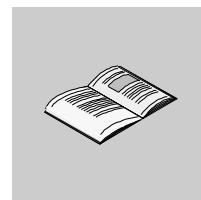


FactoryCast User's Guide For Quantum, Premium and Micro

eng

Version 2.2.2

Table of Contents



	Safety Information	9
	About the book	11
Chapter 1	Introduction to FactoryCast	13
	At a Glance	13
	What Is FactoryCast	14
	Components of FactoryCast	15
	FactoryCast Server	17
	FactoryCast Configurator	18
	FactoryCast Client	19
	System Requirements	20
	Installation	21
Chapter 2	Web Site Security	23
	Web Site Security	23
	Internal Security	24
	External Security	26
Chapter 3	Default Web Site for Quantum	29
	Default Web Site for Quantum	29
3.1	Quantum Home Pages	30
	Overview of Quantum Home Pages	30
	FactoryCast Home Page	31
	Quantum Welcome Page	33
3.2	Local Rack Diagnostics	34
	Configured Local Rack Page	34
3.3	Controller Diagnostics	36
	CPU Configuration Page	36
3.4	Ethernet Module Diagnostics	38
	Ethernet Module Diagnostic Pages	38
3.5	Remote I/O Diagnostics	44
	Overview of Remote I/O Diagnostics	44
	Remote I/O Status Page	45
	Configured Remote I/O Page	47

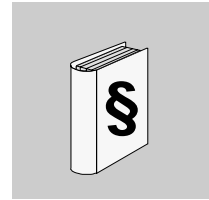
	Remote I/O Drop Pages.	48
	Remote I/O Drop Module Pages	49
3.6	Distributed I/O Diagnostics	50
	Overview of Distributed I/O Diagnostics	50
	Distributed I/O Drops Page	51
	Distributed I/O Specific Drop Page	52
	Distributed I/O Module Page	53
Chapter 4	Default Web Site for Premium	55
	Default Web Site for Premium	55
4.1	Premium Home Pages.	56
	Overview of Premium Home Pages.	56
	FactoryCast Home Page	57
	Premium Welcome Page	59
4.2	Rack Viewer.	60
	Rack Viewer Page	60
4.3	Controller Diagnostics	62
	PLC Personality Page	62
4.4	Ethernet Module Diagnostics.	64
	Ethernet Module Statistics Page	64
4.5	Option Modules Diagnostics	71
	Overview of Option Modules Diagnostics	71
	FIP I/O Module Diagnostics Page	72
	Digital I/O Module Diagnostics Page	79
	Analog I/O Module Diagnostics Page	81
	AS-i Module Diagnostics Page	83
	PCMCIA Communication Card Diagnostics Page.	85
	Standard Module Diagnostics Page.	87
Chapter 5	Default Web Site for Micro	89
	Default Web Site for Micro.	89
5.1	Micro Home Pages	90
	Overview of Micro Home Pages	90
	FactoryCast Home Page	91
	Micro Welcome Pages.	93
5.2	Rack Viewer.	95
	Rack Viewer Page	95
5.3	Controller Diagnostics	96
	Overview of Controller Diagnostics	96
	PLC Personality Page	97
	PLC Communication Pages.	99
	PLC Analog I/O Page.	101
	PLC Counter Page.	103
5.4	Option Modules Diagnostics	105
	Overview of Option Modules Diagnostics	105
	Rack Viewer.	106

	Digital I/O Module Diagnostics Page	108
	Analog I/O Module Diagnostics Page	109
	Standard Module Diagnostics Page	110
Chapter 6	FactoryCast Configurator	111
	FactoryCast Configurator	111
6.1	Creating a New Configuration	112
	Overview of Creating a New Configuration	112
	Creating a New Configuration	113
	Setting Passwords.	115
	Setting the IP Address.	118
	Setting File Locations	119
	Setting Default Symbol (Variable) Access.	120
	Saving the Settings	121
6.2	Creating a Namespace	122
	Creating a Namespace	122
	Importing Symbols (Variables)	123
	Setting Symbol (Variable) Access.	126
	Adding Direct Addresses.	127
	Direct Address Blocks and Symbol (Variable) Security.	131
	Editing and Deleting Direct Addresses	133
	Synchronizing Your Namespace with Its Database	134
6.3	Transferring Files to the Web Server	136
	Transferring Files to the Web Server	136
	Custom Web File.	137
	Loading the Namespace File.	139
	Loading the Security File.	140
	Backing Up the Web Server	141
	Restoring the Web Server from a Backup.	142
6.4	FactoryCast Embedded Server Maintenance	143
	Embedded Server Maintenance	143
	Checking Embedded Server Status	144
	Restoring Module Defaults	146
	Setting the XWay Address	147
	Loading the FactoryCast Applet Plug-ins	148
Chapter 7	Editors	151
	Editors	151
7.1	Data Editor	152
	Data Editor	152
	The Data Editor Spreadsheet	153
	Creating a Data Template	158
	inserting Symbols (Variables) in a Data Template	160
	Inserting Direct Addresses in a Template	161
	Modifying Data Values	162
	Saving a Data Template	163

	Using an Existing Data Template.	164
	Data Editor Applet Parameters	165
7.2	Graphic Editor	166
	Graphic Editor	166
	Graphic Editor Overview	167
	Top Window User Functions	170
	Display Window User Functions	175
	Property Sheet.	178
	Security	180
	Graphic Editor Applet Parameters.	181
	Graphic Objects.	183
Chapter 8	Adding Custom Pages to the Site	205
	Adding Custom Pages to the Site	205
8.1	Working with Custom Pages	206
	Working with Custom Pages	206
	Downloading a Custom Home Page	207
	Downloading Supporting Pages.	209
8.2	Using FactoryCast's Java Applets Using HTML Code.	210
	Using FactoryCast's Java Applets on Custom Web Pages	210
	Inserting Applets on a Web Page	211
	Inserting LiveBeanApplet.	212
	Inserting LiveBeanApplet using HTML Code.	215
	Inserting LiveLabelApplet using HTML Code.	218
	Inserting LiveTableApplet using HTML Code	223
8.3	Using FactoryCast's Microsoft FrontPage Extension.	225
	Using FactoryCast's Microsoft FrontPage Extension.	225
	Installing FactoryCast's Microsoft FrontPage Extension	226
	Inserting LiveBeanApplet Using FrontPage.	232
	Inserting LiveLabelApplet Using FrontPage.	240
	Inserting LiveTableApplet Using FrontPage	244
Chapter 9	Alarm Viewer	249
	Alarm Viewer	249
	Display	250
	Operation and Management of Alarms	253
	Limitations	254
Appendices	255
	Appendices for FactoryCast User's Guide.	255
Appendix A	Browser Requirements, Settings, and Security Considerations	
	257
	Browser Requirements, Settings, and Security Considerations	257
	Browser Version.	258
	Browser Settings	259

	Browser Security Considerations	263
Appendix B	Performance Benchmarks	265
	Performance Benchmarks	265
	Micro Performance Benchmarks	266
	Premium Performance Benchmarks	267
	Quantum Performance Benchmarks	270
	FactoryCast Configurator Performance Benchmarks	271
Index	273

Safety Information



Important Information

NOTICE

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a Danger or Warning safety label indicates that an electrical hazard exists, which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



DANGER

DANGER indicates an imminently hazardous situation, which, if not avoided, **will result** in death or serious injury.



WARNING

WARNING indicates a potentially hazardous situation, which, if not avoided, **can result** in death or serious injury.



CAUTION

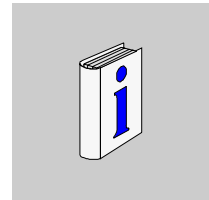
CAUTION indicates a potentially hazardous situation, which, if not avoided, **can result** in minor or moderate injury or in property damage.

PLEASE NOTE

Electrical equipment should be serviced only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material. This document is not intended as an instruction manual for untrained persons.

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About the book



At a Glance

Document Scope This manual is a user guide that introduces the FactoryCast software package used to customize a Web site on the Embedded Server module. The site can be accessed via a browser to view and modify data from a Quantum or Premium or Micro programmable logic controller (PLC). FactoryCast provides all the Web pages and Java applets needed to view run-time data from a controller. FactoryCast offers two levels to customize the default Web site:

- Create a Web-enabled database to view and modify the run-time values of symbols (variables) and direct addresses
- Add Web pages to the site

FactoryCast provides all the tools needed to maintain a Web site on the Embedded Server, including methods for downloading, backing up, and restoring files.

Validity Note The data and illustrations found in this book are not binding. We reserve the right to modify our products in line with our policy of continuous product development. The information in this document is subject to change without notice and should not be construed as a commitment by Schneider Electric.

Revision History

Rev. No.	Changes
1	FactoryCast User's Guide For Quantum and Premium
2	Tsx Micro added
3	Add Zoom sur PCMCIA, AS-i et A2S-i, evolution of Web page

Related Documents

Title of Documentation	Reference Number
Quantum Ethernet Embedded Web Server Module User Guide	840 USE 115 00
Premium Ethernet User Guide	TLX DSCOM PL7
TSX ETZ 410/510 User's Guide	

Product Related Warnings

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All pertinent state, regional and local safety regulations must be observed when installing and using this product. For reasons of safety and to assure compliance with documented system data, only the manufacturer should perform repairs to components.

User Comments

We welcome your comments about this document. You can reach us by e-mail at TECHCOMM@modicon.com

Introduction to FactoryCast



At a Glance

Purpose This chapter describes FactoryCast for Quantum and Premium and Micro, including its functions, components and system requirements.

What's in this Chapter? This Chapter contains the following Maps:

Topic	Page
What Is FactoryCast	14
Components of FactoryCast	15
FactoryCast Server	17
FactoryCast Configurator	18
FactoryCast Client	19
System Requirements	20
Installation	21

What Is FactoryCast

Overview	FactoryCast is a software package that you use to customize a Web site on the Embedded Web Server module. The site can be accessed via a browser to view and modify data from a Quantum or Premium programmable logic controller (PLC).
FactoryCast Web Site	FactoryCast provides all the Web pages and Java applets you need to view run-time data from your controller. You can use the FactoryCast default Web site simply by configuring the module and accessing it with a browser over the intranet.
Custom Web Site	<p>FactoryCast gives you two levels to customize the default Web site embedded in the PLC module.</p> <ul style="list-style-type: none">• Create a Web-enabled database to view and modify the run-time values of PLC symbols (variables) and direct addresses• Add your own Web pages to the site
Site Maintenance	FactoryCast also provides all the tools you need to maintain your Web site on the Embedded Server, including ways to download, backup, and restore files.

Components of FactoryCast

Overview

The three components of FactoryCast are:

- FactoryCast Server
- FactoryCast Configurator
- FactoryCast Client

Quantum Version

For Quantum, the FactoryCast components are integrated as follows.

