

USER'S GUIDE

CPU III MODULE A80903 FOR GEO & WAYCONNEX

DECEMBER 2016

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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	DEC 2016		Initial Release

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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:



If there are any questions, contact Siemens Industry, 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 Industry, Inc. 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.

GLOSSARY

TERM	DESCRIPTION
AAR:	Association of American Railroads – An organization that establishes uniformity and standardization among different railroad systems.
ACSES:	Advanced Civil Speed Enforcement System
AREMA:	American Railway Engineering and Maintenance-of-way Association
Aspect:	(Signal Aspect) The appearance of a fixed signal conveying an indication as viewed from the direction of an approaching train. A cab signal conveying an indication as viewed by an observer in the cab.
ATCS:	Advanced Train Control System – An industry standard used in equipment communications.
BCM:	Base Control Module
BCP:	Base Communication Package, or Base Station
Boot:	Startup sequence for the microprocessor. On the GEO system this can be accomplished by removing then reseating the CPU module or by pulling the 30 A chassis fuse for a few seconds.
CAD:	Computer Aided Dispatch. An automated system for processing dispatch business and automating many of the tasks typically performed by a dispatcher. Abbreviated CAD (not to be confused with computer-aided design which is also known as CAD) is application software with numerous features and functions.
CDL:	Control Descriptor Language – The programming language used by application engineers to customize operation, settings, and behavior.
CDMA:	Code Division Multiple Access. A protocol used in cellular telephony.
Checksum:	A simple way to protect the integrity of data by detecting errors in data that are sent through space (telecommunications) or time (storage). It works by adding up the basic components of a message, typically the asserted bits, and storing the resulting value. Anyone can later perform the same operation on the data, compare the result to the authentic checksum and (assuming that the sums match) conclude that the message was most likely not corrupted.
CETC:	Centralized Electrification & Train Control
CLS:	Color Light Signal – The GEO module used to control and monitor Color Light Signals.
Configuration File:	When changes are made to the default settings in the MCF (Master Configuration File), the custom settings are maintained in the configuration file.
CPU III:	Next Generation GEO central processing unit (CPU) module.
CRC:	Cyclical Redundancy Check – Used to determine that data has not been corrupted.
CTC:	Centralized Traffic Control. This is also known as CAD for Computer Aided Dispatch. This is the system in the office used to control and monitor the railroad signaling system.
DATAGRAM:	In general, any ATCS packet. Several types of datagrams are defined for specific functions within an ATCS environment.
dB:	Decibels
dBi	Abbreviation for decibels referenced to an isotropic (unipole) antenna.
dBm	Abbreviation for decibels above (or below) one milliwatt.

TERM	DESCRIPTION
DC offsets:	Condition in which one rail is kept at one voltage relative to the other even when the track circuit is disconnected.
Debounce:	The amount of time an input must remain constant to be considered a valid input. Debounce prevents random spikes of electrical energy from energizing an input.
DIAG.:	Diagnostic
DNS:	Domain Name Server
DOT Number:	Department of Transportation crossing inventory number assigned to every highway-railroad crossing. The number consists of six numbers with an alpha suffix.
Drop Delay	An internal delay time between when a function is ordered off and when it actually de-energizes.
DSU:	Data Service Unit
DT: DTMF:	Diagnostic Terminal - Safetran's PC-based diagnostic software. Dual Tone Multi-Frequency - The tones on a telephone or radio keypad.
ECD:	External Configuration Device – The non-volatile memory device used for storing the module configuration file.
Echelon [®] :	A Local Area Network, LAN, used by Safetran equipment.
EEPROM:	Electrically Erasable Programmable Read-Only Memory. A type of non-volatile memory used in computers and other electronic devices to store small amounts of data that must be saved when power is removed. When larger amounts of static data are to be stored, a specific type of EEPROM called a flash memory is used.
ELS:	Serial Link extension board
EMP:	Edge Messaging Protocol. A common message format used for edge integration. Examples of integration edges are wireless transports and various messaging systems that may be used by the various railroads (e.g., using EMP to communicate between mobile applications and back office applications using wireless communications). EMP defines the message format, header, and operating rules which facilitate interoperable message transmission, reception, decoding, and routing.
Firmware:	Software saved in ROM within a module and moved into main memory RAM for runtime use when the system is powered up.
FRA:	Federal Railroad Administration. The purpose of FRA is to: promulgate and enforce rail safety regulations; administer railroad assistance programs; conduct research and development in support of improved railroad safety and national rail transportation policy; and consolidate government support of rail transportation activities.
GCP:	Grade Crossing Predictor – A train detection device used as part of a highway-railroad grade crossing warning system to provide a relatively uniform warning time.
GEO [®] :	Geographic Signaling System - GEO® is vital microprocessor- controlled signaling equipment manufactured by Safetran Systems Corporation. It monitors and controls switches, signals, and relays at wayside locations on the railroad.
GENI (F):	Genisys Field Protocol
GENI (O):	Genisys Office Protocol
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TERM	DESCRIPTION
GFT:	Ground Fault Tester – An optional external device connected to the Echelon LAN that constantly monitors up to two batteries for ground faults and indicates battery status.
GMT:	The time as measured on the prime meridian running through Greenwich, England: used in England and as a standard of calculation elsewhere. Also called Greenwich Mean Time, Greenwich Civil Time, Universal Time
GOL:	Geographic Object Library
GPS:	Global Positioning System.
HMAC:	Keyed-Hash Message Authentication Code. A type of message authentication code (MAC) calculated using a specific algorithm involving a cryptographic hash function in combination with a secret key.
HS:	Home Signal
Hz:	Hertz – Common reference for cycles per second or flashes per second.
Interconnection:	The electrical connection between the railroad active warning system and the traffic signal controller for the purpose of preemption.
IP:	Internet Protocol - ISO Model Layer 3 (network) protocol that performs proper routing of packets.
ITC:	Interoperable Train Control
ITCM:	Interoperable Train Control Message.
Interlocking:	An automatic or manual arrangement of signals and appliances so interconnected that their movements must succeed each other in proper sequence and for which interlocking rules are in effect.
IO or I/O:	Input/Output
kHz:	Kilohertz – 1000 Hz or 1000 cycles per second.
LAN:	Local Area Network – A limited network where the data transfer medium is generally wires or cable.
LCP:	Local Control Panel – A control and display interface device that allows field personnel to perform maintenance and troubleshooting procedures at a location.
LED:	Light-Emitting-Diode - A solid-state indicator.
LIN:	Line - The GEO module used to transmit and receive coded track patterns over cable.
LOD:	Light Out Detector - A device that monitors current flowing in a circuit such as a signal light, switch, etc., for the purpose of detecting a fault condition in the circuit.
LOR:	Lamp Out Relay - A GEO status indication using the DTU or the maintainer's interface that a signal lamp filament has been tested with current and failed.
LUI:	Local User Interface – Refers to the character display and keypad on the front panel of Safetran equipment.
MCF:	Module Configuration File
MEF:	Module Executable File

TERM	DESCRIPTION
Module:	Physical package including PCBs and input/output terminals for connecting to external devices and equipment.
NTP:	Network Time Protocol. The NTP is a protocol used to synchronize the clocks in millions of servers, workstations and PCs of the public internet and private networks.
OCG:	Office Communication Gateway
OCE:	Office Configuration Editor – A program used to create configuration package files (Pac files) for iVIU PTC GEO, iVIU, VIU, GEO, CPU III, and GCP equipment.
Out Of Service:	The process for taking one or more pieces of equipment out of service for repair and/or maintenance.
Pac File:	A configuration Package File that can either be created in the office using the OCE.
PCB:	Printed Circuit Board
Pick Up Delay:	An internal delay time between when an input receives the signal to pick up and when it actually responds.
PTC:	Positive Train Control. An automated control system for railways that ensures the safe operation of rail vehicles using data communication between various control entities that make up the system.
Reboot:	To cause the system to restart by removing power for a few seconds, then reapplying power.
RJ-45:	Industry standard Ethernet port
RIO:	Relay Input Output Module
RS232:	Industry standard serial port.
RS-485:	A higher speed version of RS-232 that supports longer distances and multiple devices.
RTU:	Remote Telemetry Unit
RX:	Receive
RXD:	Receive Data
Serial bus:	The communication path that carries messages between the CPU and I/O modules installed in the GEO chassis. The serial bus is a set of solder runs on the motherboard (backplane) of the chassis.
Signal aspect:	The appearance of a fixed signal conveying an indication as viewed from the direction of an approaching train; the appearance of a cab signal conveying an indication as viewed by an observer in the cab.
SIN:	Site (Subnode) Identification Number - A twelve-digit ATCS address representing the module as a subnode on the network.
SNMP:	Simple Network Management Protocol. SNMP is an Internet-standard protocol for managing devices on IP networks.
SNTP:	Simple Network Time Protocol. A simplified version of NTP where storage of state data is not required
SSH:	Secure Shell. SSH is a network protocol for secure data communication and remote command execution.

TERM	DESCRIPTION
TCP/IP Network:	Transmission Control Protocol / Internet Protocol. The suite of communications protocols used to connect hosts on the Internet. TCP/IP uses several protocols, the two main ones being TCP and IP. TCP/IP is built into the UNIX operating system and is used by the Internet, making it the de facto standard for transmitting data over networks.
Track circuit:	Defined by AREMA as "An electrical circuit of which the rails of a track form a part." A track circuit's limits are established by the use of insulated rail joints.
TRK:	Track – The GEO module used to transmit and receive coded track patterns for railroad track circuits.
True RMS AC+DC:	A scale on a multimeter that measures the effective combined AC and DC portions of the total voltage. Used to measure the pulsed output of a crossing controller. Measured as VRMS.
TSR:	Temporary Speed Restriction
TX:	Transmit
TXD:	Transmit Data
UAX:	Acronym for Upstream Adjacent Crossing (Xing). UAX inputs are used to receive prediction information from an upstream GCP as inputs to a downstream GCP when insulated joints are in the approach circuit.
UCN:	Unique Check Number – A number is used to detect file corruption.
UDP:	User Datagram Protocol - A transport protocol used primarily for the transmission of network management information. Not as reliable as TCP.
ULCP:	Universal Local Control Panel – Same as LCP.
USB Port:	Universal Serial Bus Port
USB Drive:	Types of memory devices that plug into a USB port. These devices are commonly called flash drives or memory sticks.
UTC:	Coordinated Universal Time.
VHF Communicator:	Communications device used for remote operations and calibration as well as data communications.
VIU:	Vital Interface Unit. A device that monitors switch positions and signal aspects and then generates vital status messages reflecting the current state of the monitored equipment.
VLAN:	Virtual Local Area Network
VLO:	Vital Lamp Output – A software-driven vital hardware output which drives a lamp on a Colorlight Signal to display a commanded aspect and verifies the lamp is operational (not shorted or out).
VLP:	Vital Logic Processor The processor mounted on the CPU module that is responsible for vital processing.
VPI:	Vital Parallel Input – A vital input to a module, designed primarily to read the state of a vital signaling relay.
VRMS:	Volt Root Mean Square – See True RMS AC + DC above.

TERM	DESCRIPTION
VTP:	Virtual Local Area Network (VLAN) Trunk Protocol. A Cisco proprietary Layer 2 messaging protocol that manages the addition, deletion, and renaming of VLANs on a network-wide basis. VTP reduces administration in a switched network. When you configure a new VLAN on one VTP server, the VLAN is distributed through all switches in the domain. This reduces the need to configure the same VLAN everywhere.
WAMS:	Wayside Alarm Management System – An office based application that communicates with and receives data from specially equipped crossings.
WCC/FPD:	Wayside Cluster Controller/Field Protocol Device. The WCC/FPD is often referred to as the Packet Switch. This equipment manages clusters of base stations and other communications links to the field. The WCC/FPD is installed in the office.
WCCT	WayConneX Configuration Tool
WCCMaint:	Software that runs on a PC used to configure and manage a network of WCC/FPD equipment. WCCMaint is often used to manage other communications equipment as well such as WCPs and BCPs.
WIU:	Wayside Interface Unit. Term used to refer to the VIU in PTC applications.
WSM:	Wayside Status Messages. Messages in EMP format reflecting the status of vital functions at a wayside location. These vital functions include signal aspects and switch positions.

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SECTION 1 - INTRODUCTION

1.0 INTRODUCTION

The A80903 CPU III Module is the next generation Central Processing Unit for use in the Geographic Signaling System (GEO®) and WayConneX equipment. The CPU III eliminates the need for a Diagnostic Terminal Module used with the GEO® System.

The CPU III is equipped with an Ethernet port and an internal Web User Interface (Web UI) for user Configuration, Diagnostics, Software upgrades, System status, and generating Reports and Logs. When used in the new WayConneX (A80610) chassis, the Ethernet port from the CPU III that is available on the chassis eliminates the need for intermediate equipment for IP communications.

The CPU III has an output RS-232 port for configuration of the GEO modules installed in the system using a DB-9 to DB-9 serial cable.

The CPU III can be used as a drop in replacement in existing GEO Appliance model systems that use the CPU2+ (A80403-003) module and A53510 chassis.

Note: it cannot be used with pre-appliance model application that use CPU2 (A53268), CPU (A53260), or CPU2+ (A80403-002, ones that use VPJxx_xx/NCJxx_xx MEFs).

The CPU III can also be used in the new WayConneX applications using the A80610 chassis. The WayConneX Configuration Tool (WCCT) can be used to create Boolean application programs (MCF) for controlling the signaling logic and allowing PTC interface functionality.



Figure 1-1 A80903 CPU III Module

1.1 ORDERING INFORMATION

The CPU III may be ordered with or without Echelon[®] communications.

The following is the ordering information for the A80903 CPU III Module.



SECTION 2 – CPU III MODULE LOCAL USER INTERFACE

2.0 CPU III MODULE LOCAL USER INTERFACE

This section will detail the display messages, indicators, controls, and connectors the user will use to perform functions locally using the module front panel.

2.1 INDICATORS, CONTROLS, AND CONNECTORS

Item	Name	Function
Dicploye	4-character	Used with the SEL and NAV push buttons to
Displays	display	provide a maintainer interface.
	2-Push Button	Select (SEL) button steps through each menu
Controls	Select/Navigate	The Navigate (NAV) button steps through each
		sub menu of the selected menu.
	16 user-	User can generate a label for LEDs 6 thru 11.
	programmable	LEDs 1 through 5 are pre-programmed at the
	LEDs (red)	factory.
	RX ECH LAN	On – a message is being received on the
	LED (green)	Echelon LAN interface.
	TX ECH LAN	On – a message is being transmitted on the
	LED (red)	Echelon LAN interface.
	RX DSPL COMM	Not Used in GEO/WayConneX Applications
	LED (green)	
	TX DSPL COMM	Not Used in GEO/WayConneX Applications
Indicators	LED (red)	
	RX DIAG	On – a message is being received on the DIAG
	LED (green)	(CP) serial port.
	TX DIAG	On – a message is being transmitted on the
	LED (red)	DIAG (CP) serial port.
	RX BACKPLANE	On – indicates data activity on bus.
	COMM LED	(Receiving I/O module status)
	(green)	
	TX BACKPLANE	On – indicates data activity on bus.
	COMM LED	(Transmitting commands to I/O module)
	(red)	

Table 2-1 CPU III Indicators, Controls, and Connectors

ltem	Name	Function	
	VLP HEALTH LED (yellow)	 Flashes 1 Hz when healthy and faster when unhealthy. Indicates CPU module Vital Logic Processor is performing properly. On steady or completely off - indicates either a malfunction, or that the module is booting. If the module is booting it will be indicated by the four-digit display on the module. 	
	CP HEALTH LED (yellow)	 Flashes 1 Hz when healthy and faster when unhealthy. Indicates the CPU communications Processor is performing properly. On steady or completely off - indicates either a malfunction, or the module is booting. If the module is booting, it is indicated by the four-digit display on the module. 	
	POWER LED (green)	On steady - indicates that external power is being supplied to the CPU III unit.	
Connectors	RS-232 (DTE) Serial Port (DB-9)	RS-232 (DTE) used to interface the CPU III Communication Processor externally to other modules in the GEO/WC chassis.	
	LAPTOP Ethernet (RJ-45)	RJ-45 Ethernet port used to interface the CPU Communication Processor with a laptop / personal computer. Provides access to external communication configuration files via the Web User Interface (Web UI)	

Table 2-1 CPU III Indicators, Controls, and Connectors (Continued)



Figure 2-1 CPU III Indicators, Controls, and Connectors

2.1.1 CPU III Local User Interface

The CPU III Local User Interface consists of a 4 Digit Display and two push buttons, Select (SEL) and Navigate (NAV) that enable the user to manually program and view status of a number of parameters.

2.1.1.1 Using the Select and Navigate Push Buttons

The Select and Navigate push buttons are used in the following manner. The Select (SEL) button is pushed to go to the next main menu. The Navigate (NAV) button is pushed to step through the sub menus. The Select (SEL) button will select the displayed parameter when the parameter is being modified. It also will select the displayed parameter allowing the Navigate (NAV) button to navigate sub-menu items of the displayed parameter. To back up to the previous sub menu, double click the Navigate (NAV) button. Continue to double click the NAV button to step back to the previous sub menu until the main menu is reached. The 4 Digit Display will show the current menu selected. Long titles will scroll across the display.

2.1.1.2 CPU III Local User Interface Map

The following Tables map the Local User Interface menus and sub-menus.



Table 2-2 CPU III Local UI Map

A7 - change for generic backplane and add PSO/BVPI

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Table 2-5 Program VPI, RIO, CLS, and SLS Menu

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Table 2-6 Status TRK, WTX, or LIN Menu



Table 2-7 Version Menu

SECTION 3 - CPU III WEB USER INTERFACE (WEB UI)

3.0 CPU III WEB USER INTERFACE (WEB UI)

The CPU III Web UI provides status and programming features found in the Diagnostic Terminal program. The following displays of the Web UI are examples and will vary in content depending on the configuration and type of application that the CPU III will be used. The CPU III can be used in three different types of applications:

- GEO Appliance Model Field Reference Manual (SIG-00-05-09)
- WayConneX Configuration Tool (WCCT) (SIG-00-14-01)
- WCCT Boolean PTC Applications
- WCCT Boolean Applications

Detailed programming information and parameters are found in:

- GEO Appliance Model Field Reference Manual (SIG-00-05-09)
- WayConneX Configuration Tool (WCCT) (SIG-00-14-01)

3.1 CPU III WEB UI SCREENS

Using a web browser enter the assigned IP address for the CPU III. Default address from the factory is 192.168.255.081. Enter the assigned password. Default password from the factory is Siemens (case sensitive). See Section 4.1 for information on finding current IP address.



Figure 3-1 Web UI Log-in

The Web UI will open with the System View.



Figure 3-2 Web UI Opening Screen – IO Views

3.1.1 System View

The System View menu has a sub-menu, Module. The Module menu has three sub-menus IO Views, which displays the modules and their status, Version, which lists the module version information including installed software and the version numbers, and Refresh which refreshes the screen on command.

