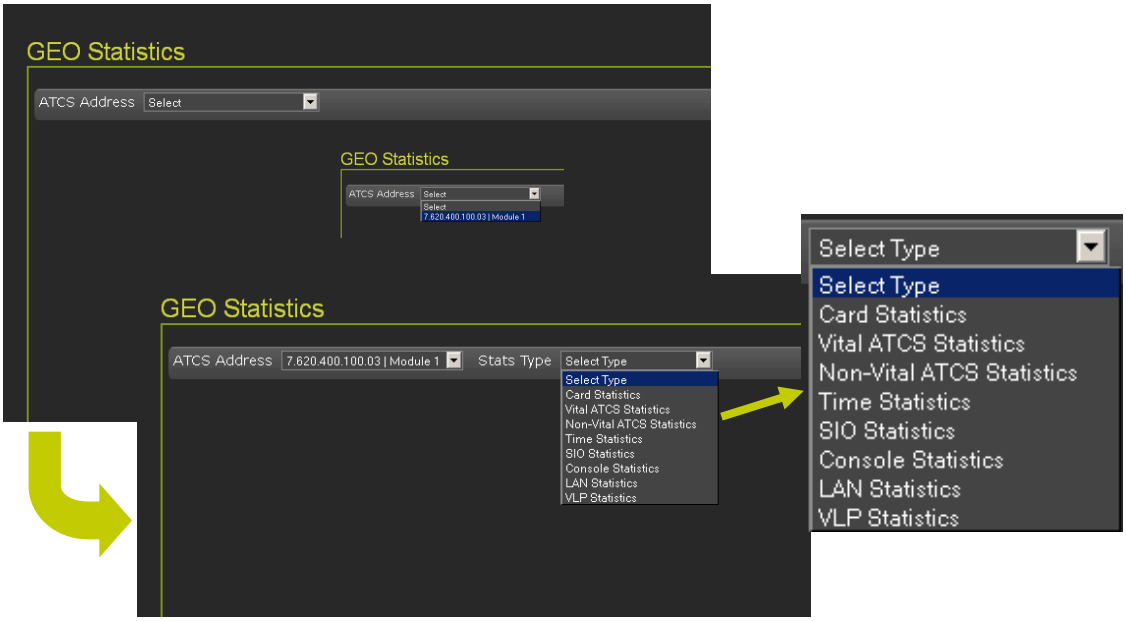

Figure 4-119 GEO Statistics

- **GEO Statistics Screens**

The following are the GEO Statistics screens available.