This Component...	Is Used To...
140 NOE 211 10 140 NOE 251 10 (Fiber Optic)	Store the Web site on its Embedded Server.
140 NOE 771 1•	Enhance Web server performance and memory
Concept v. 2.1 or higher Modsoft v. 2.5 and higher	Program the controller.
FactoryCast Configurator	Configure the Web site, download data and maintain the site on the server.
FactoryCast Client	Display and modify PLC data.
Netscape Communicator 4.06 or higher Internet Explorer 4.0 (w/Service Pack 2) or higher	View the Web site.

Premium Version

For Premium, the FactoryCast components are integrated as follows.

This Component...	Is Used To...
TSX ETY 110 WS v. 2.2, minimum	Store the Web site on its Embedded Server.
TSX ETY 510•	Enhance Web server performance and memory
PL7 v. 3.0 and higher	Program the controller.
FactoryCast Configurator	Configure the Web site, download data and maintain the site on the server.
FactoryCast Client	Display and modify PLC data.
Netscape Communicator 4.06 or higher Internet Explorer 4.0 (w/Service Pack 2, minimum) or higher	View the Web site.

Micro Version

For Micro, the FactoryCast components are integrated as follows.

This Component...	Is Used To...
TSX ETZ 510	Store the Web site on its Embedded Server and enhance Web server performance and memory
PL7 Software	Program the controller. No specific requirement on PL7 software relative to FactoryCast.
FactoryCast Configurator	Configure the Web site, download data and maintain the site on the server.
FactoryCast Client	Display and modify PLC data.
Netscape Communicator 4.06 or higher Internet Explorer 4.0 (w/Service Pack 2, minimum) or higher	View the Web site.

FactoryCast Server

Overview

FactoryCast server consists of HTTP and FTP servers embedded in a Quantum or Premium or Micro Ethernet option module.

How it Works

The servers contain a default set of diagnostic Web pages and Java applets. The user can add custom Web pages and applets for specific applications.

Versions

FactoryCast server is embedded on the following PLC modules.

Part Number	Description	Memory Available for Customization
140 NOE 211 10	Quantum Embedded Server Module with Ethernet TCP/IP, 10 BaseT Twisted Pair, 1 Channel, and FactoryCast Configurator Software	Configurable
140 NOE 251 10	Quantum Embedded Server Module with Ethernet TCP/IP, 10 BaseFL Fiber Optic, 1 Channel, and FactoryCast Configurator Software	Configurable
140 NOE 771 1•	Quantum FactoryCast module with Ethernet TCP/IP, 100 BaseT twisted pair/100 Base Fx fiber optic, 1 channel, and FactoryCast configurator software	up to 8 Mb
TSX ETY 110 WS v.2.2, minimum	Premium Embedded Server Module with Ethernet TCP/IP, 10 BaseT Twisted Pair, AUI and FactoryCast Configurator Software	Configurable
TSX ETY 510•	Premium Web Server Module with Fast Ethernet 10/100 BaseT Twisted Pair, and FactoryCast Configurator Software	up to 8 Mb
TSX ETZ 510	Micro Web server device accessible via Fast Ethernet 10/100 BaseT Twisted Pair or remotely via PPP server/Modem.	up to 8 Mb

FactoryCast Configurator

Overview

You can use the FactoryCast Configurator to configure and maintain your Web site. You also can use FactoryCast to create a Web-enabled database of variables (symbols) and direct addresses, which can be viewed and modified during run-time over the Web.

Another function of the Configurator is to provide general FTP capabilities enabling you to load Custom Web pages to the FactoryCast module.

Configuring a Site

The configuration tool helps you to:

- Set security, including passwords and read/write protection
 - Add your own Web pages, images and Java applets to a site
 - Download and upload files to the Embedded Server
-

Creating a Database

The configuration tool allows you to create a Web-enabled database using symbols (variables) and direct addresses from your Concept or PL7 database. You can use this Web-enabled database to view and modify the value of symbols (variables) and direct addresses while the controller is running.

Maintaining a Site

The configuration tool allows you to back up files, restore files and, if necessary, reflash FactoryCast Configurator files to the Embedded Server.

FactoryCast Client

Overview	FactoryCast client brings capabilities of Run-Time Diagnostics via predefined Web pages. The features available are a Data Editor, a Graphics Editor, an Alarm Viewer, and a Rack Viewer.
Rack Viewer	The Rack Viewer allows you to display the status and configuration of the controller, Embedded Server module, other option modules and I/O modules.
Data Editor	The Data Editor allows you to view and modify variables (symbols and direct addresses).
Graphic Editor	The Graphic Editor allows you to create and view graphical objects all of which can be found in the .gde library. Each graphic object can be linked to a variable or address in the embedded server.
Alarm Viewer (Premium Only)	When the PLC Premium application has diagnostic properties activated, the Alarm Viewer allows you to display application faults.

System Requirements

Overview

This section provides minimum system requirements for FactoryCast Configurator software. If FactoryCast Configurator programs are used simultaneously with other software packages, a more powerful configuration may be required.

To Use the Configuration Tool

These are the minimum system requirements.

Processor	Pentium 166 Mhz (Pentium 200 Mhz recommended)
Operating System	Windows 95/98, Windows NT 4.0 (w/Service Pack 3), Windows 2000, and Windows Me
Ram	32 Mb (64 MB recommended)
Drives	Hard Disk (free space) 40 Mb Floppy Disk 4XCD-ROM
Monitor	SVGA 800x600

To View and Modify Run-time Diagnostics

These are the minimum system requirements.

Processor	Pentium 166 Mhz (Pentium 200 Mhz recommended)
Operating System	Windows 95/98, Windows NT 4.0 (w/Service Pack 3), Windows 2000, and Windows Me
Ram	32 Mb (64 MB recommended)
Drives	Hard Disk
Monitor	SVGA 800x600
Browsers	Netscape Communicator 4.06 or higher or Internet Explorer 4.0 (w/Service Pack 2) or higher (Must support HTML 3.0 and Java Development Kit (JDK) 1.1.5)

Browsers

For browser requirements, see Browser Version, p. 258.

Installation

Overview

This section explains the FactoryCast installation procedure. FactoryCast comes on a compact disc and is self-installing. Once the disk has loaded onto your PC, follow the installation dialogs.

Quantum Downloaded Files

FactoryCast downloads the following files for Quantum modules during installation.

Rack Viewer	Data Editor	Graphic Editor	Real Time Communication
wwwroot/classes » Sys Diag.jar wwwroot/conf » Gcnftcop.sys wwwroot/images » module.gif » miniplc.gif » eight_io.gif » empty.gif secure/system » ctrlstat.htm » ethernet.htm » plccfg.htm » riosat.htm	wwwroot/classes » RDE.jar secure/system » rde.htm	wwwroot/classes » GDE.jar » Widgets.jar secure/system » gde.htm wwwroot/images » key.gif	wwwroot/classes » SAComm.jar

Premium Downloaded Files

FactoryCast downloads the following files for Premium modules during installation.

Rack Viewer	Data Editor	Graphic Editor	Alarm Viewer	Real Time Communication
wwwroot/classes » JL.jar » SysDiag.jar wwwroot/conf » business.pbf » modules.pbf » products.pbf » ranges.pbf wwwroot/images » anim1.gif » backbtn.gif secure/system » plccfg.htm » ethernet.htm	wwwroot/classes » RDE.jar secure/system » rde.htm	wwwroot/classes » GDE.jar » Widgets.jar secure/system » gde.htm wwwroot/images » key.gif	wwwroot/classes » RAE.jar secure/system » rae.htm wwwroot/images » ack.gif » ackall.gif » dfb.gif » gr7.gif » help.gif » nack.gif » stop.gif » sys.gif » trasall.gif » trash.gif » asi.gif	wwwroot/classes » SAComm.jar

Micro Downloaded Files

FactoryCast downloads the following files for Micro modules during installation.

Rack Viewer	Data Editor	Graphic Editor	Real Time Communication
wwwroot/classes » JL.jar » SysDiag.jar wwwroot/conf » business.pbf » modules.pbf » products.pbf » ranges.pbf wwwroot/images » anim1.gif » backbtn.gif secure/system » plccfg.htm » ethernet.htm	wwwroot/classes » RDE.jar secure/system » rde.htm	wwwroot/classes » GDE.jar » Widgets.jar secure/system » gde.htm wwwroot/images » key.gif	wwwroot/classes » SAComm.jar

Web Site Security

2

Web Site Security

Overview

Before you set up your Web site, you should give some thought to security. While data in a default Web site is read-only, data in a custom site may be write-enabled. You should consider carefully who has access to the site and which data can be modified

This chapter discusses security concerns and some security mechanisms available to Web Utility users.

What's in this Chapter?

This Chapter contains the following Maps:

Topic	Page
Internal Security	24
External Security	26

Internal Security


Overview

The Web site you create with FactoryCast may be accessed over an intranet. FactoryCast provides two mechanisms to ensure that only authorized users view and modify your data.

Security Mechanisms

On intranets, FactoryCast Configurator provides security through:

- Password entry
- Write restrictions

	CAUTION
	SECURITY SETTINGS MAY BE CHANGED Keep strict control of access to the FactoryCast Configurator software. Anyone who has access to a Configuration Tool and to your Embedded Server can override your security settings and download new settings to the server. This could result in unauthorized users making unauthorized changes to data values, leading to unpredictable and possibly hazardous changes in your application. Failure to observe this precaution can result in injury or equipment damage.


Password Entry

Although you may add unprotected Web pages to the site, the default Web pages and any other pages you choose to protect can only be viewed by users who supply the correct user name and password.

Write Restrictions

In order to modify your Web site with the Data Editor or Graphic Editor, a user must enter another password for write access.

In addition, users who enter the write password can only modify variables (symbols) and direct addresses which are write-enabled. When you create a Web-enabled database of variables and direct addresses, you can designate each element as read-only or write-enabled.

	CAUTION
	CHANGES TO DATA MAY RESULT IN CHANGES TO YOUR APPLICATION <p>Be careful about which variables (symbols) and direct addresses you allow to be modified online, and be cautious about who has permission to modify them. Unauthorized or incorrect changes to data may change the behavior of your application in ways that may be undesirable or even hazardous.</p> <p>Failure to observe this precaution can result in injury or equipment damage.</p>

Security Overrides

Because the passwords and read/write settings are downloaded to the Embedded Server with the FactoryCast Configurator, anyone who has a copy of the Configurator software and access to your Embedded Server over the network can modify your security settings by downloading new ones.