SIEMENS	_					
	6. Ø	S [2	a (. <u> </u>	n
System View C	onfiguration Field Ad	djustment Status M	Aonitor Reports &	2 Logs Maintena	nce Diagnost	ics
System view		VLP2	Coded Track	Colorlight	Colorlight	RI
✓ Module IO Views Version		Battery 13.3 V Internal	WTCODE Tx C1 C7	WSIG:AG On WSIG:AY	ESIG:AG Off ESIG:AY	EWL:W
Refresh		4.9 V	0.75 A 1.96 V Rx VCP	Off WSIG:AR Off WSIG:BC	On ESIG:AR Off ESIG:PC	

Figure 3-3 Web UI Opening Screen – System View Menu

						Site Name (P CUC ATCS Address 7 420 400 100 03 Mile Post 35 2 DOT Hum
📝 🚯		I) 🧕	1 1				
em view Conngurano	n Heid Adjustment Status i	wonnor Reports & Logs					
dum View	Version						
Module							
IO Views Version	VLP2 VLP VLP2 VLP VLP2 VLP	EGEONSCL003.md V3G00_02.MEF	MCF MEF ID Number BOOTCODE ID Number	9VC27A01.8 9VC81A01	0x4E068371 0x00002E64 0x00006A91	3	
Refresh	VLP2CP VLP2 VLP2 VLP2CP VLP2CP VLP2CP	U-Boot 9VC54_A01	NEF UBOOT DTB Linux Kaenal FPGA	9VC52-AD1 9VC81A01 9VC84A01 9VC82A01 9VC54_A01	NIA NIA NIA NIA NIA		
	Coded Track Coded Track	TRK01_13.MEF	MEF ID Number BOOTCODE ID Number	9V365w01.Y 9V391A01.A	0x000048FD 0x00005889		
	Colorlight Colorlight	CLS01_15.MEF	MEF ID Number BOOTCODE ID Number	9V364±03.U 9V391A01.A	0x00006268 0x00005889		
	Colorlight Colorlight	CLS01_12.MEF	MEF ID Number BOOTCODE ID Number	9V364a01.P 9V391A01.A	0x0000EFBF 0x00005889		
	RIO RIO	RI001_07.MEF	MEF ID Number BOOTCODE ID Number	9V453a01.E 9V391A01.A	0x0000FEF6 0x00005889		
	Coded Track Coded Track	trk01_15.mef	MEF ID Number BOOTCODE ID Number	9V365a01.AB 9V391A01.A	0x00006FB5 0x00005889		

Figure 3-4 GEO Web UI – System View – Versions Display

3.1.2 Configuration Menu

The Configuration Menu has two sub menus for Non-Vital Configuration and Vital Configuration. The format of the Configuration menu will depend on whether the CPU III is running a WayConneX application created with WCCT or a GEO MCF.

SIEMENS	Welcome Admin Logout Six Nume CP CUC ATCS Adens: 7 535 AD 110 21 Min Park 35 2 501 Number 123400
System View Configuration Field Agustiment Status Nombor Reports & Logis Maintenance Diagnositics	
Configuration	
How Wall Configuration Weal Configuration	Configuration Non-Vital Configuration Vital Configuration
@ Copylight 2015 Siemens. All rights reserved.	CP Version 2.3.0



3.1.2.1 GEO Configuration Menu – Non-Vital Menu Structure

The following menus are available under Non-Vital configuration:

Non-Vital Configuration

Communication Ethernet Ports Laptop Port - Use to set DHCP configuration Disabled Client Server

Router Setting - Use to set route table timeouts Router Table Entry Timeout

Log Setup

Diagnostic Logging - Use to enable diagnostic message tracing, this setting should be kept at Disabled unless specifically being used by Siemens Personnel to troubleshoot a problem.

Log Verbosity Settings – Sets the amount of data collected for the Diagnostic Log. High settings will cause large amounts of data to be logged to the Diagnostic log, which can slow the system down.

Security

Web UI Password – Sets the Web UI log in password Server Inactivity Timeout – Sets the session inactivity timeout value

Web Server

Browser Access https (Secure browser session) http (Non-secure browser session)

Set to Default – Sets all Non-Vital configuration properties to factory default
3.1.2.2 Configuration Menu – Vital Menu Structure

Vital Configuration

```
LOGICAL Configuration
OBJECT Configuration – Enter OBJECT Name to be used
{OBJECT Name 1}
{OBJECT Name 2}
etc.
(Reset VLP command button to set properties for the OBJECT)
```

OTHER Configuration

Set to Default

PHYSICAL Configuration MODULE Configuration – Sets properties for each module SLOT 1 VLP2 thru 8 SLOT 2 etc.

CONNECTION Configuration – Sets ATCS Address, timeout, and message update rate for ATCS connection {Connection Name 1}

{Connection Name 2}

CTC Configuration - Sets the ATCS Address for the non-vital controller

Set to Defaults – Sets the Vital configuration back to default

(There are also two Set to Default entries, one under LOGICAL configuration and one under PHYSICAL configuration, which sets all of the Vital configuration properties back to default.)

3.1.2.3 Configuration Menu – SITE Configuration

SITE Configuration

ATCS SIN ATCS Address

- Location Sets the DOT Number, Milepost, and Site Name DOT Crossing Number Milepost Number Site Name
- Object Names User can set new names for the OBJECTS Enter Names of OBJECTS

Card Names – User can set new names for the modules Enter Card Names

Time – Use to set the Time Zone, Time, and Date Time Zone Date Time

Unique Check Number (UCN) - use this to set the UCN. When vital configuration parameters are changed, the UCN corresponding to these changes has to be loaded. The UCN will be supplied by the design office and is used as a check that the safety related configuration parameters have the values specified set by the design office.

Enter UCN

- Reset VLP use this to reset the VLP. Typically this will be used when the VLP has been put into edit mode so that vital parameters can be changed and after the new UCN has been entered.
 - Reset VLP command button

3.1.2.4 Configuration Menu – Non-Vital Structure (WayConneX, PTC Application)

The Configuration Menu has two sub-menus, Non-Vital Configuration and Vital Configuration. Figure 3-6 displays the Non-Vital configuration sub-menus.



Figure 3-6 Configuration Menu – Non-Vital Configuration Sub-Menu (PTC)

• Non-Vital Configuration – Site Configuration (PTC)

The figure below shows the Site Configuration parameters for a PTC application.

SIEMENS			Welcome Admin Sile Name: CP CUC ATCS Address: 7.620 400 100 03 Mile Post: 38.21 DO	Logout
System View Configuration Field A	djustment Status Monitor Reports & Lo	gs Maintenance Diagnostics		
Configuration	Site Configuration			
 Non-Vital Configuration 	🔒 Unlock 🔄 Save 🦉 Refresh	【 Default		
Site Configuration	Site Name	CP CUC	Pacific (GMT-8:00)	
 Communication 	DOT Number	123456D	Eastern (GMT-6:00) Central (GMT-6:00) Mountain (GMT-7:00)	
 Log Setup Security 	Mile Post	35.2	Pacific (GMT-8:00) Alaska (GMT-9:00)	
Web Server	Time Zone	Pacific (GMT-8:00)	Atlantic (GMT-4:00) Arizona (No DST, GMT-7:00)	
Set to Default	ATCS Address	7 620 400 100 03	Aus Western (GMT+8:00) Aus Central (GMT+9:30)	
 Vital Configuration 	Si/E		Aus Central (No DST, GMT+9:30) Aus Eastern (GMT+10:00)	
	-		Aus Eastern (No DST, GMT+10:00)	
	Lime		S January 2016 S	
			Su Mo Tu We Th Fr Sa	
		10 🚽 33 🖵 57 🔽	3 4 5 6 7 8 9 10 11 12 13 14 15 16	
			17 18 19 20 21 22 23 24 25 26 27 28 29 30	
		02 02 02 03 03 ≣ 03 ≣	. 31	
		07 07 07 08 ■ 08 08		
© Copyright 2015 Siemens. All rights reserve	d.	09 09 09 10 10 10		P Version 2.3.0.
		11 11 11 12 12 12 13 13 13		
		14 14 14 15 15 15		
		16 16 16 17 17 17 18 18 18		
		19 - 19 - 19 -		

Figure 3-7 Non-Vital Configuration – Site Configuration (PTC)

NAME	DESCRIPTION	RANGE	DEFAULT
Site Name	User configured location ID	Up to 20 Alphanumeric char	Siemens Rail
DOT Number	DOT Number for site	Up to 7 Alphanumeric char	A00000A
Mile Post	Location Mile Post ID	Up to 20 Alphanumeric char	000.0
Time Zone	Specifies the Hour offset from GMT	Select from drop-menu	Eastern (GMT -5:00)
ATCS Address	The unique 48-bit WIU Address field is in the format 7.RRR.LLL.GGG.DD, where: 7 = WIU address type identifier RRR = Railroad Number LLL = Routing Region Code GGG = Location Code DD = Device Number	Text (numeric values only)	UCN protected parameter
Date	User configurable date	Select from pop-up calendar or enter date (mm-dd-yyyy)	
Time	User Configurable time	Select from drop menus	

Table 3-1 Site Configuration Parameters

• Non-Vital Configuration – Applications

See Section 5.3.

• Non-Vital Configuration – PTC- Menu

Figure 3-8 displays the PTC menu and the six sub-menus.

SIEMENS		Welcome Admin
		e Name: CP CUC ATCS Address: 7,620,400,100,03 Mile Post: 35 2 DOT Number: 123456D
System View Configuration Field Adjustment Status Monitor	Reports & Logs Maintenance Diagnostics	
Configuration Configuration		
✓ Non-Vital Configuration Site Configuration	▼ PTC	
v PTC Emp	Emp	
Class C&D Messages Beacon Message	Class C&D Messages	
Time Source Pref Time Source Hinb Availability	Beacon Message	
Communication Log Setup	Time Source	
Security Web Server	Pref Time Source	
Set to Default Vital Configuration	High Availability	
© Copyright 2015 Siemens. All rights reserved.		CP Version 2.3.0.

Figure 3-8 Non-Vital Configuration – PTC Sub-Menu

• PTC – Emp Parameters

Figure 3-9 displays the Edge Message Protocol (EMP) parameters.

SIEMENS			Welcome	Admin Logou
System View Configuration Fiel	Aquistment Status Monitor Reports & L	.oga Maintenance Diagno	1) Itea	
Configuration	Emp			
 Non-Vital Configuration Site Configuration PTC Emp Class C&D Message Bracon Message Time Source Pret Time Source High Availability Communication Log Setup Security Web Server Set to Default Vital Configuration 	Induck R See Petrosk WIU Addr EMP Src Addr EMP Src Addr EMP Dat Addr Bon Mag TTL Stat Rap TTL Bon Mag QOS Stat Rap QOS Stat Rap QOS HMAC Key RC2 Key RC2 Key Confirmation	2 Terfault 7.420 100 100 03 0 10 100 100 05 witu 12 12 0 0 CBEF	Should be in the numeric Range of (0 to 255) Should be in the numeric Range of (0 to 65535) Should be in the numeric Range of (0 to 65535) Should be in the numeric Range of (0 to 66536) Should be in the numeric Range of (0 to 66535) Should be in the numeric Range of (0 to 66535) Should be in the numeric Range of (0 to 66535) Should be in the numeric Range of (0 to 66535) Should be in the statecimal format No Rc2key file found	

Figure 3-9 PTC – EMP Parameters

EMP Parameters

NAME	DESCRIPTION	RANGE	DEFAULT
WIU Addr	The unique 48-bit WIU Address field is in the format 7.RRR.LLL.GGG.DD, where: 7 = WIU address type identifier PRP = Paircad Number	Text (numeric values only)	7.620.100.100.03
	LLL = Routing Region Code GGG = Location Code DD = Device Number		
EMP Msg Ver	DOT Number for site	Up to 7 Alphanumeric char	
EMP Src Addr	The source address where EMP- formatted messages will initiate.	Up to 20 Alphanumeric char	
EMP Dst Addr	The EMP-formatted destination address where all beacon messages will be sent	Up to 20 Alphanumeric char	iviu.w.100100:05.wiu
Bcn Msg TTL	Beacon Message Time-To-Live	0 to 65535 seconds	12
Stat Rsp TTL	Status Response Time-To-Live	0 to 65535 seconds	12
Bcn Msg QoS	Beacon Msg Quality of Service	0 to 65535 seconds	0
Stat Rsp QoS	Status Response Quality of Service	0 to 65535 seconds	0
HMAC Key	Hash Message Authentication Code cryptic key to authenticate messages		
RC2 Key	The RC2 embedded password used to decrypt keys used in the HMAC calculations. This value is hidden and encrypted so this Key is not made available to field personnel		
RC2 Key	Confirms the above entry		

• PTC – Class C&D Messages

Figure 3-10 shows the parameters for the PTC Class C&D Messages.

SIEMENS				Site Name: CP CUC <u>I ATCS Add</u>	Welcome Admin	Logout
System View Configuration Field Ad	justment Status Monitor Reports & I	Logs Maintenance D	Diagnostics			
Configuration	Class C&D Messages					
 Non-Vital Configuration 	🔚 Save 🧭 Refresh 💽 Default					
Site Configuration PTC Emp 	Class C Multicast IP Addr	239.255.0.5		Should be in the numeric Dange of	I	
Class C&D Messages	Class C Multicast Port	32768	*	(0 to 65535)	Bi-Directional	-
Beacon Message Time Source	Primary GW Srvr IP Addr	10.255.255.210			Bi-Directional	
Pref Time Source	Primary GW Srvr Port	12000		Should be in the numeric Range of (1024 to 65535.)		
High Availability Communication	Log Traffic	Yes	· •	(1024 10 00000)	Yes	•
▶ Log Setup	Keep Alive Interval (ms)	9000		Should be in the numeric Range of (0 to 60000)	No Yes	
Security Web Server	Keep Alive Ack Timeout (ms)	30000		Should be in the numeric Range of (1 to 60000)		
Set to Default	Acknowledgement Timeout (ms)	15000		Should be in the numeric Range of (0 to 60000)		
 Vital Configuration 	NAK Retry Count	3		Should be in the numeric Range of (0 to 10)		
	Retransmit Delay (ms)	1000		Should be in the numeric Range of (0 to 10000)		
	Connect Attempt Timeout (ms)	1000		Should be in the numeric Range of (1 to 60000)		
	Connect Attempt Delay (ms)	1000		Should be in the numeric Range of (1 to 60000)	- -	
© Copyright 2015 Siemens. All rights rese	Connect Attempt Retry Count			Should be in the numeric Range of (-1 to 10000)	:P	Version 2.3.0.
	Reconn. Attempt Retry Limit			Should be in the numeric Range of (-1 to 10000)		
	Data ACK Enable		•		No	-
	Data ACK Timeout (ms)	15000		Should be in the numeric Range of (1 to 60000)	No Yes	
	TCP Connection Retry Timer (ms)	250		Should be in the numeric Range of (250 to 30000)		

Figure 3-10 PTC – Class C&D Messages Parameters

Class C&D Messages Parameters

NAME	DESCRIPTION	RANGE	DEFAULT
Class C Multicast	IP Address logical identifier	Text (numeric values only)	239.255.0.5
IP Addr			
Class C Multicast	Multicast Port	Numeric range 0 to 65535	32768
Port			
Class D Mode	Selects mode from drop-down menu		Bi-Directional
Primary GW Srvr	Primary Gateway Server IP Address	Numeric 0 to 60000	10.255.255.210
IP Addr			
Primary GW Srvr	Primary Gateway Server Port selection	Numeric 0 to 60000	3001
Port	-		
Log Traffic	Selection to Log Traffic	Drop-down Menu Yes or	No
		No	
Keep Alive	Time in milliseconds to keep message	Numeric 0 to 66535 ms	30000
Interval (ms)	alive		
Keep Alive Ack	Time in milliseconds to keep	Numeric 0 to 66535 ms	30000
Timeout (ms)	acknowledge of messages alive		
Acknowledgement	Time in Milliseconds to acknowledge	Numeric 0 to 60000 ms	15000
Timeout (ms)	messages		
NAK Retry Count	Specifies the number of times to retry a	Numeric 0 to 10	3
	transmission a 0 entry disables the		
	feature		
Retransmit Delay	Specifies the time in milliseconds	Numeric 0 to 10000	0
(ms)	before retransmitting a message		
Connect Attempt	Specifies the time in milliseconds to	Numeric 1 to 60000	30000
Timeout (ms)	establish a connection		
Connect Attempt	Specifies the time in milliseconds	Numeric 1 to 60000	60000
Delay (ms)	before making a connection attempt		
Connect Attempt	Specifies number of retries to attempt	Numeric -1 to 10000	-1
Retry Count	to make connection. A "-1" entry sets		
D	unlimited connection retries		
Reconn Attempt	Specifies number of reconnect retries	Numeric -1 to 10000	-1
Retry Limit	to attempt retry. A "-1" entry sets		
	Unlimited reconnect retries		NI-
Data ACK Enable	Selection from drop-down menu	Yes of No	N0
Data ACK	Selection of timeout time in		15000
TOD Oswassti	milliseconds for data acknowledgement		050
	Selection of time in milliseconds to	Numeric 250 to 30000	250
Retry Timer (ms)	retry ICP connection		

• PTC – Beacon Message

🔶 🚳	0 57 🕅 🛛	à ./m	A		
System View Configuration Fi	eld Adjustment Status Monitor Reports Beacon Message	& Logs Maintenance	Diagnostics		
Non-Vital Configuration	🔚 Save 🔗 Refresh 🚺 Defat	ж			
Site Configuration					No
	Broadcast on Change		-		No
Emp	Broadcast Rate (ms)	1000		Should be in the numeric Range of	Yes
Class C&D Messages	Pursue Contrario			(1000 to 60000)	
Beacon Message	Beacon Continuous	Times out			Times out
Time Source	Beacon Bit Time (Seconds)	300		Should be in the numeric Range of	Times out
Pref Time Source	Beacon End Time (Seconds)	120		Should be in the numeric Range of	Continuous
High Availability				(60 to 1800)	
 Communication 	Max Beacon Interval Enabled	Yes			Yes
 Log Setup 	Max Beacon Interval (Seconds)	900		Should be in the numeric Range of	No
Security				(00 10 00400)	100
Web Server					
Serie Default					
 Vital Configuration 					
 Vital Configuration 					

Figure 3-11 displays the PTC Beacon Message parameters.