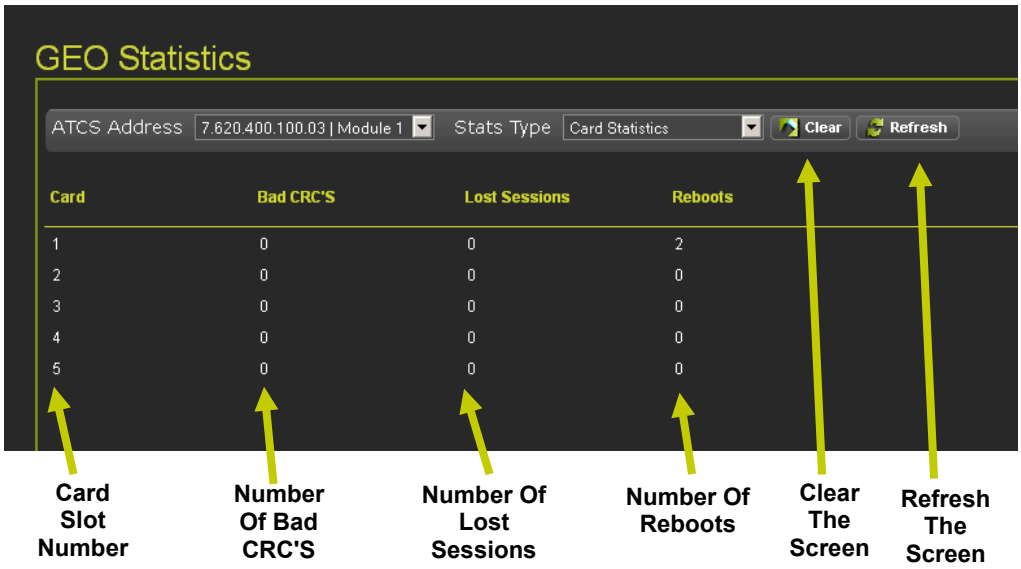

Figure 4-120 GEO Card Statistics

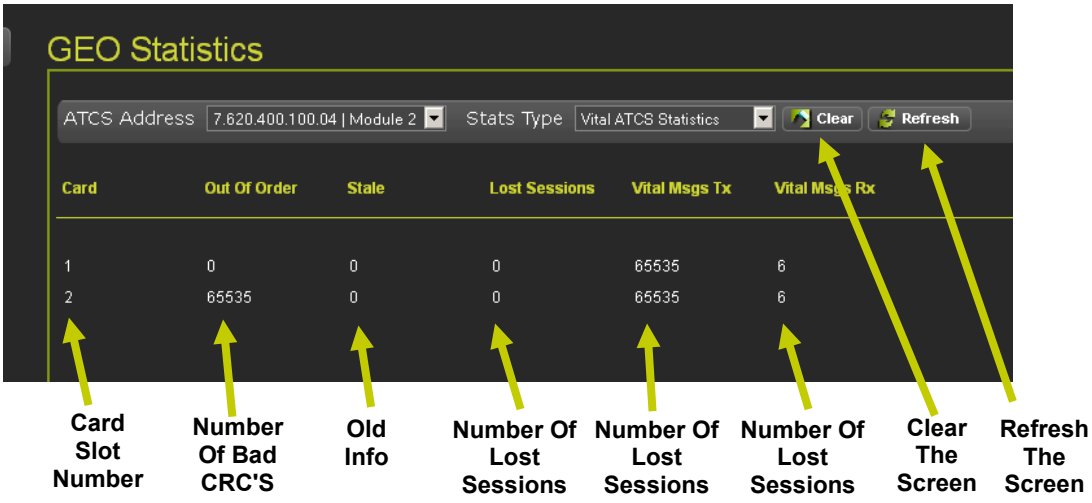

Figure 4-121 ATCS Statistics

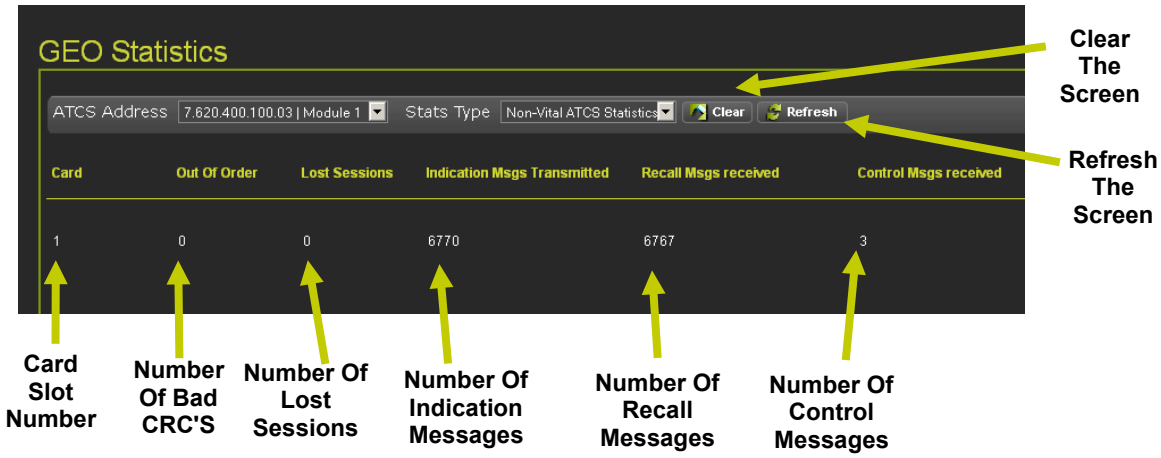

Figure 4-122 Non-Vital ATCS Statistics

Figure 4-123 Time Statistics

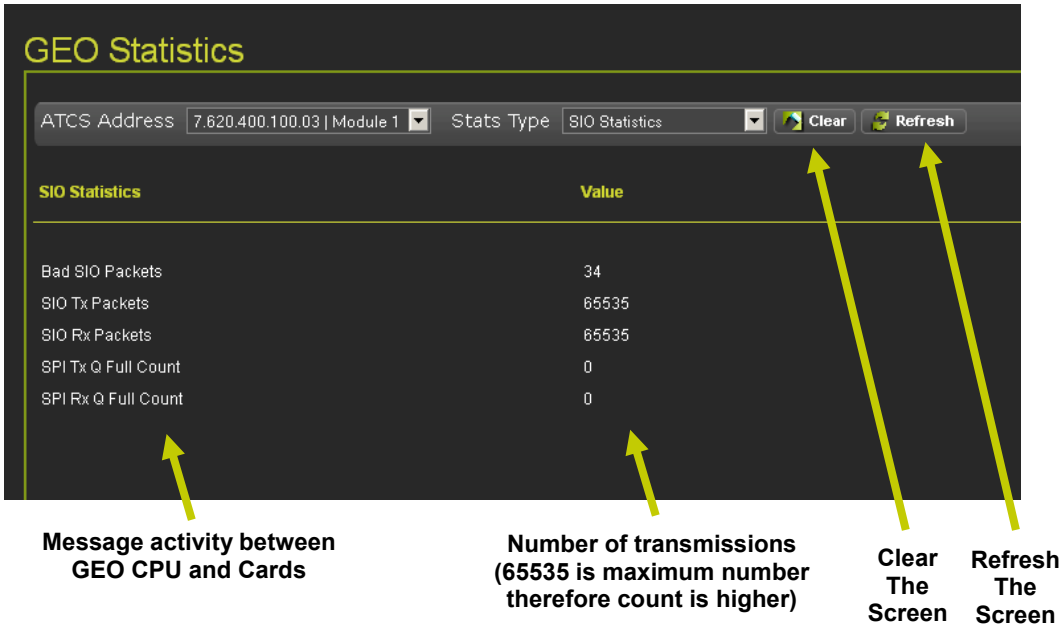

Figure 4-124 SIO Statistics

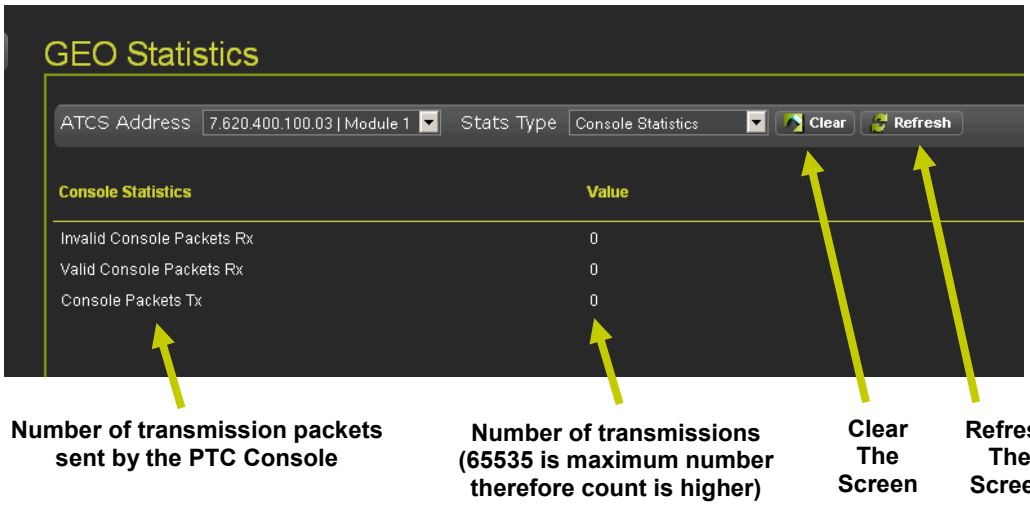

Figure 4-125 Console Statistics

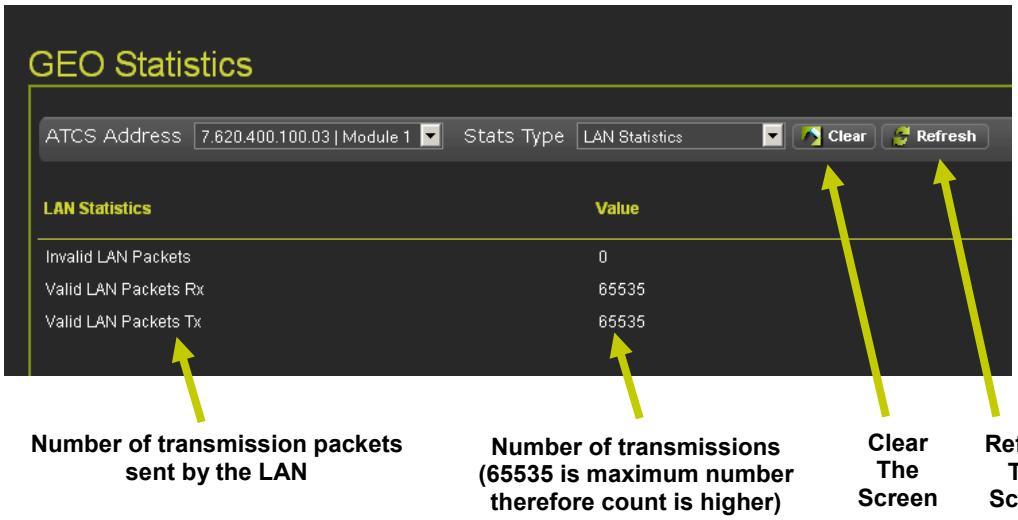

Figure 4-126 LAN Statistics

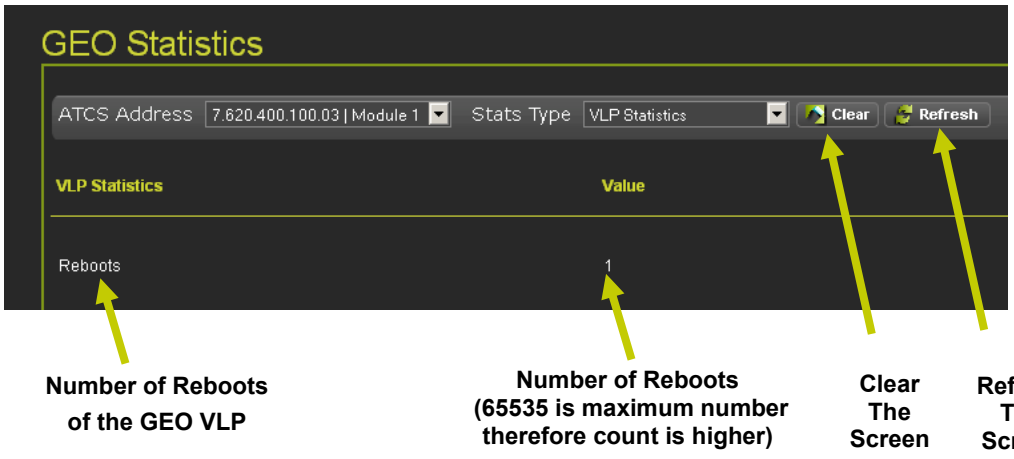

Figure 4-127 VLP Statistics

4.1.6.2 Information

The Information window serves as an alert vehicle to advise the user of a situation present within the system. Monitor and Diagnostic windows will display an information icon in the upper right corner of the page as shown in Figure 4-128. When the information icon is present, click on the Diagnostics Icon