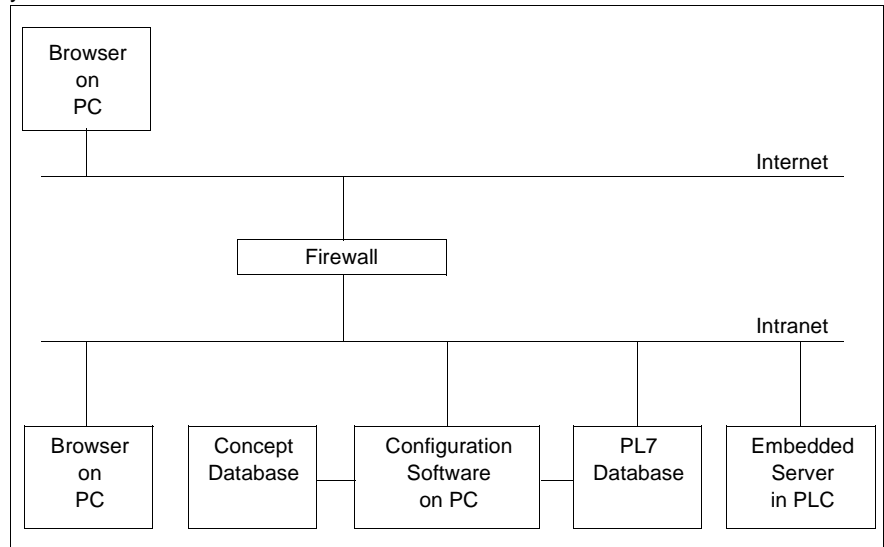
External Security

Overview

If your network is configured to allow users to view your site over the Internet, you have the same security concerns as for an intranet, but you have an extra mechanism to deal with them: a firewall.

Firewall Architecture

A firewall is a gateway from the Internet to your Embedded Server as depicted below. You can use a firewall to restrict or deny access to your Web site. This diagram demonstrates how a firewall interacts with the Embedded Server and your PC.



Types of Firewalls

There are two types of firewalls:

- Network-level firewalls
 - Application-level firewalls
-

Network-Level Firewalls

Network-level firewalls are frequently installed between the Internet and a single point of entry to an internal, protected intranet or network.

Application-Level Firewalls

An application-level firewall acts on behalf of an application; for instance, FTP. It intercepts all traffic destined for that application and decides whether to forward that traffic to the application. Application-level firewalls reside on individual host computers.

Considerations for FactoryCast

FactoryCast Configurator uses FTP to access Embedded Server files. If you want viewers to be able to access your site from the Internet and your Embedded Server is protected by a firewall, then that firewall must be configured to allow FTP traffic. The firewall may be configured to allow network connections to a restricted port range or to allow traffic to and from certain IP addresses. Firewalls configured to allow incoming data to FTP's well-known TCP/IP port of 21, and to allow incoming data to ports higher than 1024, will grant access to protected Embedded Servers. The FactoryCast client follows the "Firewall Friendly FTP" standard, RFC 1579. It issues an FTP PASV command to the FactoryCast server before all attempts to establish an FTP data connection.

FactoryCast uses TCP/IP port 80 for HTTP access to Web pages stored on an Embedded Server. Schneider Automation's MBAP protocol is used to access run-time data on TCP/IP port 502. These ports must also be made available through the firewall.

Note: Quantum NOE 211 10 users who want to add a single FTP password to the server can create an ASCII file, ftplist.dat. This file should contain in the user name string on the first line and a password string on the second line.

For example:

- MyUser
- MyPassword

Save this file to your local PC directory under

\FactoryCast\Software\noe211\wwwroot\ftplist.dat. Next, use the FactoryCast Configurator to "Restore Defaults."

Quantum NOE 771 users can set an FTP password by using the Web page at: http://hostname/secure/embedded/ftp_passwd_config.htm.

Default Web Site for Quantum

3

Default Web Site for Quantum

Overview

When you receive the Embedded Server, it already contains a default Web site with diagnostic pages, Data Editor, and Graphic Editor. You may view these pages and view direct addresses in the editors simply by installing the module and configuring its IP address. To access the site, type the IP address of the module in your browser and enter the default user name and password of "USER". However, Schneider Automation recommends that you complete the setup procedures as outlined in FactoryCast Configurator, p. 111. This section describes the pages in the default Web site.

What's in this Chapter?

This Chapter contains the following Sections:

Section	Topic	Page
3.1	Quantum Home Pages	30
3.2	Local Rack Diagnostics	34
3.3	Controller Diagnostics	36
3.4	Ethernet Module Diagnostics	38
3.5	Remote I/O Diagnostics	44
3.6	Distributed I/O Diagnostics	50

3.1 Quantum Home Pages

Overview of Quantum Home Pages

Overview When a user accesses the default Web site for Quantum, the user first encounters a FactoryCast Home Page followed by a Quantum Welcome Page. This section describes those two pages.

What's in this Section? This Section contains the following Maps:

Topic	Page
FactoryCast Home Page	31
Quantum Welcome Page	33

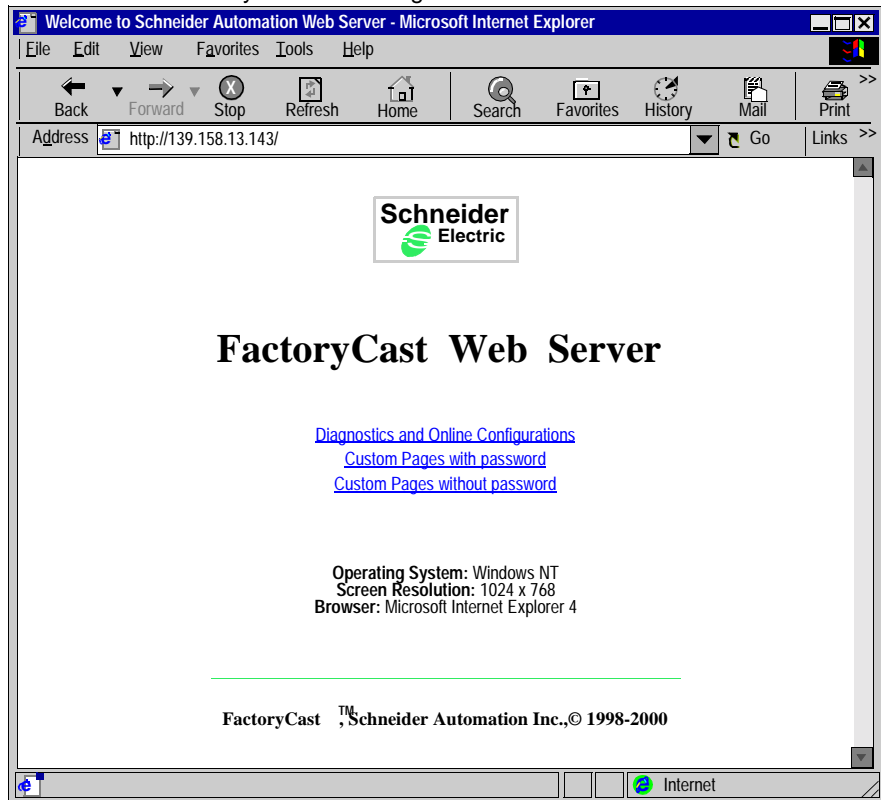
FactoryCast Home Page

Overview

The FactoryCast Home Page is the first page a visitor will encounter. No password is required to access this page.

Home Page

This is how the FactoryCast Home Page looks.



Data

The home page reports on the following.

- Operating system
- Screen resolution
- Browser type and version

Links

The home page offers three links.

- Diagnostics and Online Configurations links to the default diagnostic Web pages, the Data Editor, and the Graphic Editor
- Custom Pages with Password will link to any Web pages you add to the site with password security
- Custom Pages without Password will link to any Web pages you add to the site without password security

Customize

The home page can be customized to meet your specific needs. Simply edit the HTML and download the page to the Embedded Server. For a complete description, see *Downloading a Custom Home Page*, p. 207.

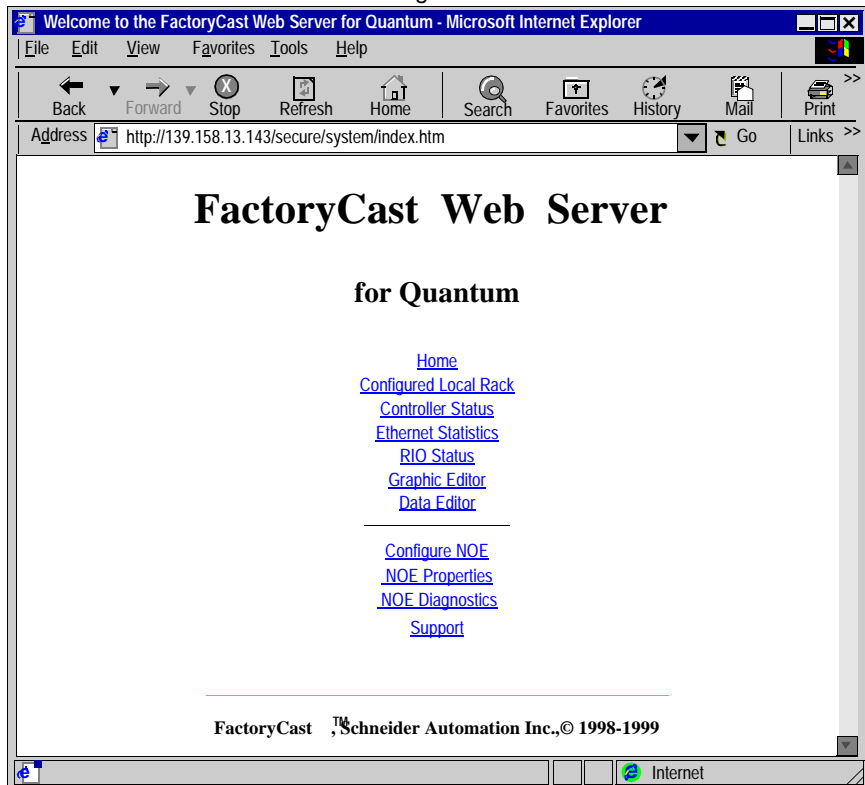
Quantum Welcome Page

Overview

When a visitor clicks on the Diagnostics and Online Configurations link on the FactoryCast Home Page, the visitor is directed to the Quantum Welcome Page. The visitor must supply a user name and password to view this page.

Welcome Page

This is how the Quantum Welcome Page looks.



Links

The Quantum Welcome Page provides links to several major Quantum diagnostic pages and to the Data Editor and Graphic Editor.

3.2 Local Rack Diagnostics

Configured Local Rack Page

Overview The Quantum Configured Local Rack page displays the current configuration of the local rack, including the controller, Embedded Server module and any I/O modules. The rack can contain up to 16 slots.

Sample Page Here is an example of a Configured Local Rack page.