Beacon Message Parameters

NAME	DESCRIPTION	RANGE	DEFAULT
Broadcast on	Enable from drop-down menu to	Yes, No	No
Change	broadcast messages when changes		
	occur (event driven)		
Broadcast	Mainloop time greater than 1000 ms up	Numerical 1000 to 60000	1000
Rate (ms)	to 60 seconds	ms	
Beacon	Select from drop-menu for broadcasts to	Times out, Continuous	Times Out
Continuous	be sent continuously or to time out		
Beacon Bit	Time from Beacon on until Beacon TTL	Numeric 60 to 1800	300
Time (Sec)	bit set to 0	Seconds	
Beacon End	Time from Beacon TTL bit 0 until end of	Numeric 60 to 1800	120
Time (Sec)	beacon, Broadcast rate stops	Seconds	
Max Beacon	Select from drop-down menu to enable	No, Yes	Yes
Interval	maximum beacon interval		
Enabled			
Max Beacon	Interval between Beacons when not	Numeric 60 to 86400	900
Interval (Sec)	continuously beaconing. Location shall		
	still beacon a change unless set to		
	Disabled (No)		

• PTC – Time Source

	SIEMENS			Sile Name, CP CUCI ATCS Address 7.620 400.100 8	Welcome Admin Logout
 Configuration Configuration	System View Contiguration Fi	eld Adjustment Status Monitor Reports &	Logs Maintenance Diagnot	1) Inco	
WU Time Source Ime Maga Before Sending WSM 5 Ime Maga Before Sending WSM Imm Maga Sending WSM Imm Magaa Sending WSM<	Configuration	Time Source			
	Site Configuration PTC Emp Class C&D Messages Bescon Message Time Source Pref Time Source High Availability Communication Log Setup Security Web Server Set to Default Vital Configuration	WIU Time Source Time Maga Before Sending WSM Time Message Deviation (Seconds) Ignored Time Difference (Seconds) Max Seconds Time Change (Seconds) Max Time Change within Minutes (Minutes) LRM Max Seconds Time Difference (Seconds) No Time Sync Message (Minutes)	EMP	 Should be in the numeric Range of (1 to 10) Should be in the numeric Range of (0 to 3) Should be in the numeric Range of (1 to 10) Should be in the numeric Range of (1 to 10) Should be in the numeric Range of (1 to 10) Should be in the numeric Range of (1 to 20) Should be in the numeric Range of (1 to 20) Should be in the numeric Range of (1 to 6) 	



EMP Time Source Parameters

NAME	DESCRIPTION	RANGE	DEFAULT
WIU Time Source	Selection of None, EMP (Edge Message Protocol), or NTP Network Time Protocol)	Drop-down menu None, EMP, or NTP	EMP
Time Msgs Before Sending WSM	Number of Time messages collected before sending WSM	Numerical 1 to 10	5
Time Message Deviation (Seconds)	Plus or minus Time Deviation from UTC allowed in seconds	Numerical 0 to 3 seconds	1
Ignored Time Differences (Seconds)	Number of seconds of time difference before a message is ignored	Numerical 1 to 10 seconds	3
Max Seconds Time Change	Maximum Time drift from UTC allowed before halt of sending messages	Numeric 1 to 10 seconds	3
Max Time Change within Minutes	The maximum window of time between each time update before sending alarm	Numeric 1 to 120 minutes	60
LRM Max Seconds Time Difference (Seconds)	An alarm is sent if the LRM (Locomotive Request Message) exceeds maximum time difference allowed in seconds	Numeric 1 to 20 seconds	3
No Time Sync Message (Minutes)	An alarm is sent if a time sync message is not received within the configured time	Numeric 1 to 6 minutes	6

SIEMENS				Welcome Admin Logout	
				Site Name: CP CUC ATCS Address: 7.620.400.100.03 Mile Post: 35.2 DOT Number: 123456D	
System View Configuration Field	Adjuštment Status Monitor Reports & I	Logs Maintenance Diagno	ostics		
Configuration	Time Source				
Non-Vital Configuration Site Configuration	Refresh C Default	NTP		NTP	
▼ PTC	Time Maga Before Sending W/SM			Should be in the numeric Range of	
Class C&D Messages Beacon Message	Time Message Deviation (Seconds)	5		(0 to 0)	
	Ignored Time Difference (Seconds)	3		Should be in the numeric Range of (1 to 10)	
Pref Time Source High Availability	Max Seconds Time Change (Seconds)	3		Should be in the numeric Range of (1 to 10)	
 Communication 	Max Time Change within Minutes (Minutes)	60		Should be in the numeric Range of (1 to 120)	
 Log Setup Security 	LRM Max Seconds Time Difference (Seconds)	3		Should be in the numeric Range of (0 to 20)	
Web Server	No Time Sync Message (Minutes)	6		Should be in the numeric Range of (1 to 6)	
Set to Default	NTP Mode	Unicast	-	Unicast	
 Vital Configuration 	Primary NTP Time Source	pool.ntp.org		Unicast Broadcast	
	Backup NTP Time Source				
	NTP Multicast Address				
	NTP UDP Port	123		Should be in the numeric Range of (1 to 65535)	
	NTP Polling Rate (Minutes)	60		Should be in the numeric Range of (1 to 65535)	
	NTP Wait Time (Seconds)	120		Should be in the numeric Range of (1 to 65535)	

NTP Time Source Parameters

NAME	DESCRIPTION	RANGE	DEFAULT
WIU Time Source	Selection of None, EMP (Edge Message Protocol), or NTP Network Time Protocol)	Drop-down menu None, EMP, or NTP	EMP
Time Msgs Before Sending WSM	Number of Time messages collected before sending WSM	Numerical 1 to 10	5
Time Message Deviation (Seconds)	Plus or minus Time Deviation from UTC allowed in seconds	Numerical 0 to 3 seconds	1
Ignored Time Differences (Seconds)	Number of seconds of time difference before a message is ignored	Numerical 1 to 10 seconds	3
Max Seconds Time Change	Maximum Time drift from UTC allowed before halt of sending messages	Numeric 1 to 10 seconds	3
Max Time Change within Minutes	The maximum window of time between each time update before sending alarm	Numeric 1 to 120 minutes	60
LRM Max Seconds Time Difference (Seconds)	An alarm is sent if the LRM (Locomotive Request Message) exceeds maximum time difference allowed in seconds	Numeric 1 to 20 seconds	3
No Time Sync Message (Minutes)	An alarm is sent if a time sync message is not received within the configured time	Numeric 1 to 6 minutes	6

NTP Mode	Sets transmitting mode Unicast sends to specific IP Address, Broadcast sends to all devices on the network	Unicast, Broadcast	Unicast
Primary NTP Time Source	Enter address of desired NTP source to serve as the primary source		
Backup NTP Time Source	Enter address of another NTP source to serve as a backup time source		
NTP Multicast Address	Enter desired multicast address	Standard Multicast Address range 224.0.0.0 to 239.255.255.255	
NTP UTP Port	Enter desired port number	Numeric 1 to 65535	123
NTP Polling Rate (Minutes)	Time between each update of parameters	Numeric 1 to 65535 minutes	60
NTP Wait Time (Seconds)	Waits until the system's time is stabilized and synchronized before starting applications	Numeric 1 to 65535 seconds	120

• PTC - Preferred Time Source

SIEMENS		Welcome Admin Logout Bite Name: CP CUC XTC5 Address: 7 425 405 405 405 Mile Rest 36 2 601 Number 124480
System View Configuration Fi	eld Aquistment Status Monitor Reports & Logs Maintenance Diagnostics	
Configuration	Pref Time Source	
Site Configuration Site Configuration Emp Class C&D Messages Beacon Message Time Source Pref Time Source Pref Tim	EMP Pref-Timesrc Enabled	No Yes
© Copyright 2015 Siemens. All rights re	served	CP Version 2.3.0.

Figure 3-13 PTC EMP Preferred Time Source Not Enabled

EMP Preferred-Time Source Not Enabled Parameter

NAME	DESCRIPTION	RANGE	DEFAULT
EMP Pref-	Select to enable or disable using a	Drop-down menu Yes, No	No
Enabled			

SIEMENS		
SIEWENS		Welcome Admin Logout
		Site Name: CP CUC ATCS Address. 7.620.400.100.03 Mile Post: 35.2 DOT Number: 1234560
System View Configuration Fiel	Id Adjustment Status Monitor Repor	orts & Logs Maintenance Diagnostics
Configuration	Pref Time Source	
- Non-Vital Configuration	📕 Save 🛛 🍠 Refresh 🔃 🛃 Det	efault
Site Configuration	EMP Pref-Timesrc Enabled	Yes
Emp	Sync Timeout	Should be in the numeric Range of (0 to 65535)
Class C&D Messages Beacon Message	Priority 1 Enabled	
Time Source	Priority 1 EMP Address	
Pref Time Source	Priority 2 Enabled	No 💌 🛶 🛶
Fign Availability	Priority 2 EMP Address	
Log Setup	Priority 3 Enabled	
Security Web Server	Priority 3 EMP Address	
Set to Default	Priority 4 Enabled	No Enter Time Source Address
 Vital Configuration 	Priority 4 EMP Address	
► Log Setup	Priority 5 Enabled	No
Security Web Server	Priority 5 EMP Address	
Set to Default	Priority 6 Enabled	
 Vital Configuration 	Priority 6 EMP Address	
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Figure 3-14 PTC EMP Preferred Time Source Enabled

EMP Preferred-Time Source Enabled Parameters

NAME	DESCRIPTION	RANGE	DEFAULT
EMP Pref- Timesrc Enabled	Select to enable or disable using a preferred EMP Time source	Drop-down menu Yes, No	No
Sync Timeout	Set timeout value to wait until time source has been synchronized to the unit	Numeric 0 to 65535 seconds	0
Priority 1 thru 6 Enabled	Select up to six (6) Time sources	Drop-down menu Yes, No	No
Priority 1 thru 6 EMP Address	Enter the EMP address for each EMP channel enabled making note of the desired priority level for each site		

• PTC – High Availability



Figure 3-15 PTC High Availability Parameters

NAME	DESCRIPTION	RANGE	DEFAULT
HA Enabled	Select to enable or disable the High Availability function	Drop-down menu Yes, No	No
HA Link – 1 thru 12 IP Address	Enter the IP Address of up to 12 High Availability Links		
1 thru 12 IP Port	Enter the Port to be used for each High Availability Link	Numeric 1025 to 65535	12000
1 thru 12 Idle Timeout	Time in seconds when Idle sessions will expire a "0" setting means sessions will not expire	Numeric 0 to 65535 seconds	0
1 thru 12 Idle Enabled	Selecting "Yes" will enable inquires to idle (in-active) links configured by the user for backup	Drop-down menu Yes, No	No

High Availability Parameters

• Communications

Figure 3-16 displays the PTC Communications Menu.



Figure 3-16 PTC – Communications Menu

• PTC – Ethernet Ports – Laptop Port

Figure 3-17 and Figure 3-18 display the parameters for the Ethernet Laptop Port.



Figure 3-17 PTC – Ethernet Ports – Laptop Port - Client

SIEMENS			Welcome Admin Logoul
			Site Name: CP CUC ATCS Address: 7.620.400.100.03 Mile Post: 35.2 DOT Number: 12345
System View Configuration Fie	Id Aquistment Status Monitor Rep	onts & Logs Maintenance Diagnostics	_
Configuration	Laptop Port		
Non-Vital Configuration Site Configuration PTC Communication Emernat Ports Laptop Port Router Setting Security Web Server Set to Default Vital Configuration	Save Refresh (1) DHCP Configuration IP Address Network Mask Default Gateway	Server • 192 168 255 81 • 255 255 255 0 •	Server Disabled Client Server

Figure 3-18 PTC – Ethernet Ports – Laptop Port - Server

NAME	DESCRIPTION	RANGE	DEFAULT
DHCP	Select to disable the port or to set as a	Drop-down menu Disabled,	Server
Configuration	Client or Server	Client, or Server	
The following p	arameters appear when the Server config	guration is selection	
IP Address	Enter the IP Address desired for this		192.168.255.81
	device		
Network Mask	Enter the Network Mask desired for this		255.255.255.0
	device		
Default	Enter the Default Gateway desired for		
Gateway	this device		

Ethernet Laptop Port Parameters

• PTC – Ethernet Ports – Server Routing

Figure 3-19 displays the Router Setting parameters.

SIEMENS	Welcome Ac Size Name: CP CUC) ATCS Address: 7.020 480, 100 631 Mile Post: 36.2	Imin Logout
System View Configuration Fi	Ped Adustment Status Monitor Reports & Logs Maintenance Diagnostics	
Configuration Ste Configuration Ste Configuration PTC Communication Enternet PPort Router Stelling Security Web Server Set to Default Vital Configuration	Router Setting Route Table Entry Timeout Vital Message Routing Emernet Ethernet Echelon	
© Copyright 2015 Siemens. All rights re	eserved	. CP Version 2.3.0.

Figure 3-19 PTC – Ethernet Ports – Server Routing

Ethernet Server Routing Parameters

NAME	DESCRIPTION	RANGE	DEFAULT
Route Table	Select to disable the port or to set as a	Drop-down menu Disabled,	Server
Entry Timeout	Client or Server	Client, or Server	
Vital Message	Select routing through an Ethernet	Drop-down menu Ethernet,	Ethernet
Routing	Network or an Echelon® Network	Echelon®	

• PTC – Log Setup

Figure 3-20 displays the Log Setup Menu with sub-menus for Diagnostic Logging and Log Verbosity Settings.

SIEMENS				Welcome Add	nin Logout
System View Configuration Fi	Notes and Adjustment Status Monitor	Reports & Logs Kaletenance	Rej Diagnostics		
Configuration • Non-Vital Configuration Bite Configuration • PTC • Communication • Log Safut Diagnostic Logging Log Verboalty Gettings Security Web Saner Bit to Default • Vital Configuration	Configuration	✓ Log Setup Diagnos Log Verl	stic Logging bosity Settings		
© Copyright 2015 Stemens. All rights re:	served.				CP Version 2.3.0.

Figure 3-20 PTC – Log Setup Menu

• PTC – Ethernet Ports – Server Routing

Figure 3-21 displays the Diagnostic Logging parameters.

Configuration	Diagnostic Logging		Enabled	.
Non-Vital Configuration Site Configuration PTC Communication vos Setus Dissprosts Logging Log Venbosity Settings Security Web Server Set to Detbut Vital Configuration	Rotrenk 2 Indirenk 2 Indirenk Message Processing (Layer 7) Routing (Layer 3) Senial Upload Port RVTX (Layer 2) Ethamet Laptop Port RVTX (Layer 2) Ethamet PIC Port RVTX (Layer 2) Echaton RVTX VAVIE Trace	Enabled Enabled Disabled Enabled Enabled Enabled	Enabled Enabled Disabled Enabled Disabled Enabled Disabled Enabled Disabled	



NAME	DESCRIPTION	RANGE	DEFAULT
Message Processing (Layer 7)	Select to disable the port or to set as a Client or Server	Drop-down Menu, Enabled, Disabled	Disabled
Routing (Layer 3)	Select routing through an Ethernet Network or an Echelon [®] Network	Drop-down Menu, Enabled, Disabled	Disabled
Serial Upload Port RX/TX (Layer 2)	Enables Serial Port logging	Drop-down Menu, Enabled, Disabled	Disabled
Ethernet Laptop Port RX/TX (Layer 2)	Enables Ethernet Laptop Port logging	Drop-down Menu, Enabled, Disabled	Disabled
Ethernet PTC Port RX/TX (Layer 2)	Enables Ethernet PTC Port logging	Drop-down Menu, Enabled, Disabled	Disabled
Echelon RX/TX	Enables Echelon Port logging	Drop-down Menu, Enabled, Disabled	Disabled
VNVIF Trace	Enables tracing of program execution for debugging	Drop-down Menu, Enabled, Disabled	Disabled

Diagnostic Logging Parameters

• PTC – Ethernet Ports – Server Routing

Figure 3-22 displays the Log Verbosity settings.

SIEMENS					Welcome Admin Logout
System View Configuration Fi	ield Adjustment Status Monitor Reports	& Logs Maintenance	Diagnostics	Info Basic Error Warning	
Configuration	Log Verbosity Settings			Info Debug Info	
 Non-Vital Configuration Site Configuration 	🔚 Save 🧭 Refresh 💽 Defau	it		Basic Error Warning	
▶ PTC	CP Diagnostic Log Verbosity	Info	•	Debug	
Communication	CDL Log Verbosity VLP Diagnostic Log Verbosity	Info 3	• •	3 1 2	
Log Verbosity Settings	Slot 2 Diagnostic Log Verbosity		• •	3 4 5	
Security Web Server	Slot 3 Diagnostic Log Verbosity		••	þ	
Set to Default	Slot 4 Diagnostic Log Verbosity		▼ *		•
 Vital Configuration 	Slot 5 Diagnostic Log Verbosity		••	1	
	Slot 6 Diagnostic Log Verbosity		▼ *	3	
	Slot 7 Diagnostic Log Verbosity		• *	5	
	Slot 8 Diagnostic Log Verbosity		• • J		
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Log Verbosity Parameters

NAME	DESCRIPTION	RANGE	DEFAULT
CP Diagnostic	Set Verbosity level for CPU Module	Drop-down Menu, Basic,	Info
Log Verbosity		Error, Warning, Info, Debug	
CDL Log	Set Verbosity level for CDL Log	Drop-down Menu, Basic,	Info
Verbosity		Error, Warning, Info, Debug	
VLP Log	Set Verbosity level for VLP Module	Drop-down Menu, 1, 2, 3, 4,	3
Verbosity		or 5 (1=Basic, 2=Info,	
		3=Warning, 4=Info,	
		5=Debug	
Slot 2 thru 8	Set Diagnostic Log Verbosity for each	Drop-down Menu, 1, 2, 3, 4,	1
Diagnostic Log	Slot (2 through 8) with modules installed	or 5 (1=Basic, 2=Info,	
Verbosity	on the GEO unit	3=Warning, 4=Info,	
		5=Debug	

• PTC – Security

Figure 3-23 displays the Web User Interface parameters.

SIEMENS		í.	Sile Name: OF CUC ATCS Address 7.600.400.10	Welcome Admin Logout
Configuration	Reld Adjustment Status Montor Reports &	Logs Maintenance Diagnos	l tea	
 Non-Vital Configuration Site Configuration PTC Communication Log Setup Security Web Server Set to Default Vital Configuration 	WebUI password Sension inactivity Timeout (Minutes)	20	Length should be in the range of (0 to 20) Should be in the numeric Range of (5 to 60)	
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Security Parameters

NAME	DESCRIPTION	RANGE	DEFAULT
WebUI	User can set password for Web UI	Alphanumeric 0 to 20	Siemens
Password	access	characters	
CDL Log	Set Web UI session inactivity timer in	Numeric 5 to 60 minutes	20
Verbosity	minutes		

• PTC – Web Server

Figure 3-23 displays the Web Server parameters

SIEMENS				Side Name, CP CUC J ATCS Address: 7 020 400, 100.0	Welcome Admin Logout
System View	Field Adjustment Status Monitor Re	ports & Logs Maintenance	Diagnostics		
Configuration 9. Non-Vital Configuration 9. PTC 9. Communication 1. Log Setup 9. Security Web Server 9. Seto Dedualt 2. Vital Configuration	Web Server	Definat Secure (https)		Secure (https) Non-Secure (http) Secure (https)	
© Copyright 2015 Siemens. All rights r	eserved.				CP Version 2:30

Figure 3-24 PTC – Web Server Parameters

Web Server Parameters

NAME	DESCRIPTION	RANGE	DEFAULT
Browser	Set Browser as a Secure (https) or Non-	Drop-down Menu, Secure	Secure (https)
Access	Secure (http) web server	(https) or Non-Secure (http)	

• PTC – Set to Default

Figure 3-25 displays the Set to Default screen. Initiating this screen will set all Non-Vital parameters back to their original factory settings. Click on the Default button, a warning pop-up screen will appear to confirm initiation of returning all Non-Vital parameters to their default settings

CAUTION

A CAUTION

SETTING NON-VITAL PARAMETERS TO DEFAULT WILL RETURN ALL PARAMETERS TO THE ORIGINAL FACTORY DEFAULT SETTINGS. ALL PREVIOUS SETTINGS WILL BE LOST WITHOUT ANY MEANS OF RECOVERY.

SIEMENS	Welcome Admi	n Logout
System View Configuration Field Adjustment Status Monitor Reports &	Logs Maintenance Disgnostica	
Configuration Site Configuration Site Configuration PTC Communication Log Setup Security Web Server Site Orbetall • Vitial Configuration	Defaults Are you sure you want to set non-vital parameters to defaults? Yes No	
© Copyright 2015 Siemens. All rights reserved.		CP Version 2.3.0.

Figure 3-25 Non-Vital Parameters Set to Default

3.1.2.5 Configuration Menu – Vital Menu Structure



Figure 3-26 Vital Configuration Menu

Vital Configuration

Logic Configuration

Main - Use this to set the user defined properties created in the MCF



Figure 3-27 Logic Configuration Menu



Figure 3-28 Logic Configuration Main Menu Sub Menus

Vital Parameters

List of Parameters (e.g. WFY_SEL, EFY_SEL, W28_SEL. E28_SEL, etc.) **False**, True (for each parameter)

SIEMENS		Welcome Admin Logo Site Name OF CUC JATOS Addees 7.656 405 150 201 Mile Poet 35 21 501 Number 123	out 34560
System View Configuration Field	Adjustment Status Monitor Repo	Di Anternarca Diaprostico	
Conliguration	Vital Parameters		
Non-Vital Configuration Vital Configuration Utal Configuration Logic Configuration	WFY_SEL	Fallo	
Main Module Configuration	EFY_SEL	False ·	
Vital PTC Configuration Set Default	W28_SEL E28 SEL	False ·	
 Name Editors Unique Check Number (UCN) 	W37A_SEL	False	
Reset VLP	E37A_SEL	False False	
	W37AD_SEL	False	
	WEST_C1	False .	
	WEST_C5	False 🖳	
	EAST_C1	False Talse	
@ Copyright 2015 Stemens. All rights rese	ned.	CP Version 23	

Figure 3-29 Vital Parameters

Application ID

List of IDs (e.g. WFY_SW1, EFY_SW2, W28_SW3, E28_SW4, etc.) False, True (for each ID)

💎 🚳 4	2	Di 1	Sina Na	me: CP CUC ATCS Addess: 7.625.400.100.83 Mile Post 15.2 DOT N.	nber 1234
pitem View Configuration Field	Adjustment Status Monitor Rep Application ID				•••
Non-Vital Configuration	S March I Save S R				
Vital Configuration Vital Configuration Vital Configuration Vital PTC Configuration Vital PTC Configuration Vital PTC Configuration Set Default Unique Check Number (UCN) Reset VLP	WFY_SW1 EFY_SW2 W28_SW3 E78_SW4 W37A_SW5 E37A_SW6 W37A0_SW7 E37A0_SW8	False False False False False False False False		False V False True	

Figure 3-30 Application IDs

Timers

Set timer parameters

	n fer		.	Site Name CP CUC ATCS Address 7 635 400 100 83 Mile Post 35	21 007 Number 12348
rologuation	d Aquistment Blatus Monitar Pr	eports & Laga Mantenance	Dagoontics		
Non-Intal Configuration Vital Configuration Land Configuration Name Models Configuration • Mar PTC Configuration • Set Default • Set Default • Set Default • Name Educes Image Charles (Ismober (UCR)) Reset VLP	TLOSTING (sec)	2 10		Should be in the runneric Range of (3 to 20) Should be in the runneric Range of (3 to 20)	

Figure 3-31 Timer Parameters

Logic Configuration Variations

Depending on the content of the MCF installed the Logic Configuration will have different sub menus.