and click on the Information to bring up the Information window. The Information window will display active events as shown in Figure 4-128. In the example the information advises the Date and Time of the event, the description of the error, and the error code.

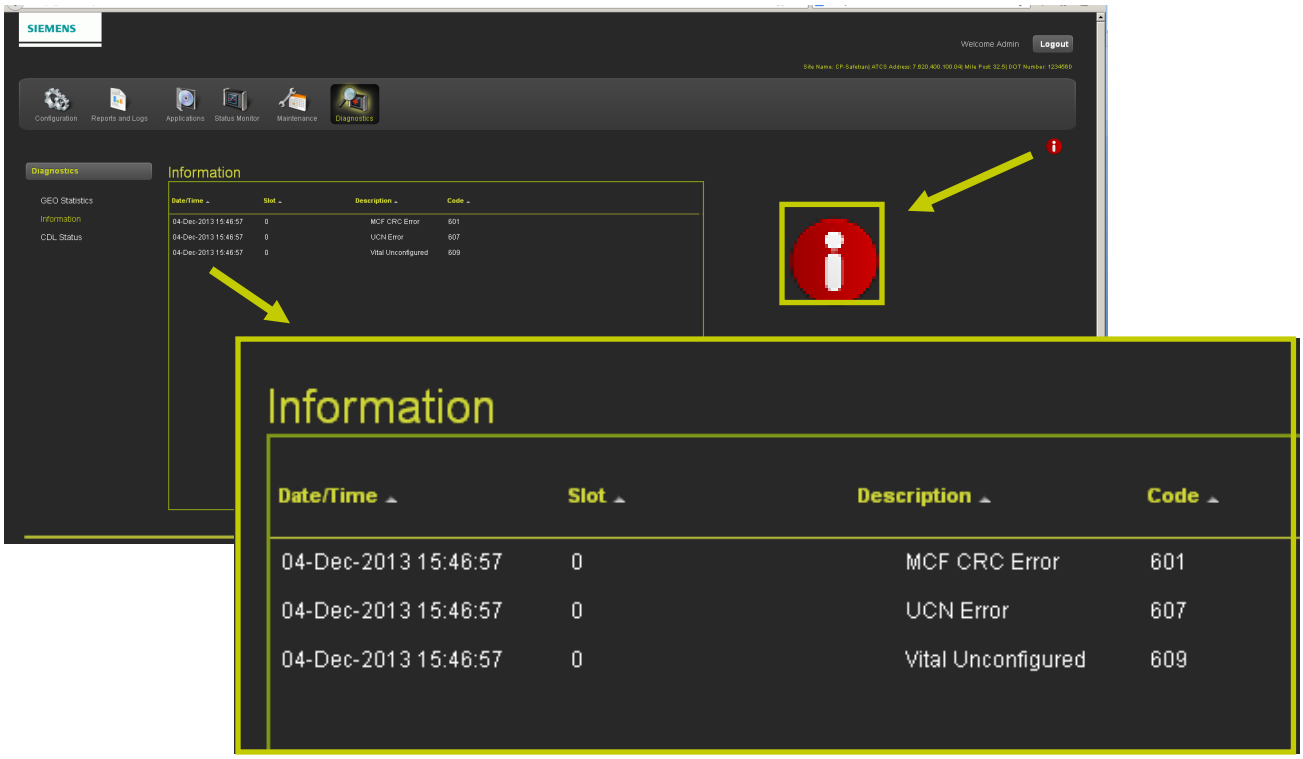

Figure 4-128 Information Alert Icon and Data Display

4.1.6.3 CDL Status

Figure 4-129 displays the CDL Status screen. If a CDL program is installed and is running a Green "C" will appear in the upper right corner. If a CDL program is installed and not running a Red "C" will appear in the upper right corner. A Yellow "C" will appear when a CDL alert is present in the CDL Status window. This icon will appear on all screens in WebUI to alert the user to check the CDL Status for an important alert. If a CDL program is not installed no indication will be present.