QUANTUM LOCAL RACK

CPS	CPU	CRP	DA 842	DAI 553	NOM	NOE		DAI 553	DDM
●	●	●	●	●		●		●	●

[Home](#) | [Controller Status](#) | [Ethernet Statistics](#) | [RIO Status](#) | [Graphic Editor](#) | [Data Ed](#)

FactotyCast TMSchneider Automation Inc.,© 1998-1999

Data

Each module is displayed in its configured slot in the rack and the following information is provided.

- A label at the top of the module tells what type it is. Question marks indicate that the module type is unknown or the slot is empty.
- An LED below the label reports the module status:
 - Green indicates that the module is functioning properly
 - Red indicates that the module is not functioning properly

Links

If you click on any of the modules, you will reach another Web page with detailed information about that module.

Links at the bottom of the page connect to other major diagnostic pages and the Data Editor and Graphic Editor.

3.3 Controller Diagnostics

CPU Configuration Page

Overview

The CPU Configuration Page provides up-to-date information about the controller and its configuration. Access this page by selecting the CPU model from the "Configured Local Rack," or the hyperlink "Controller Status" at the bottom of the page.

Sample Page

Here is an example of a CPU Configuration page.

CPU CONFIGURATION SCREEN

Status:	Running	Reference:	CPU 534 14
Battery:	OK	Product Type:	Quantum
Rack:	1	Exec ID:	883
Slot:	2	Logged In:	No

Description	Registers	ASCII
System Memory [Kb]	64 Kb	0xxxxx 000001- Total Words 0
Extended Memory [Kb]	96 Kb	1xxxxx 100001- Total Messages 0
Total Memory [Bytes]	163840	3xxxxx 300001- Word Used 0
I/O Map Words	161	4xxxxx 400001- Messages Used 0
Segments	32	6xxxxx 600000- Available Words 0
DCP Drop ID	0	Battery Coil 0---- Available Mes- 0
Memory Protect	Off	Timer Register 4---- # ASCII Ports 0
Constant Sweep	Off	Time of Day 4---- ASCII Inputs 4-----
Optimize	No	Stopped Codes 0x0000 ASCII Outputs 4-----

[Home](#) | [Configured Local Rack](#) | [ETHERNET STATISTICS](#) | [RIO Status](#) | [Graphic Editor](#) | [Data Editor](#)

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Dynamic Data

Some of the data provided on this page is dynamic. Dynamic data is constantly refreshed at a rate determined by the performance of the Embedded Server, network, and client CPU.

Links

Links at the bottom of the page connect to other major diagnostic pages and the Data Editor and Graphic Editor.

3.4 Ethernet Module Diagnostics

Ethernet Module Diagnostic Pages

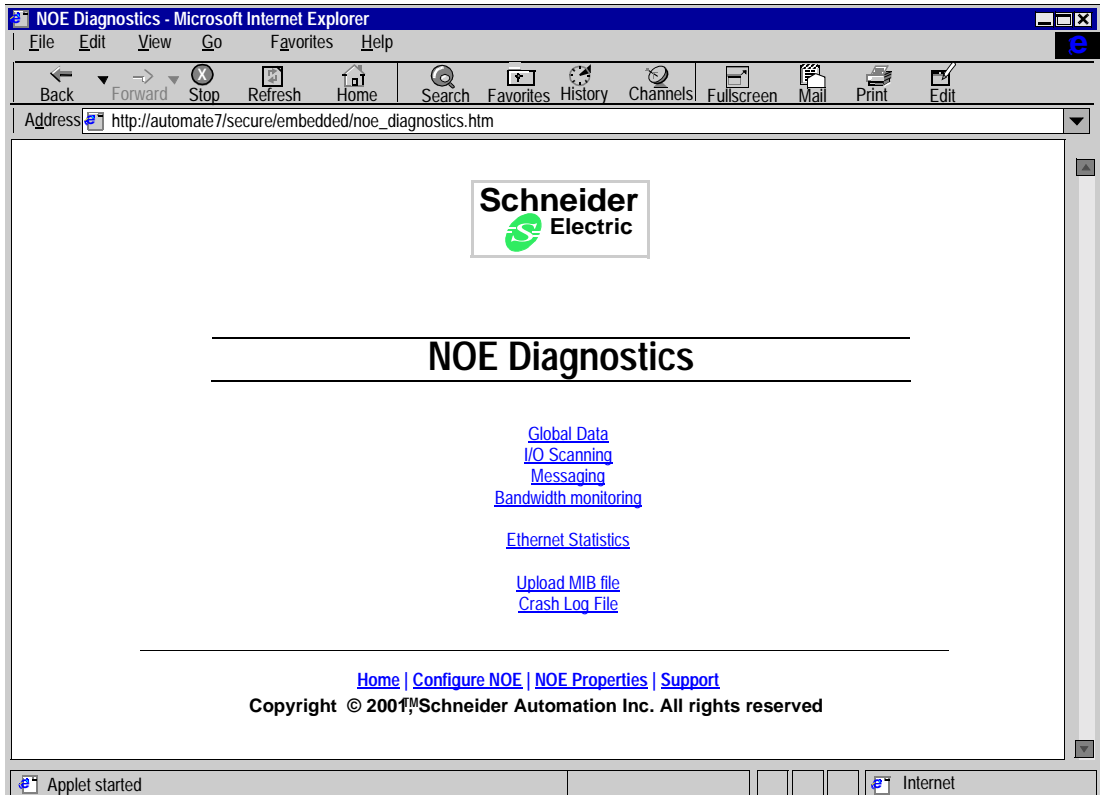
Home Page

This page contains a list of links for accessing the different diagnostic pages for the Ethernet module:

- Global Data Utility
- I/O scanning utility
- Messaging utility
- Bandwidth monitoring utility
- Ethernet module statics

A link also allows the uploading of the private MIB source file.

View of the Diagnostics Utilities home page:



Click on a link to access the desired diagnostics page.

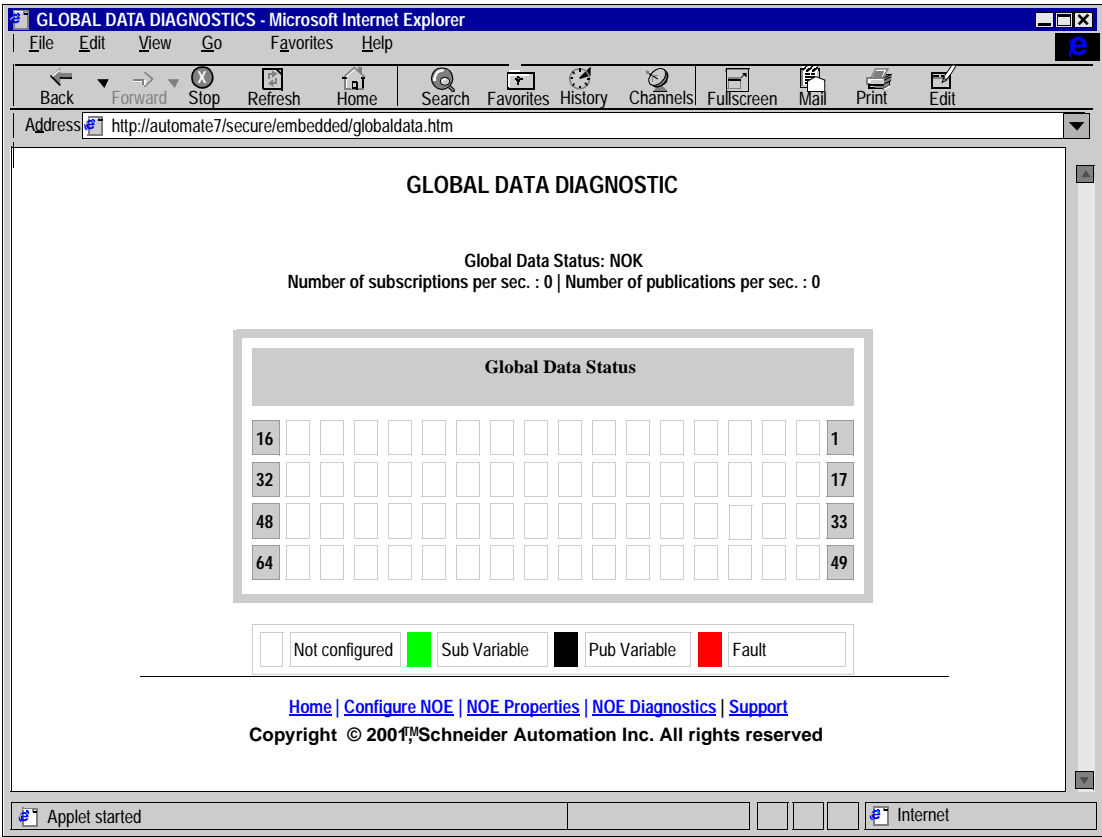
Global Data Page Information on the general diagnostics of Global Data can be found at the top of this page:

- Status
- Number of publications per second
- Number of subscriptions per second

This page also shows a table of all published and subscribed variables in the same distribution group. Each variable is identified by its Identifier.

- Green for the subscribed variables
- Black for the published variables
- White for all unconfigured variables
- Red for variables with communication faults

View of the Global Data diagnostics page:



I/O Scanning Page

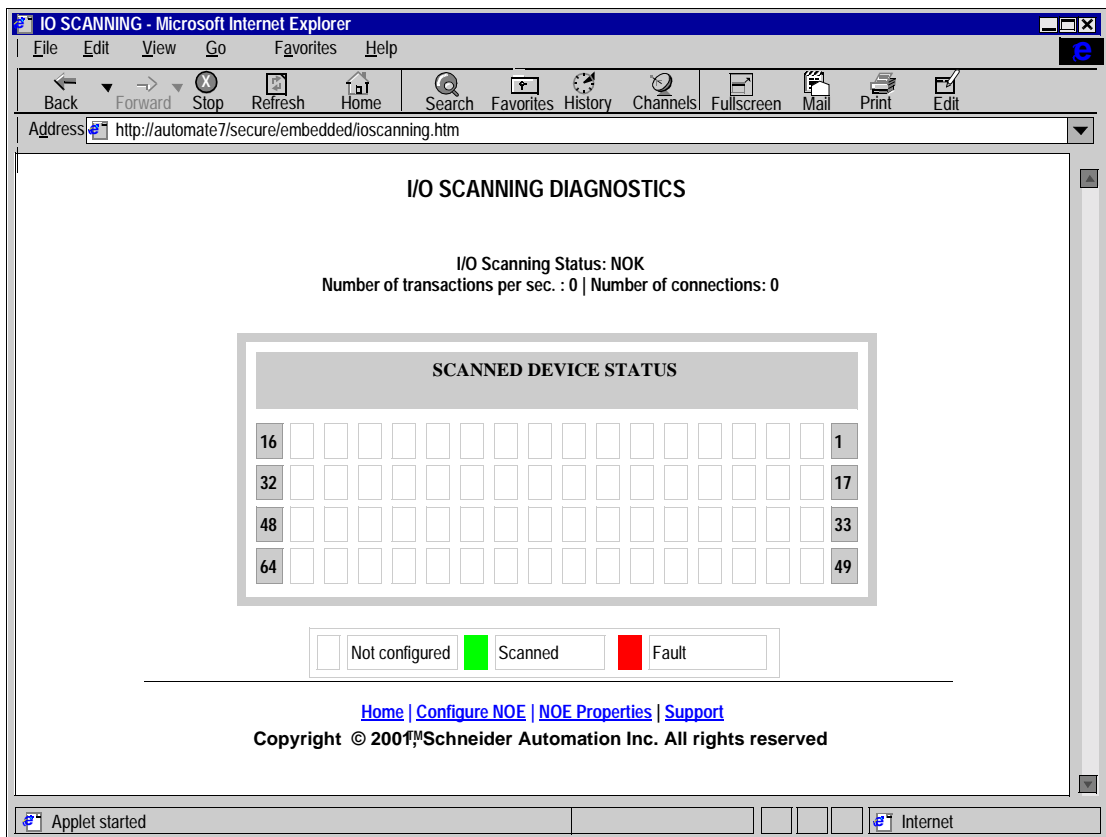
Information on the general diagnostics of the I/O scanning utility can be found at the top of this page:

- Status
- Number of transactions per second
- Number of connections

This page also displays a summary of the status of all modules:

- Green for the **scanned** modules
- White for the **unconfigured** modules
- Red for **faulty** modules

View of the I/O scanning diagnostics page:



Messaging Page

This page provides current information on the open TCP connection on port 502. The number of sent/received messages on the port can be found at the top of this page.