Main - Lamps

The Lamps sub-menu enable the user to select Convertor mode for the Colorlight Module selected.

SIEMENS				Site Name WayConnex, Rost TPutes ATCS Address 7.630	Welcome Admin Logout
System View Configuration Field	d Aquistment Status Monitor P	leports & Logs Maintenance	Disprostics		
Contiguration Vital Configuration Vital Configuration Main CL91 CL91 CL91 CL92 Lampa Module Configuration Set Default Name Editors Unique Check Number (UCN) Reset VLP	Lamps	f Bofrouit False False	:}	False False True *	
© Copyright 2016 Siemens. All rights rese	nved				CP Version 2.4.9



Module Configuration

SLOT n - Use to configure the modules and their properties. The type of modules shown will depend on the MCF information. Figure 3-34 displays a Module Configuration Screen for a WayConneX using PSO Modules.



Figure 3-33 Module Configuration Menu

SIEMENS	Site Name, WayCormol, Pair TPulas / ATCB Addeess 7.42	Welcome Admin Logout
System View Configuration Fie	👾 🗐 💫 🦓 Raj Is Aquistment Etatus Monitor Reports & Loga Maintenance Diagnostics	
Contiguration • Non-Vital Configuration • Utal Configuration • Logic Configuration • Module Configuration SLOT 2: 111 (VLP3) SLOT 2: CLS3 (Coloright) SLOT 2: CLS3 (Coloright) SLOT 4: 514 (PSO) SLOT 4: 514 (PSO) S	Module Configuration No configuration parameters. SLOT 1: stf (VLP3) SLOT 2: CL St (Coloright) SLOT 3: CL St (Coloright) SLOT 3: SIS (PSO) SLOT 4: SH (PSO) SLOT 6: SH (PSO) SLOT 6: SH (PSO) SLOT 6: SH (PSO)	
© Copyright 2016 Siemens. All rights res	erved.	CP Version 2.4.9.



Slot 1: sl1 (VLP3)

PTC Signal Configuration – This parameter should not be edited and is set be the

SIEMENS				Weicome Admin
			Site Name: CP CUC ATCS Address: 7.6	20.400.100.03 Mile Post: 35.2 DOT Number: 123466
System View	Adventment Status Monitor France		an a	
Configuration	sl1 (VLP3)			
Non-Vital Configuration	🔂 Unlack 📑 Save 🥳 Refi	esh		
 Vital Configuration 				
Logic Configuration	Slot 2 Module Enabled	- AND - Var		
 Module Configuration 				
	Slot 3 Module Enabled	👫 Yes	• ·	
SLOT 2: Etrack (CodedTrack)	Slot 4 Module Enabled	Vac.	.	
SLOT 3: sl3 (Colorlight)			Yes	-
SLOT 4: sl4 (Colorlight)	Slot 5 Module Enabled	Yes Yes	No No	
SLOT 5: sl5 (RIO)	Slot 6 Module Enabled	4* Yes	• Yes	
	Slot 7 Module Enabled	Yes Yes	· ·	
SLOT 8: sl8 (CodedTrack)	Slot 8 Module Enabled	📬 Yes	• • 🤳	
Vital PTC Configuration				
Set Default				
Name Editors				
Unique Check Number (UCN)				
Reset VLP				



SIEMENS					
				Site Name: CP CUC ATCS Address: 7.620.400.1	00.03 Mile Post: 35.2 DOT Number: 12345
🔷 🚳 🤇	1		1	aj 🛛	
System view Conliguration Field	Adjustment Status Monitor Ro	epons & Lo		gnosucs	_
Configuration	Etrack (CodedTrack)				
Non-Vital Configuration	🚺 Unlock 🛛 🗮 Save 🏾 🍠	Refresh			
 Vital Configuration 					
 Logic Configuration 	Transmit Voltage (V)			Should be in the numeric/decimal range of	
 Module Configuration 	Transmit voltage (v)		1.5	(0.0 to 4.0) with valid one decimal only.	Alternating
SLOT 1: sl1 (VLP3)	Code 5		Alternating	I	Standard
SLOT 2: Etrack (CodedTrack)	EC4 Compatibility		EC4 Plus		
SLOT 3: sl3 (Colorlight)		- •		Oberita he is the surrentic Dense of (4 to 2)	EC4 Plus
SLOT 4: sl4 (Colorlight)	Non-vital Change	÷*		Should be in the numeric Range of (1 to 3)	EC4
SLOT 5: sI5 (RIO)	Vital Change	ş.	2	Should be in the numeric Range of (1 to 3)	
	Church Dese			Should be in the numeric Range of (1 to 8)	
	Shunc Drop	•	2		
SLOT 8: sl8 (CodedTrack)	Shunt Pick	ē.	5	Should be in the numeric Range of (1 to 8)	
 Vital PTC Configuration 	Current Limit (A)		10.0	Should be in the numeric/decimal range of	
 Set Default 				(1.0 to 10.0) with valid one decimal only.	
Name Editors					
Unique Check Number (UCN)					
Reset VLP					



SIEMENS			Site Name: CP CIICI ATCS Address 7 620 400 10	Welcome Admin Logout
System View Configuration Field A	djuštment Status Monitor Reports (& Logs Maintenance Diagnostic		
Configuration	sl3 (Colorlight)	sh		
 Vital Configuration Vital Configuration Logic Configuration Module Configuration SLOT 1: s11 (VLP3) SLOT 2: Etrack (CodedTrack) SLOT 3: s13 (Colorlight) SLOT 4: s14 (Colorlight) SLOT 5: s15 (RiO) SLOT 6: EMPTY SLOT 7: EMPTY SLOT 8: s18 (CodedTrack) 	Lamp Voltage (V) Filament Threshold (A) Cold Filament Test VPI Debounce (msec) VLO Flash Rate Red Retaining Relay Lamp Voltage Regulation	9.0 0.7 Ves 20 ** 45 CPM * Not Used Variable	Should be in the numeric/decimal range of (9.0 to 13.0) with valid one decimal only. Should be in the numeric/decimal range of (0.2 to 2.5) with valid one decimal only. Should be in the numeric Range of (20 to 200)	Yes Yes No 45 CPM 45 CPM 45 CPM 50 CPM 55 CPM 55 CPM 55 CPM 55 CPM 55 CPM 70 CPM
Vital PTC Configuration Set Default Name Editors Unique Check Number (UCN) Reset VLP				Not Used Used Variable Constant Variable

Vital PTC Configuration

PTC Signal Configuration – This parameter should not be edited and is set be the loaded configuration package.

PTC Item Count PTC Order 1 PTC Order 2

Set to Defaults - Sets all Vital configuration parameters to factory default

Name Editors

Object Names

Main – User can set names for the Main Objects

Card Names - Sets new names for modules (default names shown).

sl1 Etrack sl3 sl4 sl5 sl8 PTCSignal

Unique Check Number (UCN) – Is entered per Site plans

Reset VLP - Use this to reset the VLP. Typically this will be used when the VLP has been put into edit mode so that vital parameters can be changed and after the new UCN has been entered.

PSO Module Configuration - Coded Mode



Figure 3-37 PSO Module Configuration – Coded Mode

PSO Module Configuration – Code Mode

Mode – This parameter selects Code Mode (Coded Track) or OS Mode (Operational Siding)

Transmit Level – Low or High

PSO Freq Category – Standard or Alternate

TX Frequency – Lists Frequencies for PSO Frequency Category selected

RX 1 Frequency – Lists Frequencies available for receiver 1

RX 1 Pickup Delay Time (sec) – Sets delay time (Range 0-10 seconds)

VPI Debounce - Sets VPI Debounce from drop-menu list

			<u>*</u> *	OS Mode 👻	🙃 Unlock 🗌
				Code Mode *	
				OS Mode	
				·	
SI4 (PSO)				High 🔽	
				Low	
📑 🔒 Unlock 🛛 🔚 Save 🛛 🦉 R	efresh			High	
				Code A 🗸 🗸	
				Code A	
Mode				Code C	
Mode	· · · · ·	OS Mode			
				Standard 🗸	
Transmit Level	- II	Low 🔽		Standard	
				Alternate	
PSO Address		Code A			
				285 HZ	
				Not Set	
PSO Freq Category		Standard 💌		156 Hz	
	_			211 HZ 285 Hz	
TX Frequency		285 Hz 🗾	-	348 Hz	
				430 Hz	
Ry 1 Frequency			*	525 Hz	
Text Thequency		285 HZ		645 Hz	
				790 Hz	
Rx 1 Pickup Delay Time (sec)	5		`	970 Hz	
				1.18 KHZ	
PSO Receiver 2	🤹 🖡 🗍	Enable		1.45 KHZ 1.77 kHz	
	L			2.14 kHz	
				2.63 kHz	
RX 2 Frequency		285 Hz 🗾		3.24 kHz	
	_			4.0 kHz	
Rx 2 Pickup Delay Time (sec)	6			Should be in the numeric Bange of (0 to 10	
)	
VPI Debounce		150 mg		•	
				🎽 Enable 🔄	
				Disable	ОПОСК
				Enable	
				Should be in the numeric Range of (0 to 10	
)	
			\	150 mc	
				50 ms	
				150 ms	
				200 ms	
				250 ms	
				Less mo	

PSO Module Configuration - OS Mode

Figure 3-38 PSO Module Configuration – OS Mode

PSO Module Configuration – OS Mode (Requires system Unlock)

Mode – This parameter selects Code Mode (Coded Track) or OS Mode (Operational Siding)

Transmit Level - Low or High

PSO Address – Set PSO Address Code

PSO Freq Category – Standard or Alternate

TX Frequency – Lists Frequencies for PSO Frequency Category selected

RX 1 Frequency – Lists Frequencies available for receiver 1

RX 1 Pickup Delay Time (sec) – Sets delay time (Range 0-10 seconds)

PSO Receiver 2 – Enables or Disable second PSO Receiver (used with sidings) (Requires system Unlock)

RX 2 Frequency – Lists Frequencies available for receiver 2

RX 2 Pickup Delay Time (sec) – Sets delay time for Receiver 2 (Range 0 – 10 seconds) VPI Debounce – Sets VPI Debounce from drop-menu list

3.1.3 Web UI Field Adjustment Menu

The Field Adjustment Menu has three sub menus:

- Track Setup used for setting up the Coded Track Cards.
- WayTrax Setup used to setup the WayTrax parameters
- Lamp Setup used to adjust lamp voltages on Colorlight and Searchlight modules.
- PSO used to calibrate
- Maintainer On Site enables the user to suppress alarm conditions when the Maintainer is on site.

3.1.3.1 ElectroCode Compatible Track Module Setup

The Track Setup screen allows the user to adjust Coded track module voltage and current limit. (Refer to the GEO manual SIG-00-05-09 or WayConneX manual SIG-00-16-08 for parameters and procedures). The screen allows the user to see the codes the track card is sending or receiving and the transmit currents and voltage. The figure below displays the track setup screen.

Track Module

s 🔅	Q 5 9 (m		X	•	.							
m View Configuration	Field Aguerment Status Monitor Ro	nports & Logs	Mainten	ance	Diagnosti							
d Adjustment	Track Setup											
	c	oded Track			۲		Code	d Track			۲	
Lamp Setup	V(Tx)(V) 2.0	20				V(Tx)(V) 1.5		Se Se	-			
	Current Limit(A) 10.0					Current Limit(A)						
		C1	C7	C5		Тх		C1	C7			
	Tx Voltage	1.96 V				Tx Voltage 1.48 V						
	Tx Current	0.75 A	ί.			Tx Current		0.557	۱			
	Rx					Rx						
	Rx Current	0.97 A				Rx Current		1.07	۲.			

Figure 3-39 Web UI - Field Adjustment – Track Module Track Setup Screen

3.1.3.2 WayTrax Setup (WayConneX Only)

The Track Setup screen for the WayTraX card is slightly different than the Track Card and also allows the user to adjust Coded track module voltage and current limit. (Refer to the WayConneX Manual SIG-00-16-08 for parameters and procedures). The screen allows the user to see the track length, the codes the WayTraX card is sending or receiving, and the transmit currents and voltages. The figure below displays the WayTrax track setup screen.

SIEMENS				Site Name: V	VayConneX_Rssi TPubs AT(CS Address: 7.620.100.100.05	Welcome Ad	min Logout
System View Configuration Field Ag	Justment Status Monitor Reports	s & Logs Maintenance	Diagnostic					
Field Adjustment	Track Setup							
Track Setup	sl2:		۲		sl8:		۲	
Lamp Setup Maintainer On Site	Track Length 2.0 (1000ft)	Save		Track Length (1000ft)	2.0	🔒 Save		
	Тх	В		Тх	В			
	Tx Voltage	7.4 V		Tx Voltage	0 V			
	Tx Current	0 A		Tx Current	0 A			
	Rx			Rx				
	Rx Current	0 A		Rx Current	0 A			
	Margin			Margin				
	Shunt	S		Shunt	S			
l								
© Copyright 2016 Siemens. All rights reserved								CP Version 2.4.3.

WayTraX Module (WayConneX Only)

Figure 3-40 Web UI – Field Adjustment – WayTrax Module Track Setup Screen

3.1.3.3 Lamp Setup

This screen allows the user to adjust lamp voltage for colorlight modules. It shows whether the lamps are currently on, off or flashing, (Refer to the GEO manual SIG-00-05-09 and WayConneX manual SIG-00-16-08 for parameters and procedures). The figure below displays the Lamp setup screen.

item: View Configuration	Field Agreement Status Montor R	eports & Logs Maintenance	Pagnosti	4			Site Name CP (CUC) (ATCS Addews 7 ATC 400 100 93) (Mile Poet 35 2) (DOT Humber
eld Adjustment	Lamp Setup							
Track Setup		Colorlight	0		Colorlight		۲	
	Lamp Voltage(V) 10.5	Save 1		Lamp Voltage(V)		T Sere		
	WSIG:AG	On		ESIG:AG	Off		•	
	WSIG:AY	Off	۲	ESIG:AY	On		•	
	WSIG:AR	Off	0	ESIG:AR	Off		0	
	WSIG:BG	Off	•	ESIG BG	off		•	
	WSIG:BY	Off	٢	ESIG:BY	On		0	
	WSIG:BR	On		ESIG:BR	Off		•	

Figure 3-41 Web UI - Field Adjustment – Lamp Setup Screen

3.1.3.4 PSO Setup (WayConneX Only)

The PSO Setup screen enables the user to calibrate the PSO Module. Refer to the WayConneX Manual SIG-00-16-08 for the calibration procedures



Figure 3-42 Web UI – Field Adjustment – PSO Setup Screen

A comparison of PSO Setup screens is shown in Figure 3-43

PSO Set	tup												
	SI4: PSO 🔗 SI5: PSO								۲				
Select Cal	ibration	on: RX1 💌			Start Calibration				Select Calibration:	RX1	✓ Sta	rt Calibration	
ТХ		R)	K1			R)	(2		ТХ		R	X1	
285 Hz		285	5 Hz			285	Hz		285 Hz	285 Hz			
Code	Occ	Code	Health	SL	Occ	Code	Health	SL	Code	Occ	Code	Health	SL
-			6				6			•		6	

OS Mode Screen

Code Mode Screen



3.1.3.5 Maintainer On Site

This screen is used in applications where a CDL program is running that generates alarms to the back office. The Maintainer on Site function is used to tell the system that a maintainer is present, the user sets the time duration, during this time, alarms are suppressed

		Welcome Admin Logo
		Site Nervel CP CUC ATCS Address 7 820 400 103 Mile Poet 35.2 DOT Number 123
🔝 🖏	🥨 🔊 🖻	A
System View Configuration	Field Agramment Status Monitor Reports & Logs Maintenance I	Chagnostics
	Maintainer On Site	
Track Setup	Bave Refresh Ebetauk	
Lamp Setup	Time Duration (Mnutes) 30	
Maintamer On Site		

Figure 3-44 Web UI - Field Adjustment – Maintainer On Site Screen

3.1.4 Web UI Status Monitor Menu

The Web UI Status Monitor enables the user to view the System, PTC Status, Communications, Ethernet ports, Echelon® Network, the Routing Table, and Statistics. Many of the screens displayed are for Siemens service personnel use. The PTC Status only shows in PTC applications.




3.1.4.1 System State View

This allows the user to see the states of the internal variables of the MCF. For GEO appliance model MCFs this shows the states for each Geographic object. For Boolean MCFs created using WCCT this will show the states of the variables created by the user in the MCF.

Status Monitor	System State View				
System State View Comm View Ethernet Status	 Get ■ Select	WT -> Inputs Names	Values		
Echelon Status	Outputs	TBZN	False		
Route Table	State Models	TBZF	True		
Statistics	Internal Variables	TRFZ	False		
	Configuration Parameters	CODEPRESENT	True		
	₩.WWL:	AUX	True		
	III WLEOB:	ACP	True		
	WSIG:	HWD	True		
	ESIG:	C5R	False		
	ELEOB:	CODE RX	C1		
	EWL:	CODE RX	C7		
	0 ET: 0 WFY: 0 EFY:	CODE RX	C5		

Figure 3-46 Web UI – Status Monitor – System State View

3.1.4.2 PTC StatusView

This is only present when a PTC application is installed.

When running a PTC enabled MCF, this screen is used to show the status of the PTC. The Beaconing LED shows green when the CPU is currently sending Beacon messages The GPS Present shows green when GPS communication is established and red when no GPS communication is available.

Under the Object heading is a list of the PTC devices defined in the MCF. For signals, the Status will show the PTC aspect defined for this signal, for switches, it will show the whether the switch is reporting normal, reverse, error or out of correspondence, for hazards detectors it will show normal or fault

The time column shows the time and date the last PTC message data was updated for this device.

The order of the objects reflects the order that the devices appear in the PTC message.

PTC Statu	s			
•	Beaconing		GPS Present	ClassD Connection
Object		Status	PTC Code	Time
LeftSig:		Unknown		16-Sep-2015 15:27:27 🔹
RightSig:				16-Sep-2015 15:27:27 🚇

Figure 3-47 Web UI – Status Monitor – PTC Status

3.1.4.3 Comm View

This is used to show the status of the vital communications from this CPU to other WayConneX/GEO systems.