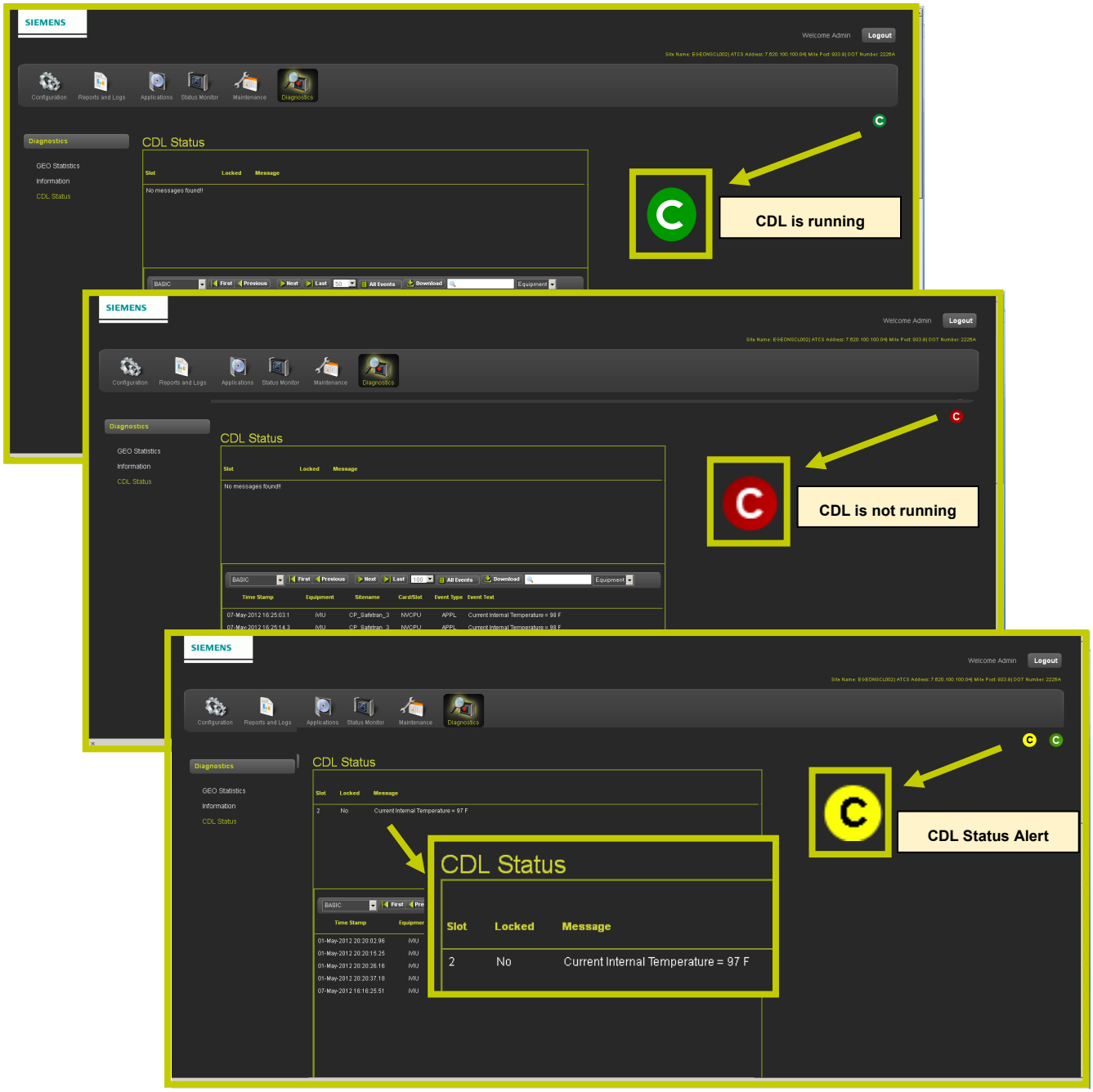

Figure 4-129 Status Monitor - CDL Status

- **CDL Status - CDL Logs**

The CDL Status screen also has the CDL Event Log displayed on the lower portion of the screen. The events may be searched by Equipment, Site Name, Card Slot, Event Type and Event Text. A Search Window provides a means of searching events using keywords.

To view non CDL generated events open the Event Log by clicking on the Report and Logs icon in the menu bar then selecting Events Log in the Reports and Logs menu.

Figure 4-130 CDL Event Logs

The ALL EVENTS button [1] will create all of the logs. Click on the DOWNLOAD button [2] to display the logs.

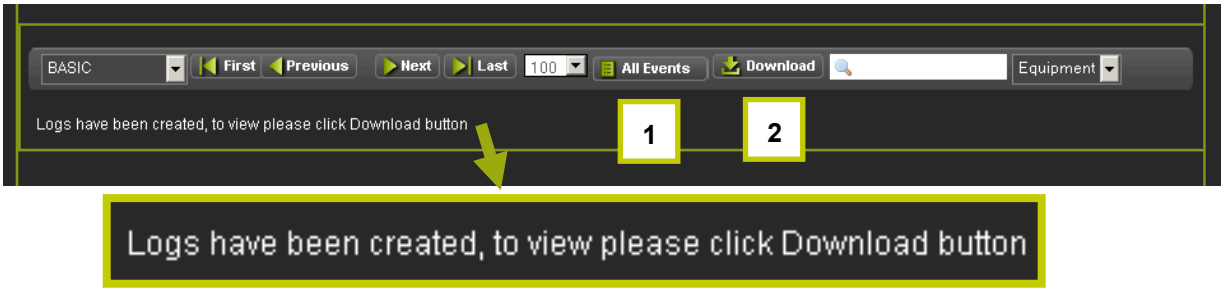

Figure 4-131 Download All CDL Events

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SECTION 5
MAINTENANCE

5.0 MAINTENANCE

5.1 GENERAL

There is no maintenance required on the PTC console. Standard housekeeping is recommended to keep dirt and debris from accumulating around the console. There are no user serviceable parts within the console. Failed units should be returned to Siemens for repair or replacement.

NOTE

NOTE

If the PTC Console fails, replace the PTC Console but leave the ECD/Power connector installed. The newly installed PTC Console will obtain its configuration from the ECD.

⚠ WARNING

WARNING

THE ECD SHOULD NOT BE REMOVED OR REPLACED. IT CONTAINS VITAL SITE-SPECIFIC DATA REQUIRED FOR PROPER OPERATION OF THE SIGNALING SYSTEM. IF THE ECD IS SWAPPED, THE SYSTEM MUST BE RETESTED.

5.2 ON-SITE PERSONNEL

On-Site Personnel is used in two ways, 1) to enable on-site personnel to suppress alarms while performing maintenance on-site, 2) enables on-site personnel to authenticate requests from remote users.

5.2.1 On-Site Personnel Operation

When on-site personnel perform maintenance, it is desirous to suppress alarms until work is completed. To suppress alarms, verify the On-Site LED is OFF, press the On-Site Personnel button to start the alarm suppression timer. The length of time is determined by the Alarm Suppressor Timer described in Section 5.2.2.1. Default time is 20 minutes. The Alarm Suppressed LED will illuminate while the timer is active.

Time can be extended by pressing the On-Site Personnel button again. The suppression timer will reset and start the countdown with the full amount of time programed into the console.