A table provides, for each connections (numbered from 1 to 64):

- The remote IP Address
- The remote TCP port
- The local TCP port
- The number of messages sent from this connection
- The number of messages received from this connection
- The error number on this connection

View of the messaging diagnostics page:

MESSAGING DIAGNOSTICS

Number of Messages sent: 2007 | Number of Messages received: 2007

Conn.	Remote address	Remote port	Local Port	Mess. sent	Mess. received	Error sent.
1	192.168.2.10	1240	502	356	356	0
2	139.168.2.10	1247	502	56	56	0

[Home](#) | [Configure NOE](#) | [NOE Properties](#) | [NOE Diagnostics](#) | [Support](#)

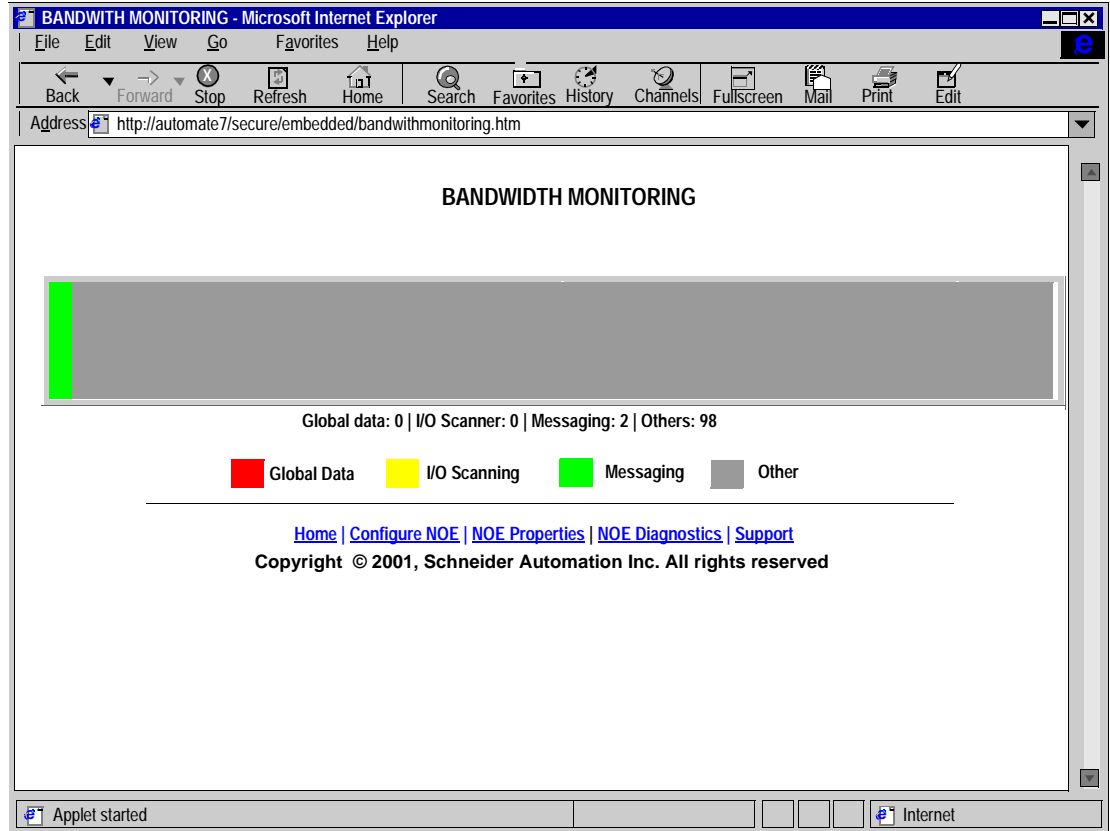
Copyright © 2001 Schneider Automation Inc. All rights reserved

Applet started Internet

Bandwidth monitoring page

This page displays the load distribution of the Embedded Server module between the Global Data utilities, I/O Scanning, Messaging and other utilities.

View of the Bandwidth monitoring page:



Ethernet Statistics Page

The Ethernet Module Statistics page provides information about the status, transmit and receive statistics, and errors for the Embedded Server module. Access this page by selecting the NOE module form the local rack or use the hyperlink at the bottom of the page.

Here is an example of an Ethernet Module Statistics page.

ETHERNET MODULE STATISTICS

Status:	Running Link Appl	Host Name:	139.158.13.143
Reference:	140 NOE 771 10	MAC Address:	00 00 54 10 20 ae
Rack:	1	IP Address:	139.158.13.143
Slot:	Unknown	Subnet Mask:	Unknown
Transmit Speed:	10 MB	Gateway Address:	Unknown

Transmit Statistics		Receive Statistics		Functioning Errors	
Transmits	13161058	Receives	24446416	Missed Packets	0
Transmit Retries	0	Framing Errors	0	Collision Errors	0
Lost Carrier	1	Overflow Errors	0	Transmit Errors	0
Late Collision	0	CRC Errors	0	Memory Errors	0
Transmit Buffer	0	Receive Buffer	0	Net Interface	0
Silo Underflow	0				

[Reset](#)

[Home](#) | [Configured Local Rack](#) | [Controller Status](#) | [RIO Status](#) | [Graphic Editor](#) | [Data Editor](#)
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Note: Refer to Modicon Quantum Ethernet TCP/IP Module User Guide 840 USE 107 00 and Modicon Quantum Ethernet TCP/IP Module User Guide 840 USE 115 00 for definitions of terms.

3.5 Remote I/O Diagnostics

Overview of Remote I/O Diagnostics

Overview

Several default Web pages provide information about configured remote I/O:

- Remote I/O Status page
 - Configured Remote I/O page
 - Remote I/O Drop pages
 - Remote I/O Drop Module pages
-

What's in this Section?

This Section contains the following Maps:

Topic	Page
Remote I/O Status Page	45
Configured Remote I/O Page	47
Remote I/O Drop Pages	48
Remote I/O Drop Module Pages	49

Remote I/O Status Page

Overview

The Remote I/O Status page gives an overview of the status and health of the Remote I/O network communications. Access this page by selecting the CRP Drop down menu item, "Remote I/O Status," or use the hyperlink at the bottom of the page.

Sample Page

Here is an example of a Remote I/O Status page.

Quantum Remote I/O Communication Status - Microsoft Internet

FileEditViewFavoritesToolsHelp

Back

Forward

Stop

Refresh

Home

Search

Fa

History

Mail

Print

Edit

Addresshttp://139.158.13.143/secure/system/riostat.htmGoLinks>>

REMOTE I/O COMMUNICATION STATUS

Global Status:Not OK

Cable A:Not OK

Global Health:Not OK

Cable B:Not OK

Description	Cable A	Cable B	LAN Errors	Cable A	Cable B
Startup Errors	0	0	Short Frame	0	0
Framing Errors	0	0	No EOF	0	0
DMA Receive Over-	0	0	CRC	0	0
Receive Errors	0	0	Alignment	0	0
Bad Drop Recep-	0	0	Overruns	0	0

Global Communications

	Cable A	Cable B		
Global Communication	Not OK	Not OK	Global Communication	Not OK
Detected Error Count	0	0	Lost Communication-	0
Global No Response	0	0	Total Retry Count	0

[Home](#) | [Configured Local Rack](#) | [Controller Status](#) | [Ethernet Statistics](#) | [Graphic Editor](#) | [Data Editor](#)

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Applet started

Internet

Dynamic Data

Some of the data provided on this page is dynamic. Dynamic data is constantly refreshed at a rate determined by the performance of the Embedded Server, network, and client CPU.

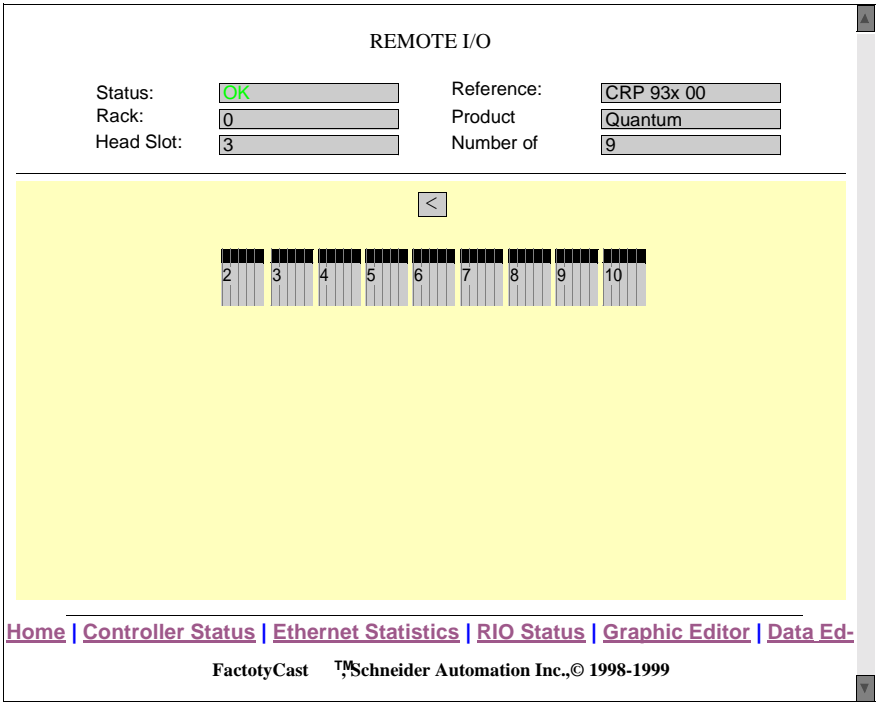
Links

Links at the bottom of the page connect to other major diagnostic pages and the Data Editor and Graphic Editor.