Comm View						
VCO	M1:	VCO	M2:	VCO	v	
S \$	8	8	~ ~		8	8
OUT	IN	OUT	IN	OUT	IN	OUT
_MainVC1MsgOut1	_MainVC1MsgIn1	_MainVC2MsgOut1	_MainVC2MsgIn1	_MainVC3MsgOut1	_MainVC3MsgIn1	_MainVC4MsgO
_MainVC1MsgOut2	_MainVC1MsgIn2	_MainVC2MsgOut2	_MainVC2MsgIn2	_MainVC3MsgOut2	_MainVC3MsgIn2	_MainVC4MsgO
_MainVC1MsgOut3	_MainVC1MsgIn3	_MainVC2MsgOut3	_MainVC2MsgIn3	_MainVC3MsgOut3	_MainVC3MsgIn3	_MainVC4MsgO
_MainVC1MsgOut4	_MainVC1MsgIn4	_MainVC2MsgOut4	_MainVC2MsgIn4	_MainVC3MsgOut4	_MainVC3MsgIn4	_MainVC4MsgO
_MainVC1MsgOut5	_MainVC1MsgIn5	_MainVC2MsgOut5	_MainVC2MsgIn5	_MainVC3MsgOut5	_MainVC3MsgIn5	_MainVC4MsgO
_MainVC1MsgOut6	_MainVC1MsgIn6	_MainVC2MsgOut6	_MainVC2MsgIn6	_MainVC3MsgOut6	_MainVC3MsgIn6	_MainVC4MsgO
_MainVC1MsgOut7	_MainVC1MsgIn7	_MainVC2MsgOut7	_MainVC2MsgIn7	_MainVC3MsgOut7	_MainVC3MsgIn7	_MainVC4MsgO
_MainVC1MsgOut8	_MainVC1MsgIn8	_MainVC2MsgOut8	_MainVC2MsgIn8	_MainVC3MsgOut8	_MainVC3MsgIn8	_MainVC4MsgO
_MainVC1MsgOut9	_MainVC1MsgIn9	_MainVC2MsgOut9	_MainVC2MsgIn9	_MainVC3MsgOut9	_MainVC3MsgIn9	_MainVC4MsgO
_MainVC1MsgOut10	_MainVC1MsgIn10	_MainVC2MsgOut10	_MainVC2MsgIn10	_MainVC3MsgOut10	_MainVC3MsgIn10	_MainVC4MsgOu
_MainVC1MsgOut11	_MainVC1MsgIn11	_MainVC2MsgOut11	_MainVC2MsgIn11	_MainVC3MsgOut11	_MainVC3MsgIn11	_MainVC4MsgOu
_MainVC1MsgOut12	_MainVC1MsgIn12	_MainVC2MsgOut12	_MainVC2MsgIn12	_MainVC3MsgOut12	_MainVC3MsgIn12	_MainVC4MsgOu
_MainVC1MsgOut13	_MainVC1MsgIn13	_MainVC2MsgOut13	_MainVC2MsgIn13	_MainVC3MsgOut13	_MainVC3MsgIn13	_MainVC4MsgOu
_MainVC1MsgOut14	_MainVC1MsgIn14	_MainVC2MsgOut14	_MainVC2MsgIn14	_MainVC3MsgOut14	_MainVC3MsgIn14	_MainVC4MsgOu
_MainVC1MsgOut15	_MainVC1MsgIn15	_MainVC2MsgOut15	_MainVC2MsgIn15	_MainVC3MsgOut15	_MainVC3MsgIn15	_MainVC4MsgOu
_MainVC1MsgOut16	_MainVC1MsgIn16	_MainVC2MsgOut16	_MainVC2MsgIn16	_MainVC3MsgOut16	_MainVC3MsgIn16	_MainVC4MsgOu
S \$	S (S)	S S	8	8	8	\otimes
•			· · · · ·			4

Figure 3-48 Web UI – Status Monitor – Communication View

3.1.4.4 Ethernet Status

Ethernet Status	Ethernet Status						
Laptop:							
Broadcast	010.163.003.255						
IP Address	010.163.003.014 (DHCP) Up						
Link	UP						
Mac Address	00:0d:90:30:20:60						
Subnet Mask	255.255.255.000						

This shows the state of the laptop and PTC Ethernet connections.

Figure 3-49 Web UI – Status Monitor – Ethernet Status

3.1.4.5 Echelon[®] Status

This shows the number of packets transmitted and received over the Echelon[®].

Echelon Status							
Node number	Tx count	Rx count	Neuron resets				
0	7652	5617	0				



3.1.4.6 Route Table

This shows the ATCS address of other devices that the CPU III has established communications.

Route Table							
Port Number	Port Name	ATCS Address	Path	Timeout			
1	Local	7.620.400.100.03.00	(none)	298			
1	Local	7.620.400.100.03.01	(none)	Immortal			
10	Echelon	7.620.400.100.03.01	Field	Immortal			
10	Echelon	7.620.400.100.05.00	Field	298			
10	Echelon	7.620.400.100.04.00	Field	299			
10	Echelon	7.620.400.100.04.02	Field	297			
10	Echelon	7.620.400.100.05.02	Field	298			
10	Echelon	7.620.400.100.04.01	Field	288			
11	VCPU	7.620.400.100.03.02	Field	Immortal			
11	VCPU	7.620.400.100.03.01	Field	Immortal			
L							

Figure 3-51 Web UI – Status Monitor – Route Table

3.1.4.7 Statistics

These are primarily for Siemens Personnel use. The Vital I/O Module statistics show the communication statistics between the CPU and the I/O modules.

Stati	Statistics							
Туре:	Vital I/O Module 🔻	🍠 Refresh 🛛 🚺 Cle	ar					
Device	Bad CRC's	Lost Sessions	Reboots					
1	0	0	2					
2	0	0	1					
3	0	0	1					
4	0	0	1					
5	0	0	1					

Figure 3-52 Web UI – Status Monitor – Statistics

3.1.5 Web UI – Reports & Logs

The CPU III can generate Event Logs, Diagnostic Logs, Configuration Reports, Version Reports, and VLP/IO Card Logs. All Logs and Reports can be viewed on the screen or can be saved to files for hard copy printing and off-site storage.



Figure 3-53 Web UI – Reports & Logs Menu

3.1.5.1 Event Log

The primary log in the system is the Event Log. When the user selects download they have the three options for the log content:

- The currently viewed events
- Events of the last 24hrs
- The entire event log

The left drop box shows 3 options:

- BASIC
- ADVANCE
- TRACE

The following screen displays the BASIC view with the entire log displayed:

Reports & Logs	Event Log			
Event Log	BASIC - ALL -	First Previou	is 🜔 Next 🜔 Last 🛃 Download 🔍	Event Text 💌
 Reports 	Time Stamp 🔺	Card/Slot	Event Text	
Diagnostic Log	08-Sep-2015 09:06:59.77	SLOT 2	Shutdown Error: 18 - Runtime exception 255	
VLP/IO Card Log	08-Sep-2015 09:06:59.86	SLOT 2	Shutdown Error: 18 - Runtime exception	
	08-Sep-2015 09:06:59.88	SLOT 2	Reboot Occurred (RSR 128), Track:	
	08-Sep-2015 09:06:59.92	SLOT 2	Shutdown Error: 18 - Runtime exception 255	
	08-Sep-2015 09:06:59.95	SLOT 2	Shutdown Error: 18 - Runtime exception	
	08-Sep-2015 09:07:00.5	SLOT 2	Reboot Occurred (RSR 128), Track:	
	08-Sep-2015 09:07:00.10	SLOT 2	Shutdown Error: 18 - Runtime exception 255	
	08-Sep-2015 09:07:00.14	SLOT 2	Shutdown Error: 18 - Runtime exception	
	08-Sep-2015 09:07:00.18	SLOT 2	Reboot Occurred (RSR 128), Track:	
	08-Sep-2015 09:07:00.22	SLOT 2	Shutdown Error: 18 - Runtime exception 255	
	08-Sep-2015 09:07:00.26	SLOT 2	Shutdown Error: 18 - Runtime exception	
	08-Sep-2015 09:07:00.33	SLOT 2	Reboot Occurred (RSR 128), Track:	
	08-Sep-2015 09:07:00.35	SLOT 2	Shutdown Error: 18 - Runtime exception 255	
	08-Sep-2015 09:07:00.41	SLOT 2	Shutdown Error: 18 - Runtime exception	
	08-Sep-2015 09:07:00.47	SLOT 2	Reboot Occurred (RSR 128), Track:	
	08-Sep-2015 09:07:00.54	SLOT 2	Shutdown Error: 18 - Runtime exception 255	
	08-Sep-2015 09:07:00.56	SLOT 2	Shutdown Error: 18 - Runtime exception	
	08-Sep-2015 09:07:00.56	SLOT 2	Shutdown Error: 18 - Runtime exception	

Figure 3-54 Web UI – Reports & Logs – Event Log – Basic View

When ADVANCE is selected then user can select a portion of the log by time and date as shown in Figure 3-55.

Event Log		
ADVANCE - ALL - KI	First (Previo	us > Next 💫 Last 🎿 Download 🔍 Event Text 💌
Start Date: Start Time: 09/20/2015 16 💌 : 41	1 💌 : 13 💌	End Date: End Time: 09/21/2015 II
Time Stamp 🔺	Card/Slot	Event Text
21-Sep-2015 16:29:25.86	VLP	SEAR Session Lost
21-Sep-2015 16:29:43.54	VLP	SEAR Session Established
21-Sep-2015 16:29:59.87	NVCPU	Configuration data changed
21-Sep-2015 16:30:03.44	NVCPU	ECD database update successful.
21-Sep-2015 16:30:15.51	VLP	SEAR Session Lost
21-Sep-2015 16:30:33.69	VLP	SEAR Session Established
21-Sep-2015 16:31:05.54	VLP	SEAR Session Lost
21-Sep-2015 16:31:23.60	VLP	SEAR Session Established
21-Sep-2015 16:31:55.47	VLP	SEAR Session Lost
21-Sep-2015 16:32:13.61	VLP	SEAR Session Established
21-Sep-2015 16:32:45.48	VLP	SEAR Session Lost
21-Sep-2015 16:33:03.64	VLP	SEAR Session Established
21-Sep-2015 16:33:35.50	VLP	SEAR Session Lost
21-Sep-2015 16:33:53.57	VLP	SEAR Session Established
21-Sep-2015 16:34:25.43	VLP	SEAR Session Lost

Figure 3-55 Web UI – Reports & Logs – Event Log – Advanced View

When TRACE is selected the events are recorded in real time, they will be shown in the trace buffer. Use the Clear button to clear the current buffer, and Start and Stop to start and stop Tracing.

Event Log			
📕 Back 💦 Clear 🤺 Start	🗙 Stop		
Time Stamp 🔺	Card/Slot	Event Text	
21-Sep-2015 16:58:02:13	VLP	SEAR Session Established	



The second button on the Event Log page can be used to select the type of event.

- ALL shows all events from all sources
- Status this shows events logged from the VLP module (equivalent to what would be logged in CPUII+ Status log)
- Summary this shows summary level events logged from the VLP module (equivalent to what would be logged in CPUII+ Summary log)
- Shutdown this shows events logged from the VLP module that help diagnose the cause of a shutdown.



Figure 3-57 Web UI – Reports & Logs – Event Log – Event Type Filter

The last filter enables searching for specific text strings in the Event Text, Card/Slot or Time Stamp field. Type the text to be found in the text box and press enter. This text search only works on the events in the current view.

Event Log			
BASIC 🔽 ALL 🔻	First Previou	us 🕨 Next 🔪 Last 🛃 Download 🔍 7W	🗙 Event Text 🔽
Time Stamp	Card/Slot	Event Text	Event Text Card/Slot Time Stamp
17-Sep-2015 18:45:45.42	VLP	7W: NZ False	Inne Stamp
17-Sep-2015 18:45:51.45	VLP	7W: LOSTime expired	
17-Sep-2015 18:45:51.56	VLP	7W: LOS Idle	
17-Sep-2015 18:45:51.56	VLP	7W: OccDir Unocc	
17-Sep-2015 18:45:51.56	VLP	7W: TK False	
17-Sep-2015 18:45:55.49	VLP	7W: AutoCorrTime expired	
17-Sep-2015 18:46:41.54	VLP	7W: TrPGRev Valid	
17-Sep-2015 18:54:10.89	VLP	7W: SwLock Idle	
17-Sep-2015 18:54:10.95	VLP	7W: TrPGNor Valid	
17-Sep-2015 18:54:10.97	VLP	7W: LK False	
17-Sep-2015 18:54:15.38	VLP	7W: NZ False	

Figure 3-58 Web UI – Reports & Logs – Event Log – Search

3.1.5.2 Configuration Report

Configuration Reports and Version Reports are available on the Reports sub menu. Select the desired report and click on the Create button [2]. The appropriate report will be shown on the screen. Select the download button [3] to download the report as a file onto your PC.

The Configuration Report contains all of the software and hardware versions (from the Version Report) in addition to the currently configured parameters including all the vital and non-vital configuration settings and check numbers (UCN, PTC UCN).



Figure 3-59 Web UI – Reports & Logs – Configuration Report

3.1.5.3 Version Report

The Version Report contains all of the version information for the hardware and software in the system.



Figure 3-60 Web UI – Reports & Logs – Version Report

3.1.5.4 Diagnostic Log

The Diagnostic Log is primarily for Siemens service personnel to diagnose anomalies that may occur in the system.

Reports & Logs	Diagnostic Log				
Event Log	BASIC 💌 🚺 First 🔍 Pre	vious 🜔 Next	🔪 Last 🛃	Download 🔍	Event Text
	Time Stamp	Card/Slot	Verbosity 🔺	Event Type	Event Text 🔺
Configuration	08-Sep-2015 10:50:27.47	NVCPU	Basic	RTE	28 00 08 FE EE 76 2A 4A A1 AA A3 A1 76 2A 4A A1
Version	08-Sep-2015 10:50:27.47	NVCPU	Basic	RTE	AA A4 AA 00 2C 02 02 C7 21 01 53 41 02 00 03
Disgnastic Lag	08-Sep-2015 10:50:27.47	NVCPU	Basic	L7	RX Srce:7.620.400.100.04.00 Label:C721
Diagnostic Log	08-Sep-2015 10:50:27.47	NVCPU	Basic	L7	53 41 02 00 03
VLP/IO Card Log	08-Sep-2015 10:50:27.65	NVCPU	Basic	RTE	RX Vital on VCPU Routed to Echelon Echl
	08-Sep-2015 10:50:27.65	NVCPU	Basic	RTE	25 00 00 00 EE 76 2A 4A A1 AA A5 A2 76 2A 4A A1
	08-Sep-2015 10:50:27.65	NVCPU	Basic	RTE	AA A3 89 00 E6 02 03 2F 06 01 03 02 1D 74 93 C5
	08-Sep-2015 10:50:27.65	NVCPU	Basic	RTE	EE B2 08 01 01 01 00 01 00 01 03 01 00 01 00 01
	08-Sep-2015 10:50:27.65	NVCPU	Basic	RTE	01 01 01 FE CD 02 2B
	08-Sep-2015 10:50:27.72	NVCPU	Basic	RTE	Recv on Echl Routing to Local
	08-Sep-2015 10:50:27.72	NVCPU	Basic	RTE	28 00 7A FE EE 76 2A 4A A1 AA A3 A1 76 2A 4A A1
	08-Sep-2015 10:50:27.72	NVCPU	Basic	RTE	AA A5 AA 00 3C 02 02 C7 21 01 53 41 02 00 03
	08-Sep-2015 10:50:27.72	NVCPU	Basic	L7	RX Srce:7.620.400.100.05.00 Label:C721
	08-Sep-2015 10:50:27.72	NVCPU	Basic	L7	53 41 02 00 03
	08-Sep-2015 10:50:27.77	NVCPU	Basic	RTE	Recv on VCPU Routing to Local
	08-Sep-2015 10:50:27.77	NVCPU	Basic	RTE	28 00 00 00 EE 76 2A 4A A1 AA A3 AA 76 2A 4A A1
	08-Sep-2015 10:50:27.77	NVCPU	Basic	RTE	AA A3 A2 00 22 02 02 C7 2C 02 53 41 01 00 00 23

Figure 3-61 Web UI – Reports & Logs – Diagnostic Log

3.1.5.5 VLP/IO Card Log

The VLP/IO Card Logs are for Siemens service personnel for diagnosing unusual issues.

Reports & Logs	Slot 1 - VLP2	100 million (1997)
EventLog	Status 🔽 📢 First 📢 Previous 🌔 Hext 🕞 Last 🛃 t	Rownload Verbosity 3 🛄 🧑 Clear
 Reports 		
Diagnostic Log	DB-Sen 15 10 45 19 3 Bill Sestion Maintained	
 M PRO Card Log 	06-Sep-15 10 45 39 3 MIL Session Maintained	
Slot 1 - VLP2	08-Sep-15 10 45 59.6 MLJ: Session Maintained	· · · · · · · · · · · · · · · · · · ·
Slot 2 - Coded Track	08-Sep 15 10 46 19 5 MLL Session Maintained	Slot 2 - Coded Track
Slot 3 - Colorlinet	08-Sep. 15 10 46 38 9 All L Session Maintained	
filed & - Controlleged	08-Sep-15 10 46 58 8 ML/ Session Maintained	Summary 🗸 📢 First 🤍 Previous 🕞 Next 🌔 Last 🔡 Download Verbosity 1 🗸 🔥 Clear
DIALE DIA	08-Sep-15 10 47 18 2 Mill Session Maintained	Status
Okto - Nev	08-Sep-15 10 47 37 9 MU Session Maintained	Summary
Store - Coded track	08-Sep-15 10 47 57 5 WU Session Maintained	
	08-Sep-15 10/48 17 1 MLI: Session Maintained	00:00:00.0 Reboot Occurred (RSR 128), Track:
	08-Sep 15 10 48 26 8 Mill Session Maintained	00:00:00.0 Shutdown Error: 18 - Runtime exception 255
	08-Sep-15 10:48:55 3 DBL Session Mentained	
	00.0an.15 10:40 16 0 Mill Section Methanet	
	08-Sep 15 10 49 23 0 System time prior to update	00:00:02.7 Rx Session Established slot 2 with VLP
	08-Sep 15 10 49 23 0 Switem Time Lindated	08-Sep-15 09:07:03.3 Tx Session Established slot 2 with VLP
	08-Sen-15 10-40-25.6 All I: Section Mointained	
	08-Sep 15 10:49:55 4 Mill Session Maintained	
	08-Sep 15 10 50 14 8 Mill Factore Manhand	
	05-Car. 15 10:50 34 7 Jul / Service Meinland	
	08-Sen-15 10:50:54 1 All I: Section Maintained	
Slot 3 - Colorlight	Previous : Diest Discussion Verbosity 1 - Discussion	Slot 5 - RIO Summary (frest Presious >Host > Lest 2 Sowmload Verbosity 1 - S Cear
08-Sep-15.05:44:18.8	V.O Channel 5 Recovered from LOR	Time stamp Event Level 1633
08-Sep 15 06 44 18 8	VI O Channel & Recovered from LOR	02-Rec-15.08.26.34.7 Tr Session Established ald 5 with VLP
08-Sep-15 06 44 18 8	VLO Channel 6 Recovered from LOR	02-Sec-15 07 56 45 0 Session Lost skd 0 with VLP
08-Sep-15 06 44 18 9	VLO Channel 1 Recovered from LOR	02-Sec-15 08 03 10.5 Tx Session Established slot 5 with VLP
08-Sep-15 06:44 18 9	VLO Channel 1 Recovered from LOR	02-Sec-15.08.03.11.0 Rx Session Established sld 5 with VLP
08-Sep-15 08:30:54.0	Session Lost slot 0 with VLP	02-Sep-15 08 08 55.7 Session Lost slot 0 with VLP
08-Sep-15 08:33.14.7	Rx Session Established slot 3 with VLP	02-Sep-15 08:12:45.6 Tx Session Established slot 5 with VLP
08-Sep-15 08:33:14.9	Tx Session Established slot 3 with VLP	02-Sep-15.08.13.18.0 Rx Session Established sld 5 with VLP
08-Sep-15 08:33:21.6	VLO Channel 2 Recovered from LOR	04-Sep-15 13:39:30.0 Session Lost slot 0 with VLP
08-Sep-15 08 33 21.6	VLO Channel 2 Recovered from LOR	04-Bep-15 13:42:37.5 Tx Bession Established stor 5 with VLP
08-Sep-15 08:33:21.6	VLO Channel 3 Recovered from LOR	04-Sep-15 13.43.10.7 Tx Session Established slot 5 with VLP
08-8ep-15 08:33:21.6	VLO Channel 3 Recovered from LOR	04-Sep-15 13:43 11:3 Rx Session Established slot 5 with VLP
08-Sep-15 08 33 21 7	VLO Channel 4 Recovered from LOR	08-Sep-15 06:41:48.6 Session Lost slot 0 with VLP
08-Sep-15 08:33:21.7	VLO Channel 4 Recovered from LOR	08-Sep-15 06.41.53.3 Reset System : 73
08-Sep-15 08:33:21.7	VLO Channel 5 Recovered from LOR	00:00:00.0 Reboot Occurred (RSR 32), RID:
08-Sep-15 08 33 21 7	VLO Channel 5 Recovered from LOR	08-Sep-15 06 44 10 5 Rx Session Established slot 5 with VLP
08-Sep-15 08:33:21.8	VLO Channel 6 Recovered from LOR	08-Sep-15 06 44.11.6 Tx Session Established slot 5 with VLP
08-Sep-15 08 33 21 8	VLO Channel 6 Recovered from LOR	00-Sep-15 00.30 54.1 Seasion Lost slot 0 with VLP
08-Sep-15 08 33 21 8	VLO Channel 1 Recovered from LOR	08-Sep-15 08 33 13 4 Tx Session Established slot 5 with VLP
08-Sep-15 08:33:21.8	VLO Channel 1 Recovered from LOR	08-Sep-15 08 33 14.1 Rx Session Established slot 5 with VLP

Figure 3-62 Web UI – Reports & Logs – VLP/IO Card Log – Card Slot Screens

3.1.6 Web UI - Maintenance

The GEO Web UI Maintenance Menu has the following sub menus:

- **Configuration** This menu is only available on the WayConneX and enables the user to load a new configuration. For GEO appliance model applications the user has to program the CPU III using the Configuration menu.
- **CP MEF** This menu enables the user to upload new Executive Software (MEF) to the CP.
- VLP This menu has sub menus for uploading the MEF, MCF, MCFCRC, or Clearing the ECD or CIC, and Resetting the VLP.
- **Modules** This menu is used to load software to the individual modules from the CPU III to the module using a serial cable from the CPU III to the module as shown in Figure 3-72 and Figure 3-73. Software from each module may also be downloaded from the module to an external computer.