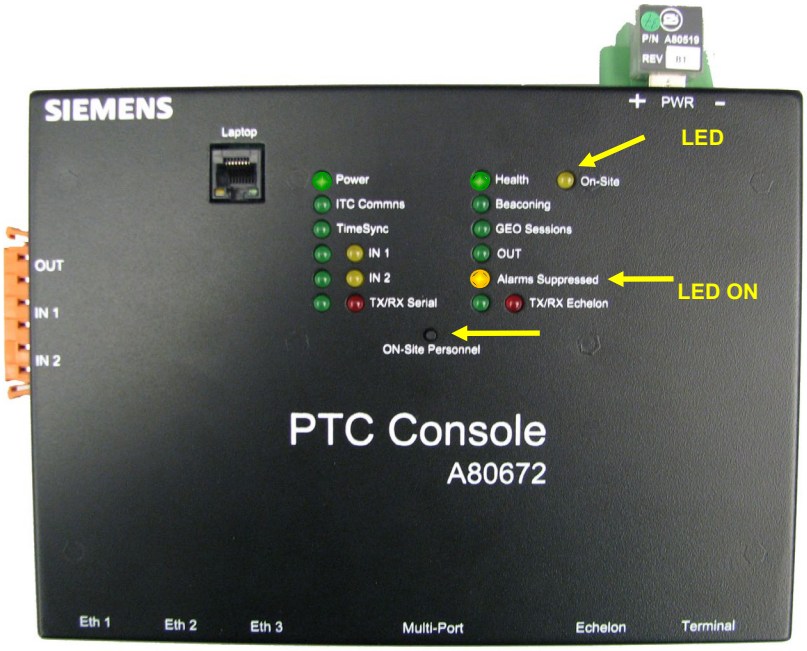


Figure 5-1 On-Site Personnel Activation

5.2.2 Remote User Access Authentication

When a remote user desires to unlock the PTC Console, a request is sent using WebUI (see Section 4.1.6.1). When an access request is sent from a remote user the on-Site LED will flash on the PTC Console front panel. An on-site maintainer can authenticate the request by pressing the On-Site Personnel button. In this case alarms will not be suppressed.

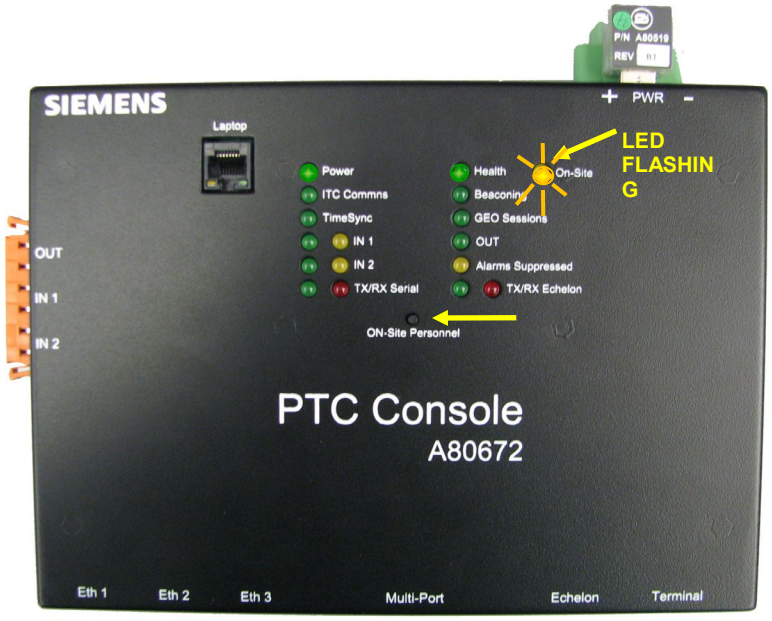
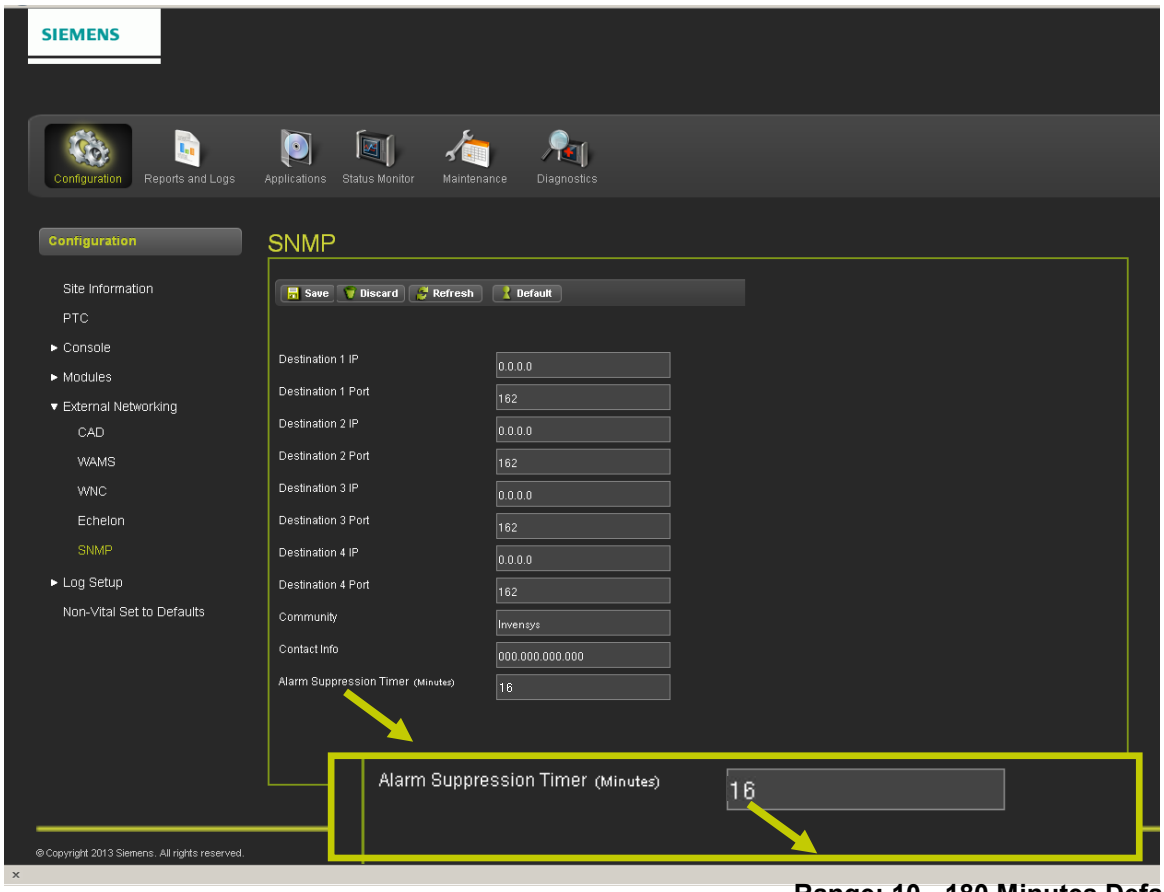


Figure 5-2 Authentication of Remote User Access

5.2.2.1 On-Site Personnel Timer - Alarm Suppression Timer

When the On-Site Personnel button is pressed, the Alarm Suppression timer will begin counting down. The Alarm Suppression Timer is user adjustable from 10 to 180 minutes. Default value is 20 minutes. When the timer times out, the CDL functions will activate and alarms will be sent to their designated destination.