Configured Remote I/O Page

Overview The Configured Remote I/O page displays information about the Remote I/O Head Processor and the number of remote I/O drops. This page can be accessed by selecting the CRP (RIO Head) module in the Configured Local Rack Page described previously.

Sample Page Here is an example of a Configured Remote I/O page.



Data The top half of the screen provides the current status (dynamic) and other data about the Remote I/O Head Processor. The bottom half of the screen displays an icon for each Remote I/O Drop and the drop number. Moving the cursor across the icons will display a text message in the Browser status window indicating whether the drop is 800 series or Quantum I/O.

Links Click on a drop adapter icon to get detailed information about each drop. The "<" back button returns you to the previous page.

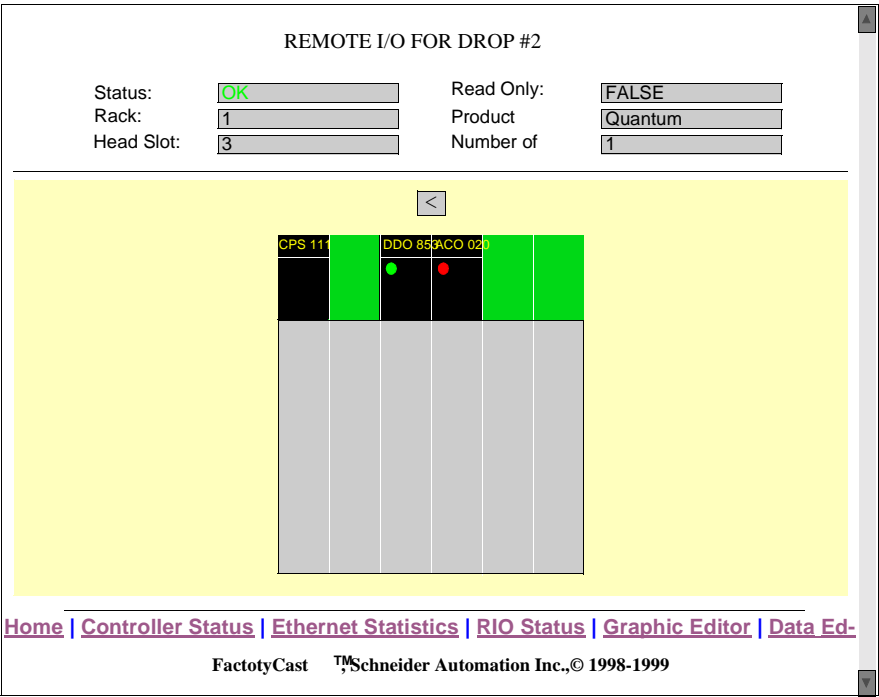
Remote I/O Drop Pages

Overview

When you click the icon for a Remote I/O Drop Adapter on the Configured Remote I/O page, you reach a Remote I/O Drop page with detailed information about that drop.

Sample Page

Here is an example of a Remote I/O Drop page.



Data

The top part of the page reports the current status of the drop adapter and the number of modules in the drop.

The bottom part of the page provides an icon for each module in the drop. A label at the top of the module identifies the module type. Question marks indicated that the module type is unknown or the slot is empty. A colored LED reports module status:

- Green indicates that the module is functioning properly
- Red indicates that the module is not functioning properly

Links

Click a module icon to get detailed information about that module.

The "<" back button returns you to the previous page.

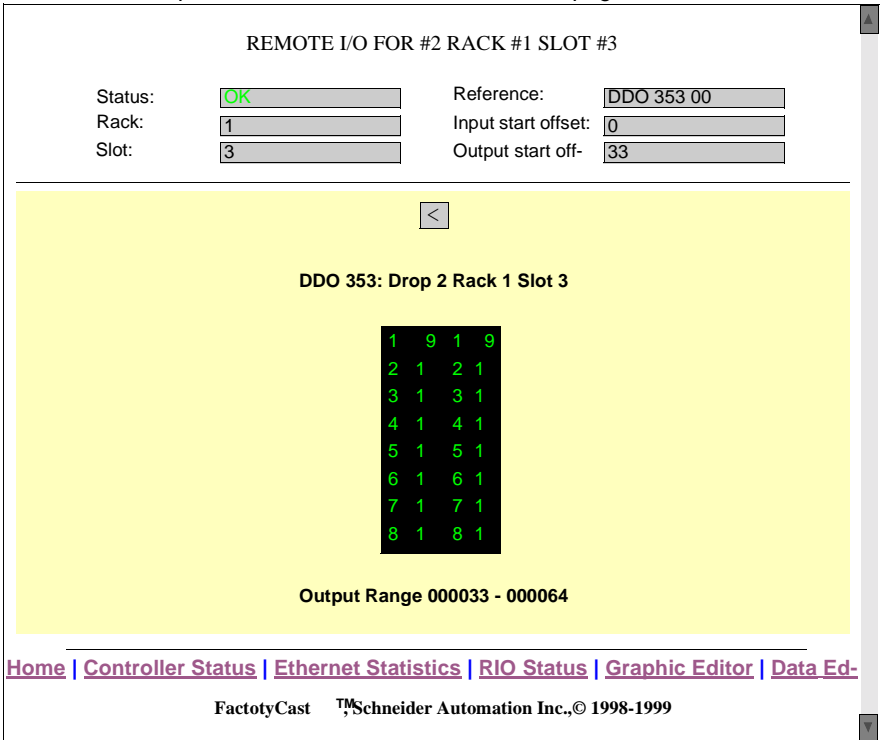
Remote I/O Drop Module Pages

Overview

When you click on a specific module on a Remote I/O Drop page, you reach a Remote I/O Module page with information about that module.

Sample Page

Here is an example of a Remote I/O Discrete Module page.



Data

The top part of the screen provides information about the current status of the I/O module, its location, module type, and input or output offset. The LED panel in the lower part of the screen displays the status of the discrete I/O points:

- Green indicates the point is active
- Off indicates the point is not active
- It displays analog register values in integer format

Links

A "<" back button at the bottom of the screen allows you to return to the previous page.

3.6 Distributed I/O Diagnostics

Overview of Distributed I/O Diagnostics

Overview

Several Web pages provide information about configured distributed I/O including:

- Distributed I/O Drops page
- Distributed I/O Specific Drop page
- Distributed I/O Module pages

Distributed I/O pages can be accessed by selecting either the CPU or a NOM from the Configured Local Rack page assuming that Distributed I/O is configured in the controller.

What's in this Section?

This Section contains the following Maps:

Topic	Page
Distributed I/O Drops Page	51
Distributed I/O Specific Drop Page	52
Distributed I/O Module Page	53

Distributed I/O Drops Page

Overview When you select a module on the Configured Local Rack page configured for distributed I/O, you reach a page with detailed information about the distributed I/O network drops controlled by the module.

Sample Page Here is an example of a Distributed I/O drops page connected to the CPU.

DISTRIBUTED I/O DROPS FOR NOMI

Status: OK

Rack: 1

Head Slot: 6

Reference: NOM 2xx 0x

Product: Quantum

Number of: 19

<

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

[Home](#) | [Controller Status](#) | [Ethernet Statistics](#) | [RIO Status](#) | [Graphic Editor](#) | [Data Ed.](#)

FactotyCast TMSchneider Automation Inc.,© 1998-1999

Data The top half of the screen provides the current status (dynamic) and other data about the controller or NOM module running the distributed I/O network. The bottom half of the screen displays an icon for each distributed I/O drop.

Links Click a drop icon to get detailed information abut each drop. The "<" back button returns to the previous page.

Distributed I/O Specific Drop Page

Overview

When you click a drop icon on the Distributed I/O Network page, you reach a Distributed I/O Drop page with information about that drop.

Sample Page

Here is an example of a Distributed Specific I/O Drop page.

DISTRIBUTED I/O DROPS FOR

Status: OK

Rack: 1

Head Slot: 6

Read Only: FALSE

Product: Quantum

Number of Mod-: 4

<

ACI 030

DDI 953

DDD

DDO

[Home](#) | [Controller Status](#) | [Ethernet Statistics](#) | [RIO Status](#) | [Graphic Editor](#) | [Data Ed-](#)

FactotyCast TM;Schneider Automation Inc.,© 1998-1999

Data

The top part of the page reports the current status of the drop and the number of modules in the drop.

The bottom part of the page provides an icon for each module in the drop. A label at the top of the module identifies the module type.

- Green indicates that the module is functioning properly
- Red indicates that the module is not functioning properly

Links

Click a module icon to get detailed information about that module.

The "<" back button returns to the previous page.

Distributed I/O Module Page

Overview

When you click a module icon on a Distributed I/O Drop page, you reach a Distributed I/O Module page with information about that module.

Sample Page

Here is an example of a Distributed I/O Module page.

DISTRIBUTED I/O FOR DROP #2 SLOT #4

Status:	Bad	Reference:	DDO 353 00
Rack:	1	Input start offset:	0
Slot:	4	Output start off-:	97

<

DDO 353: Drop 2 Rack 1 Slot 4

1	9	1	9
2	10	2	10
3	11	3	11
4	12	4	12
5	13	5	13
6	14	6	14
7	15	7	15
8	16	8	16

Output Range 000097 - 000128

[Home](#) | [Controller Status](#) | [Ethernet Statistics](#) | [RIO Status](#) | [Graphic Editor](#) | [Data Ed-](#)

FactotyCast TM Schneider Automation Inc., © 1998-1999

Data

The top part of the screen provides information about the current status of the I/O module, its location, module type, and input or output offset. The LED panel in the lower part of the screen displays the status of the discrete I/O points:

- Green indicates the point is active
- Off indicates the point is not active
- It displays analog register values in integer format

Links

The "<" back button returns you to the previous page.

Default Web Site for Premium

4

Default Web Site for Premium

Overview

When you receive the PLC module, it already contains a default Web site with the Rack Viewer and the Run-Time Data Editor pages pre-loaded. You may view these pages simply by installing the module and configuring its IP address. To access the site, type the IP address of the module in your browser and enter the default user name and password of "USER". However, Schneider Automation recommends that you complete the setup procedures as outlined in Creating a New Configuration, p. 113. This section describes the pages in the default Web site.

What's in this Chapter?