• PTC Class D Tests - This menu is used to test the PTC Class D Link

Figure 3-63 Web UI – Maintenance Menu

3.1.6.1 Web UI Maintenance – Configuration Menu

Figure 3-64 displays the Configuration menu. This menu is only available on the WayConneX. The Office Configuration Editor (OCE) can be used to create the configuration for the WayConneX system see the OCE manual SIG-00-11-15 for details. The non-vital and the vital settings can be saved to a configuration package (select Export in OCE and it creates a zip file). This configuration package can then be loaded by pressing the browse button then selecting the zip file.

Before loading a configuration package, ensure that the correct MCF and MCF CRC is loaded into the CPU III first, and then reboot the VLP so the VLP is running the new MCF. Then load the configuration package.

The option of loading a configuration package is not available for GEO applications.

Configuration	
Configuration Package 💽 🕠 Unlock 📝 Update 🛃 Download	
Select File : 💦 💦 Browse	

Figure 3-64 Web UI – Maintenance – Configuration Menu (WayConneX Only)

3.1.6.2 Web UI Maintenance – CP MEF

Use the CP MEF menu to upload new non-vital executive software to the CP. The names of the CP software are of the form ncp3_mef_x.x.r.tgz (where x.x.x. is the version). As with the majority of screens, press unlock button and confirm local user presence by pressing the Select button on the CPU III, then select the non-vital executive software file to be updated. While the upload is in progress the current CP executive software will continue to run. Once the upload has completed the CP will reboot to load the new executive software. When the CP reboots, it causes the VLP to reboot as well, thus the signaling system will go into a restrictive state while the reboot is in progress.

Maintenance	CP MEF
CP MEF	G Unlock Vpdate
▶ VLP	
Modules	
	Select CP MEF:

Figure 3-65 Web UI Maintenance Menu – CP MEF – Update MEF

3.1.6.3 Web UI – Maintenance – VLP – MEF Menu

Use the VLP MEF menu to upload new vital executive software to the VLP. The names of the VLP software are of the form 9VC27-V3Gxx_xx.mef (where xx.xx. is the version). First press unlock button and confirm local user presence, this will put the Vital executive software into edit mode, which will cause the signaling system to go into a restrictive state while the reboot is in progress. Select the vital MEF file to load by clicking the Browse button and locate the file desired. Once the MEF has been uploaded the VLP will reboot and resume operation.

Maintenance	MEF
CP MEF	🕞 Unlock 🗸 Update
VLP	
MEF	
MCF	Select VLP MEF:
MCFCRC	
Clear ECD	
Clear CIC	
Reset VLP	



3.1.6.4 Web UI – Maintenance – VLP – MCF Menu

The MCF menu enables the user to upload a new MCF into the VLP. Press the Unlock button and confirm local user presence, this will place the VLP in the edit mode which will cause the signaling system to go into a restrictive state while the reboot is in progress. Select the vital MCF file to load by clicking the Browse button and locate the file desired and enter the MCFCRC number provided in the site plans. Once the MCF has been uploaded the VLP will reboot and resume operation.

MCF	
🔓 Unlock 🛛 ✔ Update	
Select VLP MCF: Enter MCFCRC:	Browse

Figure 3-67 Web UI Maintenance Menu – VLP – Update MCF

3.1.6.5 Web UI – Maintenance – VLP – MCFCRC Menu

In the event the MCF gets updated but the CRC is incorrect (4 character display shows Err: MCF), the MCF CRC can be updated independently of the MCF by going to the MCF CRC selection and entering the MCF CRC value and selecting update. Note that this just causes the MCF stored in the CIC to be updated. To make the MCF CRC take effect, reboot the VLP

MCFCRC
🕞 Unlock 🗸 Vpdate
Enter MCFCRC Value:

Figure 3-68 Web UI Maintenance Menu – VLP – Update MCFCRC

3.1.6.6 Web UI – Maintenance – VLP – Clear ECD Menu

In general the Clear ECD and Clear CIC options should only be used when setting up a new system. If the ECD is cleared, a new MCF and MCF CRC will need to be loaded. The system will also go into the restrictive state.



Figure 3-69 GEO Web UI Maintenance Menu – VLP – Clear ECD

3.1.6.7 Web UI – Maintenance – VLP – Clear CIC Menu (GEO Only)

When clearing the CIC, note that the MCF CRC will need to be re-entered, the non-vital and vital parameters set, then the UCN and PTC UCN entered.





Modules

3.1.6.8 Web UI – Maintenance – VLP – Reset VLP Menu

The Reset VLP menu is used to reset the VLP. Typically this will be used when the VLP has been put into edit mode so that vital parameters can be changed and the new UCN has been entered.





3.1.6.9 Web UI – Maintenance – Modules Menu

The Modules menu will bring up the screen in Figure 3-72. Click on the Install Software button, this is used to update the software on the I/O modules. To perform this task, a serial cable has to be connected between the CP Diag port and the I/O module's Diag port as shown in Figure 3-73. Select the appropriate MEF for the module to update.

Maintenance	Modules	
CP MEF	🕞 Unlock 💢 Install Software 🔮 Hide Console 🔡 Download	
▶ VLP		
Modules	wnit Please check the serial port connection before uploading OK Cancel Installing software will cause the CPUModule to reboot and communication will be lost. Continue with the software update? Prevent this page from creating additional dialogs OK Cancel	

Figure 3-72 Web UI Maintenance Menu – Modules – Install Software





3.1.6.10 Web UI – Maintenance – PTC Class D Tests Menu

When running a PTC application the PTC Class D Tests menu can be used to perform self-tests on the Class D connection. The PTC Class D Test screen is shown below.

PTC Class D Tests			
🔚 Save) 🥳 Refresh 🚺 Default			
Test Server IP Address	192.168.1.110	*	
Test Server UDP Port	12100	*	
Test Frame Count	10	*	
Test Frame Delay (ms)	1000	*	No
Test Messages Enabled	No		No Yes
Test Result Logging Enabled	Yes 🔽	7	
Starting Comm ID	1		Yes No Yes

Figure 3-74 Web UI Maintenance Menu – PTC Class D Tests

3.1.7 Web UI - Diagnostics

The System Diagnostics screen provides information on system anomalies that occur from time to time. In the example below, an incorrect MCF CRC number has been configured into the system; this has caused a UCN Error and has resulted in the VLP to be unconfigured. The attention icon appears in the right corner of all Web UI screens when a Diagnostic incident is present.



Figure 3-75 Web UI Maintenance Menu – System Diagnostics

Normalization Field Aquilition (1) Status Nagenostics System Diagenostics Select slot: [A] CDL Messages Belect slot: [A] Details Belect slot: [A] Belect slot: [A] Belect slot: [A] Details Belect slot: [A] Belect slot: [A] Belect slot: [A] Details Belect slot: [A] Belect slot: [A] Belect slot: [A] Details Belect slot: [A] Betails Centroportion Details Belect slot: [A] Betails Centroportion Status Monter Status Monter Status Monter Status Monter Betails Betails Status Betails Centroportion Status	Monter Reports & Loga Maintena gnostics *** N Date/Time 2015-09-22 08:00:51:0700 2015-09-22 08:00:51:0700 2015-09-22 08:00:51:0700 2015-09-22 08:00:51:0700 2015-09-22 08:00:51:0700 2015-09-22 08:00:51:0700 2015-09:22 08:00:51:0700 2015-09:20 08:00:50 2015-00:20 08:00	Ince Dispression	Description UCN Error VLP Ucconfigured No Communications No Communications No Communications No Communications No Communications No Communications No Communications No Communications	Code 3111 3118 4017 4017 4017 4017 4017 4017 4017 4017	use of the VLP being unconfigur
Nagacostics System Diagonatics System Diagonatics CCU. Messages CCU. Messages Details De	Course C	Slot alt: 1 Elack 2 alt: 3 alt: 4 alt: 5 alt: 8 ny I/O modules. This Check other	Description UCN Error VLP Unconfigured No Communications No Commun	Code 3111 3110 4017 4017 4017 4017 4017 017 017 017 017 017 017 017 017 017	use of the VLP being unconfigur
Nagmostics System Diagostics System Diagnostics CDL Messages CDL Messages CDL Messages CDL Messages CDL Messages CDL Messages CDL Messages CDL Messages Select slot: A Details Details Details Details Details Details Details Details Comparison Select slot: A Details Details Details Details Comparison Select slot: A Details Details Details Details Comparison Select slot: A Comparison System Diagnostics System System Diagnostics System System Syste	grostics with any l Cause	Slot alt: 1 Brack 2 al2: 3 al4: 4 al5: 5 al3: 8 ny I/O modules. This I/O modules. This	Description UCN Error VLP Unconfigured No Communications No Commun	Code 3111 3118 4017 4017 4017 4017 4017 ef the VLP being unconfigured Common State Remedy message for the exact car	use of the VLP being unconfigur
Statem Diagnostics CCL Messages CCL Messages Details be VLP is unconfigured, as thus does not issually due to UCN, MCF CRC, SIN err ALLP is unconfigured, as thus does not issually due to UCN, MCF CRC, SIN err ALLP is unconfigured, as thus does not issually due to UCN, MCF CRC, SIN err Status Monter System Diagnostic Set Status Mill Set Status Mill	Date/Time 2015-09-22 08:00:51-0700 2015-09-22 08:00:51-0700 2015-09-22 08:00:51-0700 2015-09-22 08:00:51-0700 2015-09-22 08:00:51-0700 2015-09-22 08:00:51-0700 2015-09-22 08:00:51-0700 2015-09-20 08:00:51-0700<	Slot all: 1 ENACK 2 AIX: 3 AIX: 3 AIX: 4 AIX: 4 AIX	Description UCN for VLP Ucconfugued No Communications No Communications No Communications No Communications No Communications No Communications No Communications No Communications No Communications	Code 3111 3118 4017	use of the VLP being unconfigur
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etails Car VLP is unconfigured, as thus does no sually due to UCN, MCF CRC, SIN err RENS RE	ause ot communicate with any I rors.	I/O modules. This C	Check other diagnostic r	Remedy message for the exact ca Admin Logout	use of the VLP being unconfigur
etails Ci VLP is unconfigured, as thus does no sually due to UCN, MCF CRC, SIN err TENS TEN	ause ot communicate with any l rors.	I/O modules. This C	Check other diagnostic r	Remedy message for the exact ca Admin Logout	use of the VLP being unconfigur
etails Ca VLP is unconfigured, as thus does no sually due to UCN, MCF CRC, SIN err New Configuration Fuel Agustement Etails Configuration Fuel Agustement Etails Monter New Configuration System Diagnostic Select slot Automation System Diagnostics L Messages 2015-0 2015	ause ot communicate with any l rors.	I/O modules. This C	Check other diagnostic r	Remedy message for the exact ca Admin Logout	use of the VLP being unconfigur
VLP is unconfigured, as thus does no sually due to UCN, MCF CRC, SIN err EENS VLW Configuration Vert Aquetment System Diagnostics L Messages 2015-0 2015-0 2015-0 2015-0 2015-0 2015-0 2015-0 2015-0 2015-0 2015-0 2015-0 2015-0 2015-0 2015-0 2015-0	ause ot communicate with any l rors.	I/O modules. This C	Check other diagnostic r	Remedy nessage for the exact ca Admin Logout	use of the VLP being unconfigur
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New Configuration Field Aquadment Status Monitor notatica stem Diagnostics N. Messages 2015-0 2015			Welcome /	Admin Logout	
New Coolgaration Field Aquadrant System Diagnostics Istem Diagnostics It. Messages 2015-6 2				2 DOT Number 1234560	
Were Configuration Field Aquadment Status Monitor motifica System Diagnosts atem Diagnostics I. Messages 20154 20150 20154 20154 20154 20154 20154	🖻 🛵				
International System Diagnost Select slot: All LMessages 2015-4 20	Reports & Logs Maintenance	Diagnostics			
In Messages 2015-4 2010	tine				
L Messages 2015- 2016- 2016- 2015- 2015- 2015-0 2015-0 2015-0 2015-0 2015-0	-				
2015 2015 2015- 2015-0 2015-0 2015-0 2015-0	Date/Time 09-22 08.02:54 -0700	Slot. \$11: 1	Description UCN Error	Code 3111	
2015- 2016- 2016- 2015-0 2015-0	09-22 08:02:54 -0700 -09-22 08:02:54 -0700	sl1 1 Etrack 2	VLP Unconfigured No Communications	3118 4017	
2015. 2015.4	-09-22 08 02 54 -0700 -09-22 08 02 54 -0700	813, 3 514, 4	No Communications	4017	
2013	09-22 08:02:54 -0700	si5:5	No Communications	4017	
	0922080234-0700	340.0	No Communications	4017	
	Cause		Remody		
The Ocivinas not been enter	red correctly or is not the correct one for this for	Jocation and check that th	he vital signal configuration is correct	S IVE THE	
Details					
The UCN has not been entered corre	Cause			Rem	edy

Figure 3-76 Web UI Maintenance Menu – System Diagnostics Detail Screens

When the non-vital CP is not communicating with the VLP, the 'No VLP Communications' icon is appear.

The MCF, AUX and RT icons appear when the CP first starts to connect to the VLP. The typical boot up sequence would show these 4 icons in order:

•No VLP Communications

- •MCF
- •AUX
- •RT

Once the system reboots, the Diagnostics Alert icon will clear if the system is healthy, if the system is not healthy the Alert icon will be present.

When a new MCF is loaded the 'MCF' icon may show for several minutes while the new MCF database is created. The next time the CPU is reboots process this will take just a few seconds.

DIAGNOSTIC ICONS



Figure 3-77 Web UI Maintenance Menu – System Diagnostics Icons

3.1.8 CPU III Web UI – Unlock Procedure

The GCP System is "Locked" to prevent accidental changes made to the system that could render an inoperative and/or restrictive condition. Therefore, an unlocking procedure is required to ensure the safety of trains, vehicles, and pedestrians. Any time the system is unlocked, a local maintainer must be present at the equipment whether accessing the system locally or remotely. The following procedure is used to unlock the system:

When Unlocking the system is required, click on the Unlock button [1], a pop-up screen will appear to send a request to the CPU III display for the local presence person to acknowledge, press the OK button [2]. At the site the CPU III display will scroll ...LUP REQ PRESS SEL... [3] for one minute. The local presence person presses the Select (SEL) button [4] and the CPU III display will acknowledge with OK [5]. The remote user will receive a confirmation [6] that authentication has been successful.





3.1.8.1 CPU III Web UI – Unlocking Procedure – Reset VLP Module

After unlocking the system, most procedures will include resetting the VLP module to restore system operation. In the event a procedure is cancelled or does not include resetting of the VLP module, it will be necessary to manually reset the VLP module to restore the system from the restrictive state to normal operation. Use the following procedure to rest the VLP Module:

To manually reset the VLP Module navigate to the Software Updates [1] menu. From the Software Updates menu expand the VLP Menu [2] and select the Reset VLP Module Menu [3]. Click on the Reset VLP button [4], a pop-up screen [5] will appear to verify the CPU is to be rebooted. A confirmation screen [6] will appear confirming the CPU has been rebooted.

Verify no alarms are present (no Diagnostic icons on the screen) and the system is operating properly.

	System View Configur	ation Field Adjustment	Status Monitor	Reports & Logs	Maintenance	1 Diagnostics
	Maintenance	Reset	VLP	4 4		
2		Par Res	et VLP			
	MEF MCF MCFCRC					
	Clear ECD Clear CIC	3				
	Modules PTC Class D Tests		-			
	L	Vital CPU w Do you wan	ill be reboot t to continue? 5			
	•	ОК	Cancel			
			Prevent this	Vital CPU reboo page from creatir	nted ng additional dialo	ogs
					ОК	

Figure 3-79 CPU III Web UI – Manually Reset VLP Procedure

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SECTION 4 – CPU III SETUP

4.0 CPU III SETUP

4.1 SETUP EXISTING GEO APPLICATIONS

For an existing GEO installation that uses the CPUII+ (A80403-003) module, the CPU III can be used as a drop in replacement. The CPUII+ can be removed and the CPU III plugged into its slot. When this is done, the CPU III will first read the MCF from the ECD and transfer it across to the VLP, this may take a few minutes. The 4 character display will show "MCF XFER" and a percentage complete during the transfer process.

When the 4 digit display on the CPU III scrolls the MCF number, the Web UI will be available. To find the IP Address for the Laptop port, press the NAV button on the front panel of the CPU III, the 4 character display will show LAP IP ADD: xx.xx.xx. If the user logs into the Web UI while the MCF is still being transferred it will show the "No VLP Communications" icon in the top right.

Once the MCF has transferred the VLP will reboot and will come up fully operational (assuming the GEO installation was in operation previously). The WebUI will then show the "Creating MCF Database" we icon . This may take several minutes to complete, this only occurs once during the initial time the CPU loads this MCF. Once the MCF is loaded the CPU will process the AUX files. The AUX icon will appear during the process. The CPU will create the Real Time Database and display the RT icon during the creation period. When complete the WebUI will show the System view screen.

System View	IO Views 🖏								
	sl1:	< Empty >	sl3:	sl4:	< Empty >	sl6:	< Empty >	sl8:	
Module	Battery 13.8 V Internal 4.9 V CP		1933N:AG ● LOR 1933N:AY ● LOR 1933N:AR ● LOR 1933N:BG ● LOR 1933N:BF ● LOR 1933N:BR ● LOR VRO VPI ▶ 0 on VPI ▶ 0 off	1933D:AG ● LOR 1933D:AY ● LOR 1933D:AR ● LOR VLO ● LOR VLO ● LOR VLO ● LOR VLO ● LOR VLO ■ Off VPI ▶ _ Off		TW:NWR 		NET:CODE Tx C1 1.15 A 1.5 V Rx NC 0 A LED O Off VRO □ ▶ Off	

4.2 NEW GEO INSTALLATION APPLICATION

If installing a new GEO installation using the CPU III, perform the following steps:

- 1 Power up the CPU III
- 2 Once it is powered up, find the IP Address for the Laptop port, this can be found by pressing the NAV button on the front panel, the 4 character display will show LAP IP ADD: xx.xx.xx.xx
- **3** Type this address into a web browser. Log on to the Web UI, default password is Siemens (case sensitive).
- 4 To load the MCF, go to the Maintenance tab [1] on the Web UI, the select the VLP [2] from the left hand menu, then select MCF [3]. The MCF screen [4] will display as shown below.