The Alarm Suppression Timer adjustments are detailed in the SNMP sub-menu of the External Networking Menu, paragraph 4.1.2.6.



Range: 10 - 180 Minutes Default = 20 min

Figure 5-3 On-Site Personnel - Alarm Suppression Timer

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APPENDIX A SYSTEM MANAGEMENT COMMAND REFERENCE

A.1 SERIAL TERMINAL INTERFACE

Open the desired terminal interface tool and select **File > New Connection**. In the TCP/IP Address field, type the IP address of the PTC Console unit, then select **OK**.

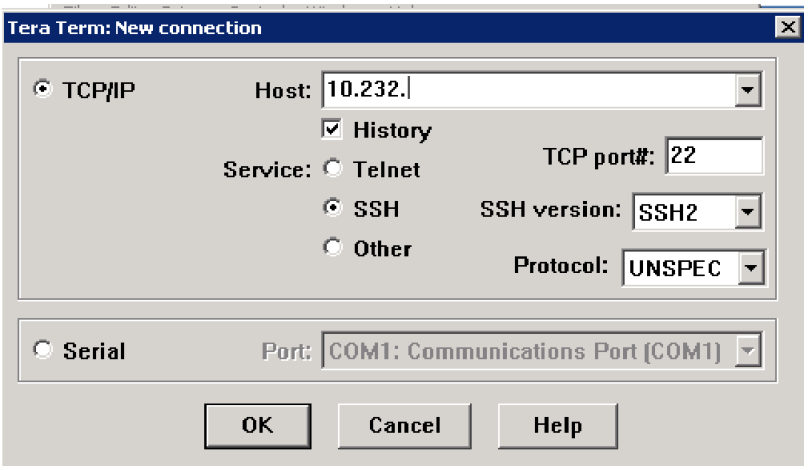

Figure 5-4 Enter IP Address

The terminal interface may then display a security warning, select **Continue** to move past this screen.

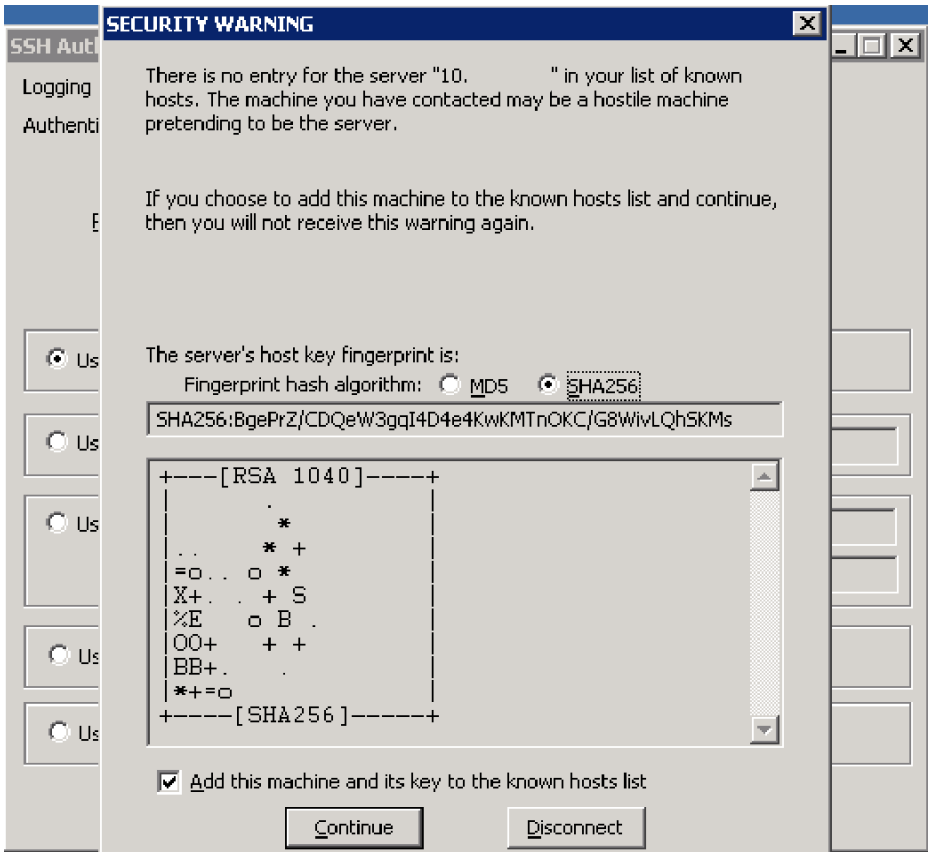

Figure 5-5 Terminal Interface Security Warning

The terminal interface will then display a login screen, the default username is **root** and the default password is **ptcuser**. These can be changed after login using the standard Linux commands.

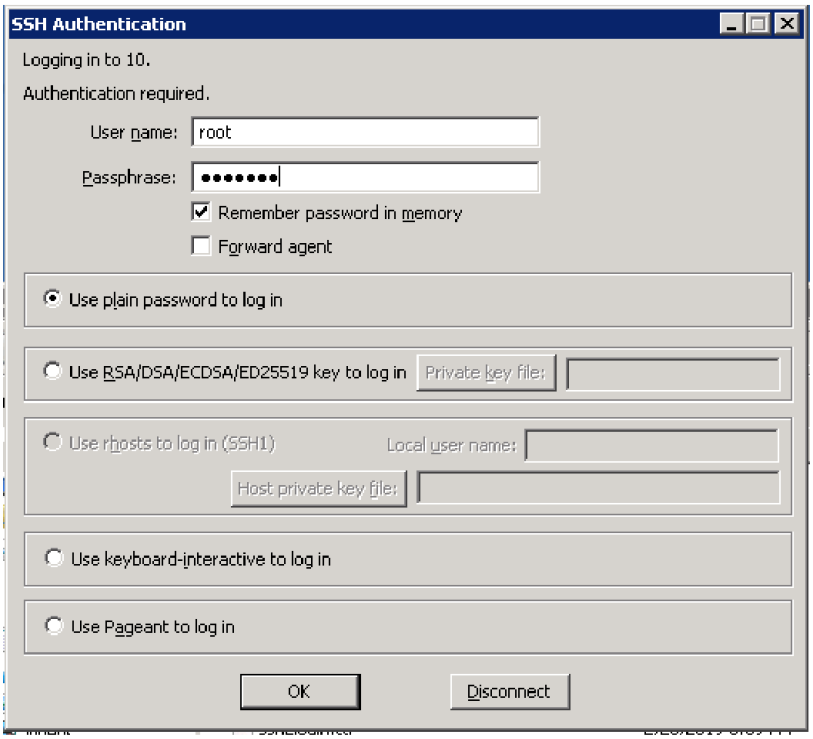

Figure 5-6 Login Screen

A.2 COMMANDS

Each systems management command is described in the following sections. The command names and parameters are case-sensitive unless specified otherwise. This section does NOT show how to use standard Linux commands, such as scp and ssh.