This Chapter contains the following Sections:

Section	Topic	Page
4.1	Premium Home Pages	56
4.2	Rack Viewer	60
4.3	Controller Diagnostics	62
4.4	Ethernet Module Diagnostics	64
4.5	Option Modules Diagnostics	71

4.1 Premium Home Pages

Overview of Premium Home Pages

Overview When you access the default Web site for Premium, you encounter a FactoryCast Home Page first and then a Premium Welcome Page. This section describes those two pages.

What's in this Section? This Section contains the following Maps:

Topic	Page
FactoryCast Home Page	57
Premium Welcome Page	59

FactoryCast Home Page

Overview

The FactoryCast home page is the first page a visitor will encounter. No password is required to access this page.

Home Page

This is how the FactoryCast Home Page looks.



Data

The home page reports on three items.

- Operating system
- Screen resolution
- Browser type and version

Links

The home page offers three links.

- Diagnostics and Online Configurations links to the default diagnostic Web pages and the Data Editor
- Custom Pages with Password will link to any Web pages you add to the site with password security
- Custom Pages without Password will link to any Web pages you add to the site without password security
- Foreign Language links exist for French, German, Italian, and Spanish versions

Customize

The home page can be customized to meet your specific needs. Simply edit the HTML and download the page to the Embedded Server. For a complete description, see Downloading a Custom Home Page, p. 207.

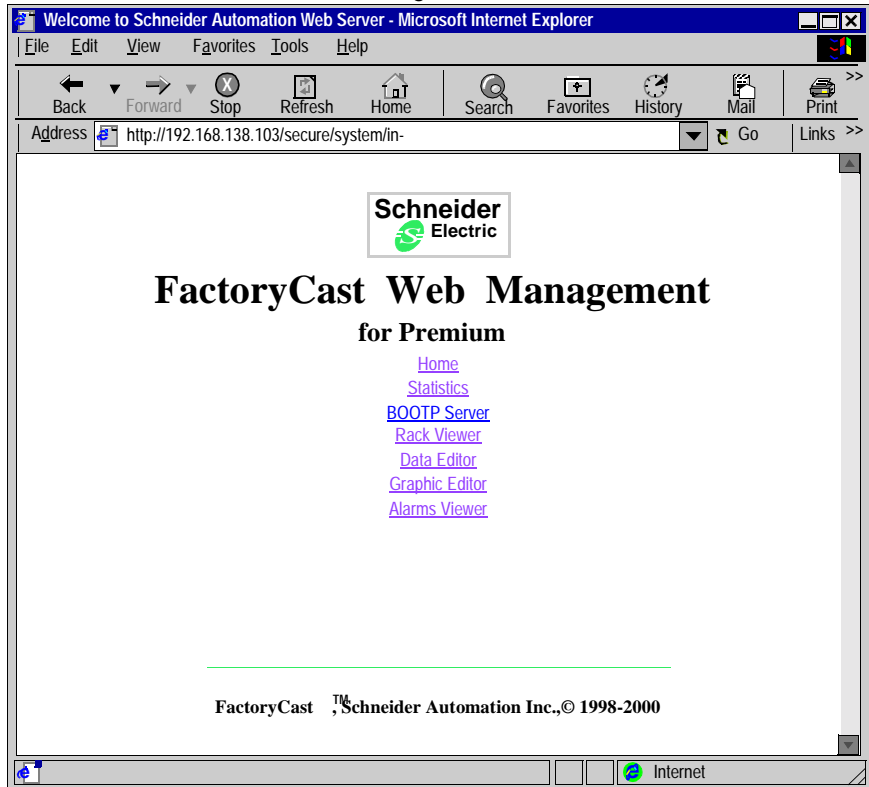
Premium Welcome Page

Overview

When a visitor clicks the Diagnostics and Online Configurations link on the FactoryCast home page, the visitor is directed to the Premium Welcome Page. The visitor must supply a user name and password to view this page.

Welcome Page

This is how the Premium Welcome Page looks.



Links

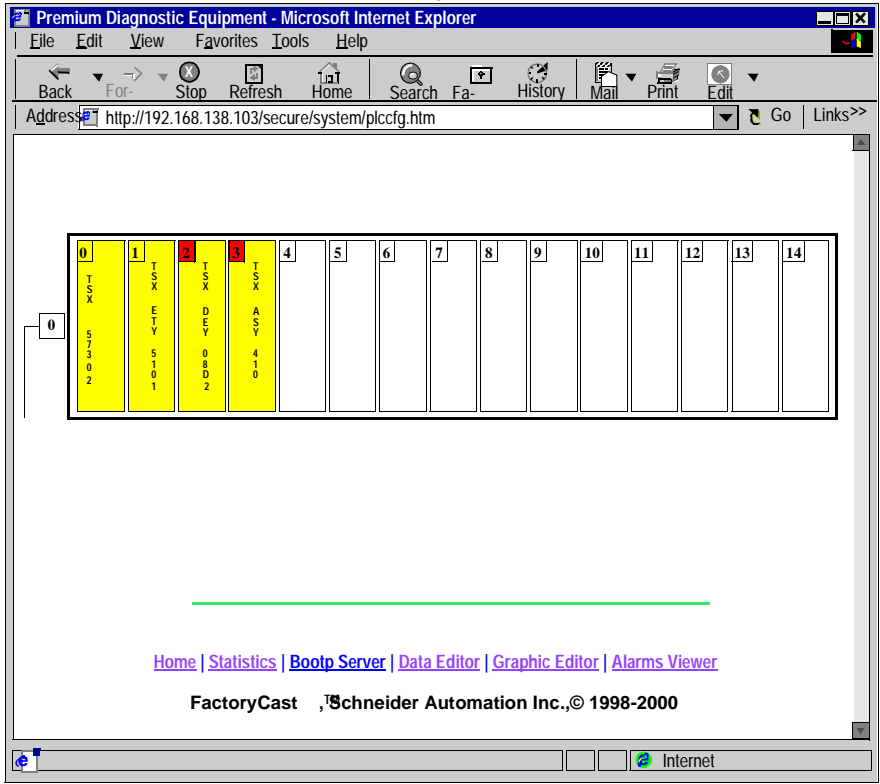
The Premium Welcome Page provides links to Statistics, the Bootp Server, the Rack Viewer, the Data Editor, the Graphic Editor, and the Alarm Viewer. The Rack Viewer is a diagnostic page with links to all the other Premium diagnostic pages.

4.2 Rack Viewer

Rack Viewer Page

Overview The Rack Viewer Page displays the current configuration of the racks (local or remote), including the controller, Embedded Server module, and any I/O modules.

Sample Page Here is an example of a Rack Viewer page.



Data

The following information is provided for each module displayed in the rack.

- A vertical label displays the module type and part number
 - The box in the upper left hand corner of the module displays the slot number and module health:
 - A yellow box indicates that the module is functioning properly
 - A red box indicates that the module is not functioning properly
-

Links

Click a module icon to obtain detailed information about that module.

The CPU module icon (slot 1) contains two links. The top link leads to the FIP I/O Module Diagnostics page. The tower link leads to the PLC Personality page.

A line leading down from the Rack#0 icon (to the left of the rack) is a link to the next rack. When you place your mouse over this link, it turns into a red arrow. Each rack in the configuration may be viewed in turn. Upward links will take you back toward Rack#0.

4.3 Controller Diagnostics

PLC Personality Page

Overview

The PLC Personality page provides information about the controller and its configuration.

Sample Page

Here is an example of a PLC Personality page.

The screenshot shows a Microsoft Internet Explorer browser window titled "FactoryCast Diagnostic Equipment for Premium - Microsoft Internet". The address bar displays "http://automate7/secure/system/plccfg.htm". The page content is organized into several sections:

Leds:

- RUN
- ERR
- I/O
- COM

Rack: 0

Slot: 0

Module State: Ok

Reference Present: TSX 57453

Version: 5.0

Product Range: Premium

Trade Type: Processor

Product Type: TSX

Reference Config: TSX 57453

Processor	Cartridge	Application	Signature
RAM Size (KB): 352	Status: Ok	Name: Fipio	Application: 28769
FLASH Size 0	Size (KW): 256	Version: 1.56	Local I/O: 12163
Internal Version: IE 9	Type: Ram	Protected: No	Remote I/O: 6928
Main Address: {14.17}	Battery: Ok	State: RUN	Binary Code: -2321
Connections: 2	Write Protect: No	Modifying: No	Graphic: 4765
Run/Stop Input: Off		Checksum: Ok	Constant: 7836
Safety Output: Off		Forced Bits: 0	Symbol: 20884
Clock Calendar: February 1, 2001 3:24:52 PM			Reserved: 14647

Below the table, there is a blue arrow pointing to the left.

At the bottom of the page, there is a navigation bar with the following links: [Home](#) | [Statistics](#) | [Bootp Server](#) | [Data Editor](#) | [Graphic Editor](#) | [Alarm Viewer](#) | [Home](#)

The footer text reads: **FactoryCast** TM Schneider Automation Inc., © 1998-1999

The browser status bar at the bottom indicates "Local intranet zone".

Dynamic Data

The LEDs in the upper left hand corner of the screen provide a dynamic report on the controller status.

LEDs	Color if On	Meaning if On	Meaning if Blinking	Meaning if Off
RUN	Green	Application running	Stopped	PLC error
ERR	Red	PLC error	Not configured	No error
I/O	Red	I/O event	---	No error
COM	Yellow	Communication error	---	No error

Links

The back arrow will take you to the Rack Viewer page for this controller. Links at the bottom of the PLC Personality page connect to the home page, Statistics, the Bootp Server, the Data Editor, the Alarm Viewer, or the Graphic Editor.

4.4 Ethernet Module Diagnostics

Ethernet Module Statistics Page

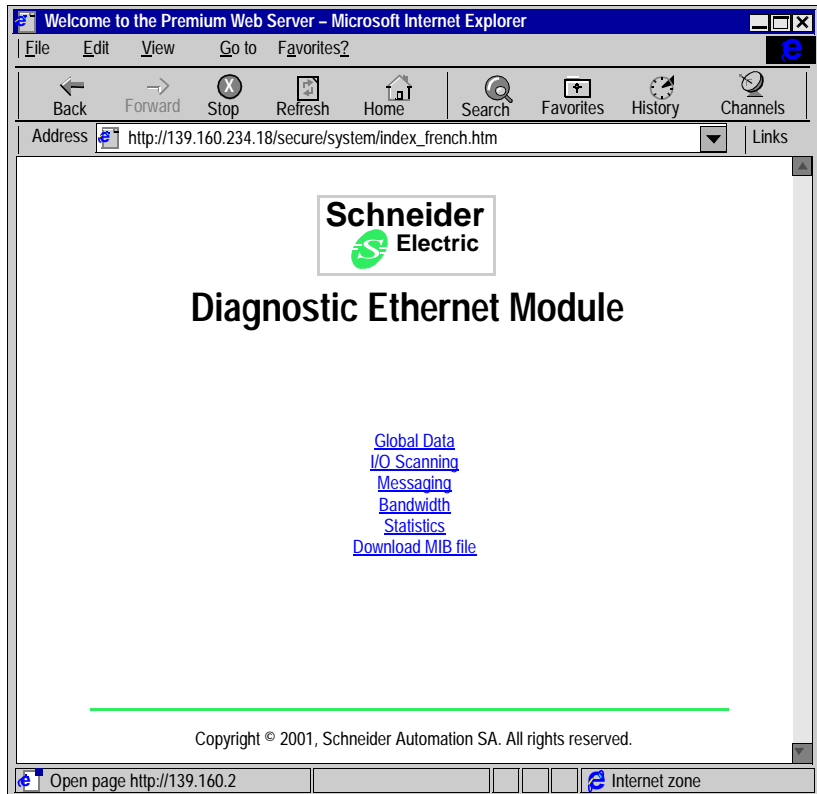
Home Page

This page contains a list of links for accessing the different diagnostic pages for the Ethernet module:

- Global Data Utility
- I/O scanning utility
- Messaging utility
- Bandwidth monitoring utility
- Ethernet module statics

A link also allows the downloading of the private MIB source file.