SIEMENS		1	Welcome Admin Logout Site Name: CP CUC ATCS Address: 7 820 400 100 03 Mile Post: 25 2 DOT Number: 1234660
System View Configuration Field	Adjuštment Status Monitor Reports & I	Logs Maintenance Diagnostics	
Maintenance CP MEF VLP 2 MEF MCF 3 MCFCRC Clear CCC Clear CCC Clear CCC Clear CCC Reset VLP Modules PTC Class D Tests	CP MEF	Browse	
© Copyright 2015 Siemens. All rights reset	rved.		CP Version 23.0.
MCF 5 Unlock Update MCF: ROSKN_NE001.mcf MCFCRC: C006A917	4		
Select VLP MCF:	Brov	vse	

- 1 Then select the Unlock button [5], accept the confirmation. At this stage the 4 character display will ask for confirmation that a person is present in the field at this location by showing "LUP REQ PRESS SEL". Press the SEL button on the front of the CPU III to confirm that is the correct CPU. The Web UI screen will then update and Browse and Update buttons will be enabled.
- 2 Select the MCF file to upload [6] and enter its MCF CRC [7], and select update [8]. This will cause the MCF to be transferred and stored in the ECD, and then the VLP to reboot and the MCF to be transferred to the VLP. The 4 character display will show MCF XFER and a % complete while this is happening.
- **3** Once the MCF transfer has finished the 4 character display will show Err: UCN, indicating that the UCN is not correct.
- 4 Set program parameters: go to the Configuration tab the Vital Configuration. Select the Unlock button again and press SEL button on CPU III when prompted. Then enter the Logical configuration, Physical configuration and Site configuration parameters as specified in the installation plans.
- 5 Select the Vital Configuration / Unique Check Number(UCN) menu and enter the UCN specified on the site plans [9]. The reset the VLP by pressing the Reset VLP button

MCF	
🕞 Unlock 📝 Update 8	
MCF: RSSI_ptc001.mcf MCFCRC: FDE2E710	
Select VLP MCF: 6 Enter MCFCRC: 6	
7	
Unique Check Number (UCN)	
🚺 Unlock 🛛 🛱 Save 🛸 Reset VLP	

- 6 The VLP will reboot and provided that the vital parameter settings match with the UCN entered it will come up fully operational
- 7 While the VLP is rebooting the Web UI will show the "No VLP communications" icon 💹
- 8 Select the System View on Web UI, verify there are no MCF, AUX, or RT icons present. Verify the software versions are correct. This can be done by selecting the Module / Version menu (see Section 3.1.1) as shown in the figure below.

Madula	Slot	Name	Туре	Revision	CRC(Hex)	Version
Module IO Views Version	SI1: VLP SI1: VLP SI1: VLP	ROSKN_NE001.mcf V3G00_01.009	MCF MEF ID Number BOOTCODE ID Number	9VC27A01.A1 9VC81A01	0xC006A917 0x0000B8D3 0x00006A91	001
Refresh	sl1:CP sl1: sl1: sl1: sl1:CP	U-Boot	MEF UBOOT DTB Linux Kernel	9VC52-A01 9VC81A01 9VC84A01 9VC82A01	N/A N/A N/A N/A	2.3 2.6.24
	sl1:CP sl3: sl3:	9VC54_A01 CLS01_15.MEF	FPGA MEF ID Number BOOTCODE ID Number	9VC54_A01 9V364a03.U 9v391A01.A	N/A 0x0000626B 0x00005889	
	sl4: sl4:	CLS01_15.MEF	MEF ID Number BOOTCODE ID Number	9V364a03.U 9v391A01.A	0x0000626B 0x00005889	
	sl6: sl6:	RIO01_07.MEF	MEF ID Number BOOTCODE ID Number	9V453a01.E 9v391A01.A	0x0000FEF6 0x00005889	
	sl8: sl8:	trk01_15.mef	MEF ID Number BOOTCODE ID Number	9V365a01.AB 9v391A01.A	0x00006FB5 0x00005889	

9 Or by going to the Reports & Logs, selecting Reports / Version and the pressing Create button [10]. If the software versions are not correct for the CPU III or any of the I/O modules, upload the proper software, see Section 3.1.6 for details.



10 To set up the coded track modules go to the Field Adjustment / Track Setup menu and adjust the transmit voltage as described in the track setup section of the GEO manual SIG-00-05-09 and WayConneX manual SIG-00-16-08.

💎 🚯	🧐 📢	Dia 🛓	. Ref	l.			
tem View Configuration	Track Setup	eporta & Loga Maintenance					
Track Setup Lamp Setup	V(Tx)(V) 2.0 Current Limit(A) 10.0	Coded Track		Cod V(Tx)(V) 1.5 Current Limit(A) 10.0	ed Track	(m)	
		C1 C7 C5		Tx	C1 C7		
	Tx Voltage	1.96 V		Tx Voltage	1.48 V		
	Tx Current	0.75 A		Tx Current	0.55 A		
	Rx	C1 C7 C5		Rx		C5	
	Rx Current	0.97 A		Rx Current	1.07 A		

11 To set up the Colorlight lamp voltages go to the Field Adjustment / Lamp Setup menu and adjust the lamp voltage as described in the lamp setup section of the GEO manual SIG-00-05-09 and WayConneX manual SIG-00-16-08.

SIEMENS					Welcome Ad	min Logout
					: 7.620.400.100.03 Mile Post: 35.2	DOT Number: 123456
System View Configuration Fie	eld Adjustment Status Monitor Reports	& Logs Maintenance	Diagnostic	:5		
Field Adjustment	Lamp Setup					<u>.</u>
Track Setup	sl3:			sl4:		
Lamp Setup Maintainer On Site	Lamp Voltage(V) 10.5	Rave		Lamp Voltage(V) 10.5	Save	
	MAIN:LUGRN_DEF	LOR	۲	MAIN:RUGRN_DEF	LOR	۲
	MAIN:LUYEL_DEF	LOR	۲	MAIN:RUYEL_DEF	LOR	۲
	MAIN:LURED_DEF	LOR	۲	MAIN:RURED_DEF	LOR	۲
	MAIN:LLGRN_DEF	LOR		MAIN:RLGRN_DEF	LOR	۲
	MAIN:LLYEL_DEF	LOR	۲	MAIN:RLYEL_DEF	LOR	<u> </u>
	MAIN:LLRED_DEF	LOR	۲	MAIN:RLRED_DEF	LOR	۲
© Copyright 2015 Siemens. All rights res	served.					CP Version 2.3.0

4.3 SETUP WAYCONNEX APPLICATIONS

If installing a new WayConneX installation using the CPU III, perform the following steps:

- **1.** Power up the CPU III
- 2. Once it is powered up, find the IP Address for the Laptop port, this can be found by pressing the NAV button on the front panel, the 4 character display will show LAP IP ADD: xx.xx.xx.xx
- **3.** Type this address into a web browser. Log on to the Web UI, default password is Siemens.
- 4. To load the MCF, go to the Maintenance tab [1], the select the VLP [2] from the left hand menu, then select MCF [3].



SIEMENS			Welcome Admin
			Site Name: CP CUC ATCS Address: 7.820.400.100.03 Mile Post: 35.2 DOT Number: 123456D
System View Configuration Field Ac	djustment Status Monitor Reports & Logs	Maintenance Diagnostics	
Maintenance	CP MEF		
	🔁 Unlock 🛛 Update		
MCF - 3 MCFCRC Clear ECD	Select CP MEF:	Browse	
Clear CIC Reset VLP			
Modules PTC Class D Tests			
© Copyright 2015 Siemens. All rights reserve	:d.		CP Version 2.3.0.

5. Then select the Unlock button [4], accept the confirmation. At this stage the 4 character display will ask for confirmation that a person is present in the field at this location by showing "LUP REQ PRESS SEL". Press the SEL button on the front of the CPU III to confirm that is the correct CPU. The Web UI screen will then update and Browse and Update buttons [5] will be enabled.

MCF	
🚺 Unlock 🗸 Update	
4	
Select VLP MCF:	Browse
Enter MCFCRC:	MCF
	👩 Unlock 📝 Update
	5
	Select VLP MCF:

6. Select the MCF file to upload and enter its MCF CRC [6], and select Update [7]. This will cause the MCF to be transferred and stored in the ECD, and then the VLP to reboot and the MCF to be transferred to the VLP. The 4 character display will show MCF XFER and a % complete while this is in progress [8].

MCF		
MCF: RSSI_ptc001.mcf	6	
MCFCRC: FDE2E710		
Select VLP MCF:	RSSI_ptc001.mcf	MCF
	FDE2E/10 7	🕞 Unlock 🗸 Update
		Uploading Status - 23% Completed
		Uploading Status - 23% Completed

- **7.** The MCF can also be transferred using the Configuration Package. Use the following Steps. (If not using the Configuration Package go to Step 13).
- 8. From the Configuration screen click on the Configuration text in the left column [A1].
- 9. Unlock the system by clicking the Unlock button [A2], select Configuration Package from the drop down menu [A3].
- **10.** Click on the Browse button **[A4]** and locate the Configuration Package file. Click on the Download button **[A5]**.



11. A pop up screen will appear showing the uploading process **[A6]**.

12. When the upload is complete click on the Update button **[A7]**.

SIEMENS		Welcome Admin Logout
4	🥸 🛛 🍳 🔏 🐴	50e Nore: WoyGorea', Roy A/CB Asiers: 7 855 50 102 81 Mis Post 003 (007 Number 800000A
Maintenance	Configuration	
Configuration CP MEF • VLP Modules	Configuration Package 🔤 🏹 Induction (Viewaland)	A6
	Uploading Configuration Package 0% Completed Uploading MCF 50% Completed	Inloading Configuration Package 0% Completed
		Jploading MCF 55% Completed
@ Copyright 2016 Stemens. All right	s reserved.	CP Version 182.

13. A pop up screen will appear asking for the MCFCRC number **[A8]**, enter the number from the Site Plans **[A9]** and click the YES button **[A10]** to update the MCF.

A 8	_
Configuration	
MCFCRC does not match. Can't proceed with configuration upload. Do you want to update MCF now? Enter MCFCRC:	Configuration MCFCRC does not match. Can't proceed with configuration upload. Do you want to update MCF now? Enter MCFCRC: 22942609
	A10 Yes No

- **14.** Once the MCF transfer has finished the 4 character display will show Err: UCN, indicating that the UCN is not correct.
- 15. Enter the UCN and PTC UCN by selecting the Vital Configuration / Unique Check Number(UCN) menu and enter the UCN [9] specified on the site plans. Take note that this is performed before loading the configuration package, since loading the configuration package will cause the VLP to reboot.

SIEMENS	Welcome Admin Logout	
	Site Name: CP CUC ATCS Address: 7.620.400.100.03 Mile Post: 35.2 DOT Number: 1234660	
System View Configuration Field Ad	ajustment Status Monitor Reports & Logs Maintenance Diagnostics	
Configuration • Non-Vital Configuration • Vital Configuration • Logic Configuration • Module Configuration • Vital PTC Configuration • Set Default • Name Editors Unique Check Number (UCN) Reset VLP	Unique Check Number (UCN)	
© Copyright 2015 Siemens. All rights reserve	d. CP Version 2.3.0.	

16. To program the CPU III load the configuration package settings generated from the Office Configuration Editor. Select the Maintenance tab, then click on the unlock button and press SEL button on CPU III front panel to confirm local user presence. Then select the configuration package zip file [10] and press Update [11]. Once the package has been loaded the CP and VLP will reboot to load the new settings.

Maintenance	Configuration
Configuration CP MEF ▶ VLP Modules PTC Class D Tests	Configuration Package I Dunlock Vupdate Download
	Select File :

- **17.** After the reboot, provided that the vital parameter settings match with the UCN entered, the VLP will come up fully operational
- **18.** While the VLP is rebooting the Web UI will show the "No VLP communications" icon
- **19.** Select the System View on Web UI, once this shows up and no MCF, AUX, RT icon is present verify the software versions are correct. This can be done by selecting the Module / Version menu as shown below.

System View	Version					
▶ Module	Slot	Name	Туре	Revision	CRC(Hex)	Version
IO Views Version	sl1: VLP sl1: VLP sl1: VLP sl1: VLP	ROSKN_NE001.mcf V3G00_01.009	MCF MEF ID Number BOOTCODE ID Number	9VC27A01.A1 9VC81A01	0xC006A917 0x0000B8D3 0x00006A91	001
Refresh	sl1:CP sl1: sl1:	U-Boot	MEF UBOOT DTB	9VC52-A01 9VC81A01 9VC84A01	N/A N/A N/A	2.3
	sl1:CP sl1:CP	9VC54_A01	Linux Kernel FPGA	9VC82A01 9VC54_A01	N/A N/A	2.6.24
	sl3: sl3:	CLS01_15.MEF	MEF ID Number BOOTCODE ID Number	9V364a03.U 9v391A01.A	0x0000626B 0x00005889	
	sl4: sl4:	CLS01_15.MEF	MEF ID Number BOOTCODE ID Number	9V364a03.U 9v391A01.A	0x0000626B 0x00005889	
	sl6: sl6:	RI001_07.MEF	MEF ID Number BOOTCODE ID Number	9V453a01.E 9v391A01.A	0x0000FEF6 0x00005889	
	sl8: sl8:	trk01_15.mef	MEF ID Number BOOTCODE ID Number	9V365a01.AB 9v391A01.A	0x00006FB5 0x00005889	

20. Or by going to the Reports & Logs, selecting Reports / Version and the pressing Create button. If the software versions are not correct for the CPU III or any of the I/O modules, upload the expected software, see Section 3.1.2.5 for details.

Reports & Logs	Version	
EventLog ▼ Reports	Treate Download	
Configuration Version	Creation Date: Friday September 18 2015 Creation Time: 16:06:40 Australia Western	
Diagnostic⊥og ▶ VLP/IO Card Log	Location and SIN	
	MCF Revision : 001 MCFCRC : C006A917 UCN : A46FD860 Software Information =================	
	Siot1 : si1: MEF VERSION : V3G00_01.009 MEF ID Number : 9VC27A01.A1 MEF CRC : 0x88D3	

21. To set up the coded track modules go to the Field Adjustment / Track Setup menu and adjust the transmit voltage as described in the track setup (see WayConneX manual SIG-00-05-09).

Track Setup	sl8:	. 0
amp Setup	V(Tx)(V) 1.5	R Save
	Current Limit(A) 10.0	
	Тх	C1
	Tx Voltage	1.5 V
	Tx Current	1.15 A
	Rx	
	Rx Current	0 A

22.To set up the Colorlight lamp voltages go to the Field Adjustment / Lamp Setup menu and adjust the lamp voltage as described in the lamp setup (see WayConneX manual SIG-00-05-09).

Field Adjustment Lamp Setup Track Setup sl3: Lamp Voltage(V) 11.0 1933N:AG LOR 1933N:AG LOR 1933N:AY LOR	0
Track Setup Lamp Setup 1933N:AG LOR • 1933N:AY LOR • 1933D:AG LOR 1933D:AG LOR 1933D:AG LOR	۲
Lamp Setup Lamp Voltage(V) 11.0 Image: Save Lamp Voltage(V) 11.0 Image: Save Lamp Voltage(V) 11.0 Image: Save 1933D.AG LOR 1933D.AG LOR 1933D.AG LOR 1933D.AY LOR 100.0000000000000000000000000000000000	
1933N:AG LOR 1933D:AG LOR 1933N:AY LOR 1933D:AY LOR	
1933N/AY LOR • 1933D/AY LOR	۲
	•
1933N:AR LOR 🕘 1933D:AR LOR	۲
1933N:BG LOR O VLO LOR	\bigcirc
1933N:BY LOR O VLO LOR	\bigcirc
1933N:BR LOR 🔍 VLO LOR	\bigcirc
SECTION 5 – CPU III APPLICATIONS

5.0 CPU III APPLICATIONS

5.1 GEO APPLIANCE MODEL APPLICATIONS

The CPU III can be used in place of a CPU II+ in GEO applications. It will offer the benefits of much faster logic processing thus improving the reaction time of the system.

When creating GEO MCFs with the GCS, the module type for slot 1 should still be VLP2.

Since the GEO chassis does not have an Ethernet port, in applications where multiple GEO units are used, the communications between them still has to be via Echelon, thus the -1 version should be used which incorporates the Echelon Module.

NOTE

The CPU III has a limitation on the number of GEO units that can be used on the Echelon[®] Network, at this time only 4 GEOs can be networked on the Echelon[®] LAN.

NOTE

The Web UI performs the functions previously performed by the Diagnostic Terminal (DT) program.

The PTC console can be used to PTC enable a GEO using a CPU III in an identical way to a GEO using a CPU II+. No changes are required on the CPU III configuration. See PTC Console manual SIG-00-13-12, Sections 2.1.1 and 3.1.1 for further details.

5.2 WAYCONNEX PTC APPLICATIONS

WayConneX uses many of the same I/O modules as GEO, but has two new chassis types, a 2 track chassis similar to GEO and a generic chassis where any I/O module can be put in any slot, thus allowing more than 2 track modules to be used.

The two track chassis has options to use either GEO track or line modules, or the WayTrax Microtrax compatible long distance track circuit module.

The WayConneX chassis is built specifically to use CPU III. They provide an Ethernet port on the chassis that can be used in PTC applications or for vital communications between multiple WayConneX systems. The user can choose whether to use the Ethernet port or the Echelon[®] network for routing vital message by setting the Vital Message Routing parameter on the Configuration / Non-Vital Configuration / Router Settings page as shown in Figure 5-1.

SIEMENS			We	Icome Admin Logout
			site Name: WayConneX, Rssi TPubs ATCS Address: 7.620.100.100.03 Mile	Post: 40.21 DOT Number: 123456D
System View Configuration Field	Adjustment Status Monitor Reports & Logs Mainte	inance Diagnostics		
Configuration	Router Setting			_
	🖥 Save 🔮 Refresh 🚺 Default			
▼ Non-Vital Configuration				
Site Configuration	Route Table Entry Timeout 300	*		
Applications			Ethernet	•
► PIC	Vital Message Routing Ethernet	▼ *	Ethernet	
Communication	Echelon Gateway Node		Echelon	
Enemet Ports				
Router Seturity				
► Log Setup				
Security				
Web Server				
Set to Default				
 Vital Configuration 				
© Copyright 2016 Siemens. All rights resen	ved.			CP Version 2.4.3.

Figure 5-1 Router Setting Screen

5.2.1 PTC Applications

To create a PTC application for WayConneX, first an MCF that includes PTC Logic has to be created using the WCCT. Then the OCE has to be used to create a site using this MCF and should set the vital and non-vital configuration values for the site. If the order of the PTC devices in the MCF needs to be changed from the default order listed in the MCF, this has to be done using the OCE, it can't be done from the CPU web UI. After the configuration has been created in the OCE, the user can load the configuration package created by the OCE into the WayConneX CPU III using the Web UI. The user should then set the UCN and PTC UCN, these are listed on the configuration listing created by the OCE.

The PTC Status screen (see Figure 5-2) on the Web UI shows the status of the PTC connection and devices.

The Beaconing LED shows green when the CPU is currently sending Beacon messages The GPS Present shows green when GPS communication is established and red when no GPS communication is available.

Under the Object heading is a list of the PTC devices defined in the MCF. For signals, the Status will show the PTC aspect defined for this signal, for switches, it will show the whether the switch is reporting normal, reverse, error or out of correspondence, for hazards detectors it will show normal or fault

The time column shows the time and date the last PTC message data was updated for this device. When the WayConneX is currently beaconing the time will increment each time a Wayside Status message is sent. Once the beaconing stops, the time will stop incrementing, and show the time the last message was sent.