A.3 GET_DAIG, GET_EVENTS

```
get_diag [-t <hours>]
```

Print the last <hours> worth of diagnostic log entries.

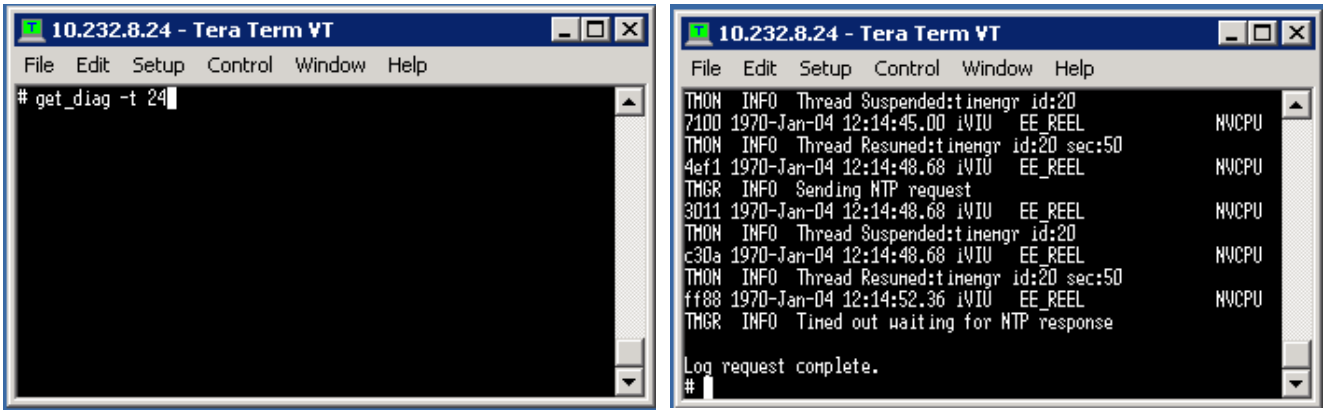

Figure 5-7 Get_Diag Example

```
get_diag [-s <time>] [-e <time>]
```

Print diagnostic log entries in the given date/time range.

```
get_events [-t <hours>]
```

Print the last <hours> worth of event log entries.

```
get_events [-s <time>] [-e <time>]
```

Print event log entries in the given date/time range.

A.3.1. Description

The get_diag command returns the contents of the system's diagnostic log. The diagnostic log contains detailed information about the internal workings of the PTC Console. The get_events command returns the contents of the event log, which contains the application level view of the operation of the location. Both commands allow the user to specify a date/time range of entries to return. If the command is used without arguments, the entire log is returned.

```
-t <number_of_hours>
```

Prints the last `<number_of_hours>` worth of log entries. For example, `get_events -t 24` would display the last 24 hours of events in the event log.

```
-s YYYY-MM-DD hh:mm:ss  -e YYYY-MM-DD hh:mm:ss
```

Prints the entries in the given date/time range. The –s specifies the start time and the –e specifies the end time. Times must be specified in 24 hour format. If no date and time given after –s or -t, starting time defaults to the beginning of the log and ending time defaults to the end of the log. If you omit the time portion of the date and time, it defaults to midnight. If you omit the date portion, it defaults to today.

A.3.2. Examples

The following shows requesting the last 24 hours from the diagnostic log:

```
# get_diag –t 24
```

The following shows requesting between 15:30 and 18:00 today from the event log:

```
# get_events –s 15:30:00 –e 18:00:00
```

The following shows requesting from the beginning of the log to a certain date (at midnight).

```
# get_events –s –e 2013-01-15
```

A.4 UPGRADER

```
Upgrader –s <source file> [-d <destination>] [-v] [-x]
```

Upgrades the non-vital executive software of the PTC Console.

A.4.1. Description

This command upgrades the non-vital software from the given non-vital software package file. All file paths must be specified as an absolute path from root (/).

```
-s <source file>
```

Tells the Upgrader command the location of the package file (*.tgz) used to upgrade from.

```
-d <destination>
```

Optional. The location that package file will be expanded into. By default, this is the root directory (/). As of this writing, this should always be the root directory.

```
-v
```

Optional. If specified, enables verbose output. The output will show information about each file included in the package, as it is expanded.

```
-x
```

Optional. If specified, any included upgrade script in the package will not be executed and the system will not automatically reboot at the end of the upgrade. This option should only be used by development or manufacturing personnel.

A.4.2. Examples

If the user transferred a new non-vital executive software package file, iv_mef_1.2.3.tgz into the /tmp directory, the following command would update the system from that file:

```
# Upgrader –s /tmp/iv_mef_1.2.3rtgz
```

A.5 WHO

```
who [m|r|s]
```

Display the WIU model, revision, and serial number.

```
who [m <model>]
```

Used by manufacturing to set the model number.

```
who [r <revision>]
```

Used by manufacturing to set the revision level of the WIU.

```
who [s <serialnum>]
```

Used by manufacturing to set the serial number.

A.5.1. Description

The who command displays the model, hardware revision, and serial number of the WIU product. This command also shows the site name, DOT number (unused), milepost, and ATCS address for the product. Siemens Mobility, Inc. manufacturing use the who command to set the model, revision, and serial number data.

[FUTURE, not yet implemented] This command will also show the software and hardware revision information for the connected GEO systems. For each GEO and for each card in the GEO chassis, the following will be shown:

- Software version
- Software ID
- Software CRC
- Latest Hardware Revision
- Hardware Revision Shipped
- Part number
- Serial number
- Build date
- Warranty date

Use the who command with no arguments to view the information.

The following are the command line options, which are used by Siemens Mobility, Inc. manufacturing.

```
m, M <model>
```

Used by Siemens Mobility, Inc. manufacturing to set the WIU's model number.

```
r, R <revision>
```

Used by Siemens Mobility, Inc. manufacturing to set the WIU's revision level.

```
s, S <serialnum>
```

Used by Siemens Mobility, Inc. manufacturing to set the WIU's revision level.