Beaconing	6	GPS Present	ClassD Connection	
Object	Status	PTC Code	Time	
LeftSig:	Unknown		16-Sep-2015 15:27:27 👒	
RightSig:			16-Sep-2015 15:27:27 🐵	

The order of the objects reflects the order that the devices appear in the PTC message.

Figure 5-2 PTC Status Screen

5.3 SYSTEM MANAGEMENT APPLICATIONS

5.3.1 Introduction

System Management provides monitoring of the health and operation of devices connected to a WayConneX System. System Management defines a subset of functions required for devices installed in a Positive Train Control (PTC) system. When the devices detect problems, they report these through system management, which allows the railroad to quickly identify and resolve problems. System Management provides remote upgrade options for PTC equipment and remote access to logs and other information.

The following diagram shows the general system management context and the systems management functions in the WayConneX



Figure 5-3 System Management Function in the WayConneX

The following diagram shows the context of a WayConneX using the SNMP, SCP, and SSH for System Management. Back-office applications can send commands, files, software upgrades, status queries, etc. through the system. The WayConneX System can respond and send unsolicited alerts through the IP Network to the Back Office.

The diagram in Figure 5-4 shows the system context using SNMP, SCP, and SSH for System Management.



Figure 5-4 SNMP, SCP, and SSH for System Management

The goal of deploying SNMP, SCP, and SSH for System Management is to enable the user to manage their equipment, as much as possible, from the back-office by leveraging their PTC communications network infrastructure.

5.3.2 Commands

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

5.3.2.1 GET_DIAG, GET_EVENTS

SYNOPSIS

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

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

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.

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 WIU. 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.

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

5.3.3 Upgrader

SYNOPIS

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

Upgrades the non-vital executive software.

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, the 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.

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

5.3.4 WHO

SYNOPSIS

who [m|r|s]

Display the WayConneX 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 WayConneX.

who [s <serialnum>]

Used by manufacturing to set the serial number.

The who command displays the above information and is used for setting only.

DESCRIPTION

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

This command will also show the software and hardware revision information for the connected WayConneX systems. For each WayConneX and for each card in the WayConneX 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 manufacturing.

m, M <model>

Used by Siemens manufacturing to set the WayConneX model number.

r, R <revision>

Used by Siemens manufacturing to set the WayConneX revision level.

s, S <serialnum>

Used by Siemens manufacturing to set the WayConneX revision level.

EXAMPLES

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

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

5.3.5 WIUCONF

SYNOPSIS

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.

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 changed 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 nonvital configuration file can also contain CDL-defined menu or operational parameters. If necessary, this may result in a recompile 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.

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
```

SPECIAL CONSIDERATIONS

Eth_Laptop: DHCP Eth_Laptop: IP_Address Eth_Laptop: NetMask Eth_Laptop: Gateway

Eth_PTC: DHCP Eth_PTC: IP_Address Eth_PTC: NetMask Eth_PTC: Gateway

5.3.6 Operation

The System Management application is a program written in CDL to determine when to generate events and alerts.

The WayConneX will send the vital CPU's diagnostic messages to the CDL program. The CDL program can choose to send an alert based on the state of diagnostic information. When triggered by the CDL program, the WayConneX unit will send an event/alert to the back-office. All the logic for events/alerts is contained in the CDL, allowing it to be changed without loading new executive software into the WayConneX.

The CDL program defines configurable parameters, which the user can change while the CDL is running without re-compiling the CDL or re-performing the entire site setup procedure. The user can individually enable or disable sending each event/alert defined by the CDL program. The WayConneX will still write all events/alerts to the logs even if events/alerts are not sent to the back office. The status of the internal vital/non-vital CPU communications session will be provided to the CDL program. The CDL program will send an alert to the back office if the CPUs are not in session, which would prevent the delivery of WSMs. The WayConneX will provide the status of the Class D connection to the CDL program and send an alert if the WayConneX is not able to transmit WSMs.

The WayConneX will collect events/alerts as defined in the CDL program created for a specific application. Refer to the documentation provided with the CDL program for details

5.3.6.1 CDL Installation and Setup

The CDL program can be installed and setup using the Web User Interface. To start the setup process select the Configuration icon [1] and from the Non-Vital Configuration menu on the left column select the Applications sub-menu [2] and under Applications select the CDL sub menu followed by Site Setup. From the Site Setup screen click on the Upload CDL button [3] and click on Browse [4] and locate the CDL file desired then click the Update button [5]. The CDL will upload into the system.

SIEMENS	Welcome Admin Longut
1	
	Site Name: Stemens Rail ALCS Address: 7.520.100.100.14 Mile Post: 2.4.1 DOT Number 0010100
System View Configuration Field Ac	ustment Status Monitor Reports & Logs Maintenance Diagnostics
Configuration	Site Setun
 Non-Vital Configuration 	📄 Display Q & A 🔤 Previous 🕑 Next 🔮 Start 📁 Remove CDL) 🔍 View CDL Log 🚹 Upload CDL 🔛 Download
Site Configuration	
✓ Applications < 2	
▼ CDL	CDL FIE: SNIPALARM.cdl
Operational Parameters	Update
► PTC	
 Communication 	Site Setun
Log Setup	
Security	🗐 Display Q & A 🛛 🜗 Previous 📄 Next 🛛 🦂 Start 🕽 🔤 Remove CDL 🤇 🔍 View CDL Log 🔂 Upload CDL 🔡 Download
Web Server	CDL File Name : None
Set to Default	4
 Vital Configuration 	
	CDL File: SNMPALARM.cdi
	Update
© Copyright 2016 Siemens. All rights reserved	

Figure 5-5 Uploading CDL Application

When the CDL file has been uploaded the file name will appear on the Site Setup screen [6]. To start the CDL setup click on the Start button [7].

SIEMENS	Welcome Ad	min Logout
System View Configuration Field Ad	iustment Status Monitor Reports & Logs Maintenance Diagnostics	
Configuration	Site Setup	X
 Non-Vital Configuration Site Configuration Applications CDL Site Setup Operational Parameters PTC Communication Log Setup Security Web Server Set to Default Vital Configuration 	Display Q & A Previous Next Start Remove CDL View CDL Log Upload CDL Download CDL File Name : SNMPALARM.cdl	
© Copyright 2016 Siemens. All rights reserved	1.	CP Version 2.4.2.



A pop up will appear asking if the user desires to reset the module names, click YES or NO [8] to proceed.



Figure 5-7 Reset Module Names inquiry Screen

Depending on the type of CDL content, a question, series of questions, or no questions may appear. With each question [9] select the desired answer and then click the Next button [10] to continue. Repeat the process for each question. To repeat the process starting with the first question click on the Restart button [11] and repeat steps [9] and [10]. When all questions (if any) are answered, clicking on the Next button [10] will cause a pop up to appear asking if the user wants to compile the CDL. Selecting YES will start the compiling process, selecting NO will return to the last question



Figure 5-8 CDL Question Sequence





A message will appear advising successful or unsuccessful compilation of the CDL application **[13]**. An Icon will appear **[14]** on the upper right corner of the screen indicating a CDL application is present. See Section 5.3.6.4 for details. To display the Questions and Answers, click on the Display Q&A button **[15]** and the question and answer selected will appear on the screen. See Figure 5-11. In the event of an unsuccessful compilation click on the Restart button **[16]** and repeat the process. If the CDL will not compile remove the CDL file (see Section 5.3.6.2 Remove CDL).



Figure 5-10 CDL Compilation Complete and Additional Options Screen

The figure below shows an example of display of CDL questions and answers.



Figure 5-11 Display CDL Q & A

To view the CDL click on the View CDL Log button **[17]** and the log will appear on the screen **[18]**.

SIEMENS		Welcome Admin Logout Sile Name: Stemens Rail (ATCB Address: 7422 100 100 14 (Mile Paul 2-41) D07 Number 0010100
System View Configuration	Site Setup	17 9
 Non-Vital Configuration Site Configuration Applications COL Site Setup Operational Parameters PTC Communication Log Setup Security Web Server Sets Darbault Vitial Configuration 	Display O.A. Pressure Meter Arcstart Pressure CD CDC, File Name: SMPPA/APM cdl May 201 440 27 NFO Indialed Simg array May 201 440 27 NFO Indialed Simg array May 201 440 27 NFO Indialed Simg array May 201 440 27 NFO Octaing mere. (mrl) (401 May 201 440 27 NFO Octaing mere. (mrl) (401 May 201 440 27 NFO Octaing mere. (mrl) (401 May 201 440 27 NFO Octaing meres (mrl) (401 May 201 440 27 NFO Octaing meres (mrl) (401 May 201 440 27 NFO Octaing message (14UL) (401 May 201 440 27 NFO Octaing message May 201 440 27 NFO Octaing message (14UL) (401 May 201 440 27 NFO Octaing message (14UL) (401 May 201 440 27 NFO Octaing message (14UL) (401 May 201 440 27 NFO Octaing message (14UL) (401 May 201 440 27 NFO Octaing Message (14UL) (401 May 201 440 27 NFO Octaing Message (14UL) (401 May 201 440 27 NFO Octaing Message (14UL) (401 May 201 440 27 NFO Octaing Message (14UL) (401 May 201 440 27 NFO Octaing Message (14UL) (401 May 201 440 27 NFO Octaing Message (14UL) (401 May 201 440 27 NFO Octaing Message (14UL) (401 May 201 May 201 440 27 NFO Octaing Message (14UL) (401 May 201 440 27 NFO Octaing Message (14UL) (401 May 201 May 201 440 27 NFO Octaing Message (14UL) (401 May 201 440 27 NFO Octaing Message (14UL) (402 May 201 440 27 NFO Octaing Message (14UL) (401 May 201 May 201 440 27 NFO Octaing COL log file)	CDL File Name : SNMPALARM.cdl May-20 14:40:27 INFO Initialised instruction array May-20 14:40:27 INFO Initialised String array May-20 14:40:27 INFO Initialised String array May-20 14:40:27 INFO Creating menu: [mn1], id=0 May-20 14:40:27 INFO Creating menu: [mn1], id=0 May-20 14:40:27 INFO Creating menu: [mn2], id=1 May-20 14:40:27 INFO Reading answers May-20 14:40:27 INFO Reading answers May-20 14:40:27 INFO Reading answers May-20 14:40:27 INFO Defining message: [ALM1], id=0 alarm flag=0 May-20 14:40:27 INFO Defining message: [ALM2], id=1 alarm flag=0 May-20 14:40:27 INFO Perining message: [ALM2], id=1 alarm flag=0 May-20 14:40:27 INFO #if failed, skipping to #endif on line 20 May-20 14:40:27 INFO #if failed, skipping to #endif on line 20 May-20 14:40:27 INFO #if failed, skipping to #endif on line 20 May-20 14:40:27 INFO #if failed, skipping to #endif on line 20 May-20 14:40:27 INFO #if failed, skipping to #endif on line 20 May-20 14:40:27 INFO #if failed, skipping to #endif on line 20 May-20 14:40:27 INFO #if failed, skipping to #endif on line 20 May-20 14:40:27 INFO #if failed, skipping to #endif on line 20 May-20 14:40:27 INFO #if failed, skipping to #endif on line 20 May-20 14:40:27 INFO #if failed, skipping to #endif on line 20 May-20 14:40:27 INFO #if failed, skipping to #endif on line 20 May-20 14:40:27 INFO Closing to CDI log fileI

Figure 5-12 CDL Log Screen

To download the log in a file format click on the Download button **[19]**, two options will appear, CDL File and CDL Log. CDL File enables the user to download the CDL file to an external drive or computer. The CDL Log enables the user to open the CDL Log in a text program (Notepad is the default selection) or the log may be saved to an external drive or computer.



Figure 5-13 Downloading CDL Files and Logs

5.3.6.2 Remove CDL

To remove a CDL file click on the Remove CDL button [1].

SIEMENS	Welcome Admin Copout
	Rive Name Blowners Real (ATCS Address 7.55 (3) 100 100 (4) (Mine Pool 2 4 1) (001 Numeric 6) 1910a
System View Configuration Fie	Contraction of the second seco
Configuration	Site Setup
Non-Vital Configuration Site Configuration Applications	Distring O. & A Province Print Affect Total Concerning Print Concerning Pr
COL Site Setup Operational Parameters	Site Setup
PTC Communication	📃 Display Q & A 🛛 🜗 Previous 📄 Next 🛛 🏂 Start 🛛 💳 Remove CDL 🤇 🧠 View CDL Log 👔 🚵 Upload CDL 🔡 Download
 Log Setup Security 	CDL File Name : SNMPALARM.cdl
veo server Set to Default • Vital Configuration	
© Copyright 2016 Siemens. All rights res	ared CPVarsios 2.4.2



A message will appear on the screen advising the CDL file was successfully removed also the CDL File Name will indicate None [2].



Figure 5-15 CDL Removed Successfully

5.3.6.3 CDL Operational Parameters

Depending on the content of the CDL application operational parameters may be available. Click on the Operational Parameters sub menu will display any parameters that are a part of the installed CDL. In the following example the user can set parameters for sending messages.

SIEMENS	Wolcome Admin
	Site Name: WayConneX ATCS Address: 7.020.100.03 Mile Post: 000.0 DOT Number: 000000A
System View Configuration Field A	djuštment Status Monitor Reports & Logs Maintenance Diagnostics
Configuration	Site Setup
 Non-Vital Configuration 	🗐 Display Q & A 🛛 🜗 Previous 📄 Hext 🦧 Restart 🔤 Remove CDL 🔍 View CDL Log 🚹 Upload CDL 🛃 Download
 Notivital Configuration Site Configuration Applications COL Site Setup Operational Parameters PTC Communication Log Setup Security Web Server Set to Default Vital Configuration 	Send Messages No Yes Yes No
© Copyright 2016 Siemens. All rights reserve	ed. CP Version 2.4.2.

Figure 5-16 CDL Operational Parameters Screen

5.3.6.4 CDL Present and Status Indicator

When a CDL is installed an icon will appear in the upper right corner on all Web UI screens showing the current status of the CDL application. As shown in Figure 5-17, The CDL Status Icon has three indications, Green CDL is running, Red CDL is not running, Yellow there is a CDL Status Alert present.



Figure 5-17 CDL Application Status Icons

5.3.6.5 CDL Messages

If the CDL Alert icon appears in the upper right corner of the Web UI screens, the user can view any CDL Messages by navigating to the Diagnostics Menu [1] and clicking on the CDL Messages [2] sub menu. Any CDL message will appear on the screen with the Date and Time of the alert, the Slot affected, and the Description of the alert. In the example shown in Figure 5-18 an internal temperature alert on slot 2 is listed.

SIEMENS				
			Weic	ome Admin Logout
			Site Name: WayConneX ATCS Address: 7.620.100.100.03 Mile Pe	
		c. 🔼		
- 💦 🐯 🍾	🦅 🖾 🕠			
System View Configuration Field A	Adjustment Status Monitor Reports & Logs	Maintenance Diagnostic	s	
				00
	O se la se Dia se a lia a			
Diagnostics	System Diagnostics			
System Diagnostics	Select slot: sl2: 2			
	Date/Time	Slot	Description	Code
CDCmessages	05-24-2016 13:48 PDT	2	Current Internal Temperature = 97 F	
	Details		Remedy	
© Copyright 2016 Siemens. All rights reserve	/ed.			CP Version 2.4.2.

Figure 5-18 CDL Messages

5.4 PSO APPLICATIONS (WAYCONNEX ONLY)

The WayConneX unit will accommodate PSO (Phase Shift Overlay) modules.

5.4.1 PSO Module Setup

Using the CPU III Web UI the PSO modules can be setup as follows:

- 1. Set Track Code
 - a. Click on Configuration Icon
 - b. Click on Vital Configuration Menu
 - c. Click on Logic Configuration
 - d. Click on Main Sub-menu
 - e. Select the Track Code and set the drop-menu to TRUE
 - f. Save the selection



Figure 5-19 Setting PSO Module Track Code

- 2. Configure PSO Modules
 - a. Click on Configuration Icon
 - b. Click on Vital Configuration Menu
 - c. Click on Module Configuration
 - d. Select the Module Slot
 - e. Configure parameters
 - f. SAVE parameters

PSO Module Configuration – Code Mode Parameters

Mode – This parameter selects Code Mode (Coded Track) or OS Mode (Operational Siding)

Transmit Level – Low or High

PSO Freq Category – Standard or Alternate

TX Frequency – Lists Frequencies for PSO Frequency Category selected

RX 1 Frequency – Lists Frequencies available for receiver 1

RX 1 Pickup Delay Time (sec) – Sets delay time (Range 0-10 seconds)

VPI Debounce – Sets VPI Debounce from drop-menu list



Figure 5-20 PSO Module Setup Screen – Code Mode

PSO Module Configuration – OS Mode

The OS Mode sets up a second receiver Operational Sidings. Parameters for the second receiver will appear on the screen upon selection of the OS Mode.

Mode – This parameter selects Code Mode (Coded Track) or OS Mode (Operational Siding)(Requires System Unlock)
Transmit Level – Low or High
PSO Address – Set PSO Address Code
PSO Freq Category – Standard or Alternate
TX Frequency – Lists Frequencies for PSO Frequency Category selected
RX 1 Frequency – Lists Frequencies available for receiver 1
RX 1 Pickup Delay Time (sec) – Sets delay time (Range 0-10 seconds)
PSO Receiver 2 – Enables or Disable second PSO Receiver (used with sidings) (Requires system Unlock)
RX 2 Frequency – Lists Frequencies available for receiver 2
RX 2 Pickup Delay Time (sec) – Sets delay time for Receiver 2 (Range 0 – 10 seconds)

VPI Debounce – Sets VPI Debounce from drop-menu list



Figure 5-21 PSO Module Setup Screen – OS Mode

3. Configure PSO Modules

- a. Click on Field Adjustment Icon
- b. Click on PSO Setup Menu
- c. Calibrate each PSO module



Figure 5-22 Field Adjustment – PSO Setup

PSO Setup SI4: PSO Install Calibration Jumpers across Receiver Start Calibration • Input terminals on I/O connector Select Calibration 285 Hz Code Health Code Verify Signal Level SL = 0-100 SI4: PSO • Start Calibration **Click on Start Calibration** Select Calibration: 285 Hz 285 Hz Code Code Health **Calibration Status Indicator** RX1 Calibration in progress. SI4: PSO Start Calibration • Select Calibration 285 Hz 285 Hz Code Health **Calibration Passed Remove Calibration Jumpers across** SI4: PSO **Receiver Input terminals on I/O connector** • Start Calibration Select Calibration **RX Code Displayed** 285 Hz 285 Hz Code He Verify SL Reading Restored SI5: PSO **Calibration Required** • Select Calibration: No TX Code being transmitted Code Oco Health No RX Code being received Calibration Failed (Troubleshoot) SI8: PSO • Start Calibration Select Calibration RX1 Module Health Bad Code Code **Calibration Timed Out (Troubleshoot)**

Calibrate each PSO Module as shown in Figure 5-23.



5.4.2 PSO Setup Screens – OS Mode and Code Mode

The PSO Setup screens for OS Mode and Code Mode reflect the difference in parameters between the two modes. Figure 5-24 shows both screens. The OS Mode uses two receivers verses the Code Mode which has only one receiver.

SI4: PSO 🔗						0		SI5: PSO					
Select Ca	libration	: R)	(1 🔽	[Start C	Calibration	1		Select Calibration:	RX1	✓ Start	t Calibration	
тх		R)	۲۱			RX2			ТХ	RX1			
285 Hz		285 Hz				285 Hz			285 Hz		285	Hz	
Code	Occ	Code	Health	SL	Occ	Code	Health	SL	Code	Occ	Code	Health	SL
			6	0			0			0			

OS Mode Screen

Code Mode Screen

Figure 5-24 PSO Setup Screens – OS Mode and Code Mode

5.4.3 **PSO Module System View**

Figure 5-25 shows an example of the System View of PSO Modules.



Figure 5-25 System View – PSO Module Display