A.5.2. Examples

The following example shows viewing the information provided by the command.

```
# who
iVIU Site: CP 360
DOT is:
Mile post: 122.2
ATCS Address: 7.620.100.100.02
iVIU Model: PTC Console
iVIU Revision: B6
iVIU Serial #: 172
```

A.6 WIUCONF

```
wiuconf –g <filename> [-v|-nv|-c]
```

Generate text file of WIU configuration options.

```
wiuconf –a <filename>
```

Apply new configurations settings, contained in provide text file.

```
wiuconf -s <variable> -t <value>
```

Sets a configuration setting (variable) to the given value.

```
wiuconf –d <variable>
```

Displays the value of the given configuration settings (variable).

```
wiuconf –c <cdlfile>
```

New CDL file will be compiled and CDL engine will execute based on the logic that's generated.

A.6.1. Description

The wiuconf command can:

- Generate text files containing the vital and non-vital configuration settings currently in the unit. It also contains CDL menu and operational parameter options.
- Apply text files containing non-vital settings (include Encrypted HMAC key) to the unit
- Set the value of individual configuration parameters
- View the value of individual configuration parameters and the UCN values
- Apply automated changes for existing or new CDL

The following are the possible command options

```
-g <filename>, --generate <filename>,
-g <filename>[-v|-nv|-c|--nonvital|--vital|--cdl]
--generate <filename>[-v|-nv|-c|--nonvital|--vital|--cdl]
```

The wiuconf utility will generate a text file with the given <filename>, which contains all the configuration parameters. Optionally, the command can generate just the non-vital settings (those not covered by the UCN) using the "-nv" or "--nonvital" option, or the vital settings using the "-v" or "--vital" option, or CDL menu and operational parameters with"-c" or "--cdl" option, or all the above configuration parameters without any of the [-v|-nv|-c|--nonvital|--vital|--cdl] options.

```
-a <filename>, --apply <filename>
```

The wiuconf utility will parse the given file and apply the contents of the file to the unit's non-vital configuration settings. The non-vital configuration file can also contain CDL-defined menu or operational parameters. If necessary, this may result in a re-compile of the CDL logic loaded in the unit. The command will report any errors parsing the file or compilation errors.

```
      -s <variable> -t <value>, --set <variable> --to <value>
```

The wiuconf utility will set the given variable to the given value (Note: You may only set the value of non-vital variables). The variable name must match the variable name from the text file format and the value must match one of the possible values for that variable. Variable names and values are not case sensitive. If the variable is nested, you must specify the sections. However, if the variable name within the section is unique, you will not need the section name. For example:

```
wiuconf --set EMP_WIU:Broadcast_Rate_ms --to 1000

wiuconf --set Broadcast_Rate_ms --to 1000
```

```
      -s <variable> -t ?
```

The wiuconf utility will show a listing of possible values for the variable if you use a question mark for the –t parameter. For example, it will show all the available options, and user can type in only partial string of the option instead of the whole string:

```
# wiuconf -s timezone -t ?

Options:

    1. Greenwich Mean Time (GMT)
    2. Eastern (GMT-5:00)
    3. Central (GMT-6:00)
    4. Mountain (GMT-7:00)
    5. Pacific (GMT-8:00)
    6. Alaska (GMT-9:00)
    7. Atlantic (GMT-4:00)
    8. Arizona (No DST, GMT-7:00)
    9. Newfoundland (GMT-3:30)
    10. Aus Western (GMT+8:00)
    11. Aus Central (GMT+9:30)
    12. Aus Central (No DST, GMT+9:30)
    13. Aus Eastern (GMT+10:00)
    14. Aus Eastern (No DST, GMT+10:00)

# wiuconf -s timezone -t central

# wiuconf -d timezone

Central (GMT-6:00)
```

```
      -d <variable>, --display <variable>
```

The wiuconf utility will display the current value of the given variable (see the text file reference for the variable names).

```
      -c <cdlfile>, --cdl <cdlfile>
```

This option is used to do automated changes for new CDL. The wiuconf utility will compile the CDL program, and generate the logic based on the given non-vital configuration file. And then triggers the CDL engine to begin executing that logic. Before wiuconf command is run, user needs to transfer the new CDL file to the default directory /mnt/ecd/0/, and also upload the configuration file to any user picked directory.

A.6.2. Examples

The following will generate the complete text file of the configuration settings supported by the WIU. The text file can be used as a reference for what variables are supported.

```
# wiuconf –g /tmp/wiu_conf.txt
```

The following is an example to view the PTC UCN (PTC Configuration CRC).

```
# wiuconf –d ptc_ucn
5e5ab213
```

The following is an example to set the encrypted HMAC key:

```
# wiuconf –s hmac_key –t ABC123XYZETC
```

A.6.3. Special Considerations

Some variables are nested depending on which port/channel/slot the setting applies to. For example, the “Baud_Rate” variable depends on which serial port you are setting. The following lists the full variable names for some variables nested this way:

```
laptop_serial_port:baud_rate
laptop_serial_port:Data_Bits
laptop_serial_port:Parity
laptop_serial_port:Stop_Bits
laptop_serial_port:Flow_Ctrl

Serial_Port1:baud_rate
Serial_Port1:Data_Bits
Serial_Port1:Parity
Serial_Port1:Stop_Bits
Serial_Port1:Flow_Ctrl

Serial_Port2:baud_rate
Serial_Port2:Data_Bits
Serial_Port2:Parity
Serial_Port2:Stop_Bits
Serial_Port2:Flow_Ctrl

Serial_Port3:baud_rate
Serial_Port3:Data_Bits
Serial_Port3:Parity
Serial_Port3:Stop_Bits
Serial_Port3:Flow_Ctrl
```

```
Laptop_Eth_Port:DHCP
Laptop_Eth_Port:IP_Address
Laptop_Eth_Port:NetMask
Laptop_Eth_Port:Gateway

Eth_Port1:DHCP
Eth_Port1:IP_Address
Eth_Port1:NetMask
Eth_Port1:Gateway

Eth_Port2:DHCP
Eth_Port2:IP_Address
Eth_Port2:NetMask
Eth_Port2:Gateway

Eth_Port3:DHCP
Eth_Port3:IP_Address
Eth_Port3:NetMask
Eth_Port3:Gateway

Module1:Name
Module1:Type
Module1:GEO:Connection_Type
Module1:GEO:ATCS_Subnode
Module1:GEO:UCN
Module1:GEO:MCF_CRC

Module2:Name
Module2:Type
Module2:GEO:Connection_Type
Module2:GEO:ATCS_Subnode
Module2:GEO:UCN
Module2:GEO:MCF_CRC

(etc. up to Module16)
```

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