View of the Diagnostics Utilities home page:



Click on a link to access the desired diagnostics page.

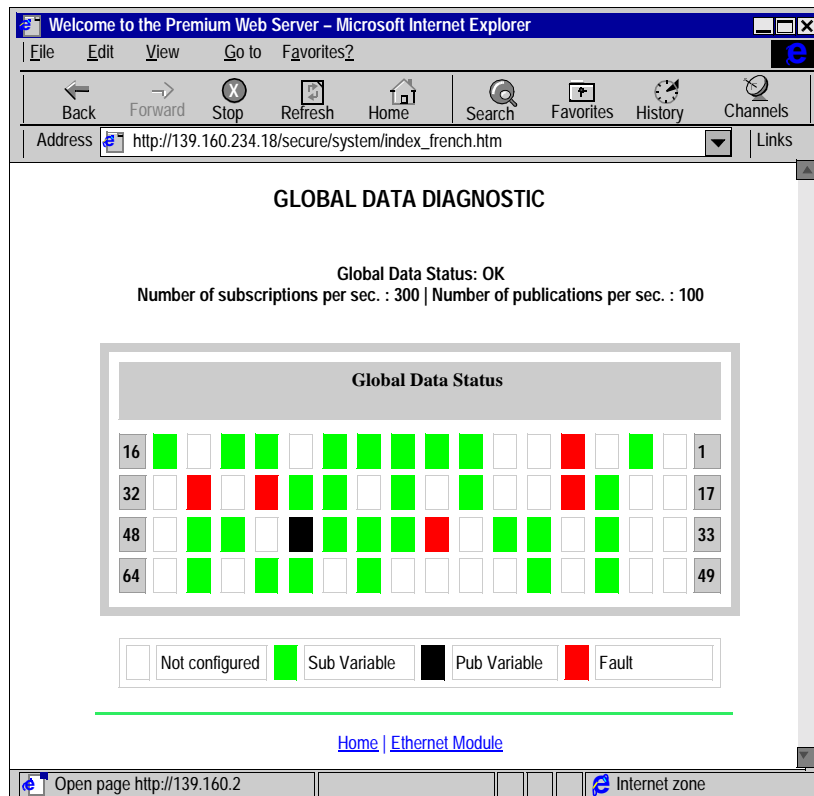
Global Data Page Information on the general diagnostics of Global Data can be found above this page:

- Status
- Number of publications per second
- Number of subscriptions per second

This page also shows a table that regroups all published and subscribed variables in the same distribution group. Each variable is identified by its Identifier.

- Green for the subscribed variables
- Black for the published variables
- White for all unconfigured variables
- Red for variables with communication faults

View of the Global Data diagnostics page:



I/O Scanning Page

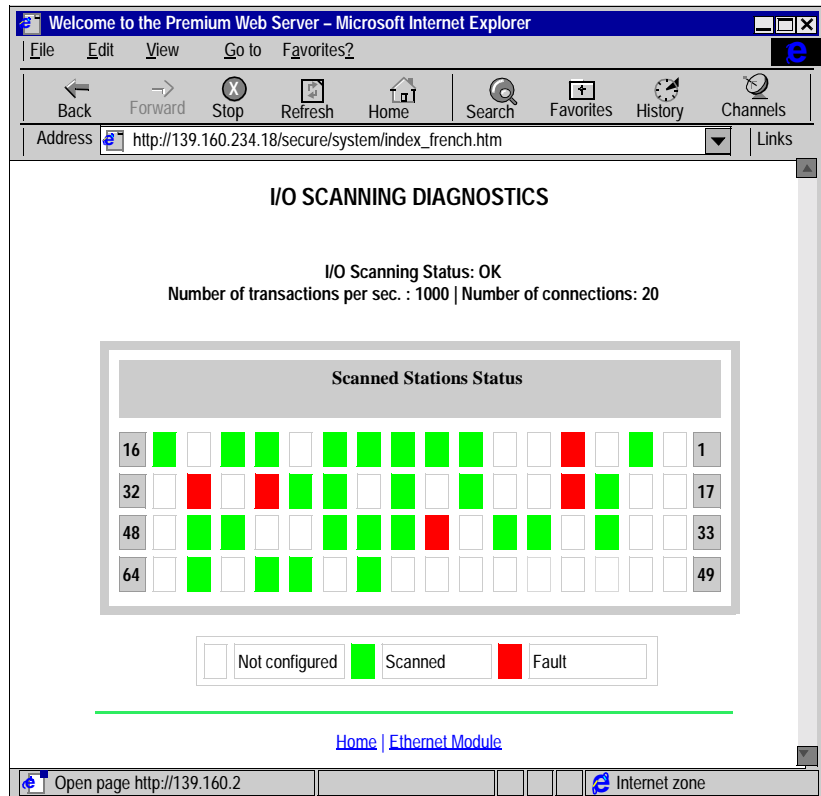
Information on the general diagnostics of the I/O scanning utility can be found above this page:

- Status
- Number of transactions per second
- Number of connections per second

This page also displays a summary of the status of all modules:

- Green for the **scanned** modules
- White for the **unconfigured** modules
- Red for **faulty** modules
- Black for the modules which are temporarily **unscanned**.

View of the I/O scanning diagnostics page:



Messaging Page

This page provides current information on the open TCP connection on port 502. The number of sent/received messages on the port can be found at the top of this page.

A table provides, for each connection (numbered from 1 to 64):

- The remote IP Address
- The remote TCP port
- The local TCP port
- The number of messages sent from this connection
- The number of messages received from this connection
- The error number on this connection

View of the messaging diagnostics page:

MESSAGING DIAGNOSTICS

Number of Messages sent: 150 | Number of Messages received: 50

Conn.#	Remote addr.	Remote port	Local Port	Mess. sent	Mess. received	Err. sent.
1	192.160.10.20	1920	502	20	12	0
2	139.160.235.90	2020	502	0	30	02
3	192.160.10.21	502	3000	3	60	0
4	139.160.234.20	1050	502	15	42	0
5	139.160.234.18	5120	502	0	39	1

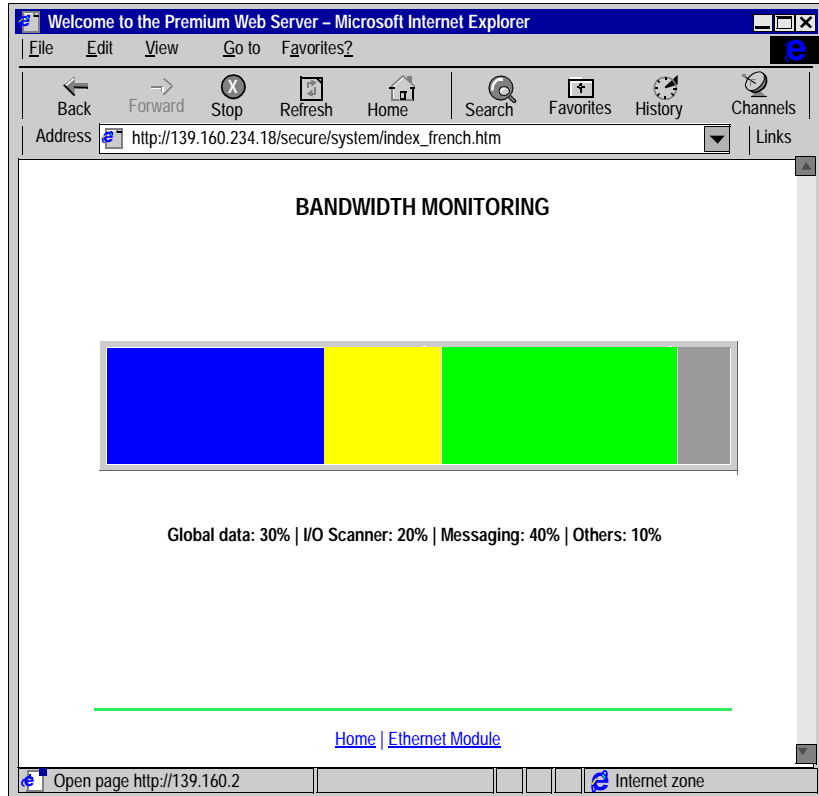
[Home](#) | [Ethernet Module](#)

Open page http://139.160.2 Internet zone

Bandwidth monitoring page

This page displays the load distribution of the TSX ETY 4102/5102 module between the Global Data utilities, I/O Scanning, Messaging and other utilities.

View of the Bandwidth monitoring page:



Statistics Page

If you click the Embedded Server module in the Rack Viewer, you will reach the Ethernet Module Statistics page. This page provides up-to-date information about the status, configuration, and activity of the Embedded Server module.

Here is an example of an Ethernet Module Statistics page.

Premium Diagnostic Equipment - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites History Mail Print Edit

Address <http://139.158.12.116/secure/system/plccfg.htm> Go Links >>

<i>Leds:</i>	<i>Rack:</i>	0	<i>Product Range:</i>	Premium
● RUN	<i>Slot:</i>	2	<i>Trade Type:</i>	Communication
● ERR	<i>Module State:</i>	Ok	<i>Product Type:</i>	Ethernet
● STS	<i>Reference Present:</i>	TSX ETY 510	<i>Reference Configured:</i>	TSX ETY 510
	<i>Version:</i>	1.1		

Configuration	Activity
Local IP Address: 139.158.12.110	TCP Messaging connections: 1
Subnetwork Mask: 255.255.218.0	Sent Messages: 485851
Gateway Address: 139.158.8.1	Received Messages: 485790
X-WAY Address: {0,0}	Refused Messages: 0
X-WAY Bridge: No	IO Scanning (Msg/s): 3
IO Scanner Connections: 0	

← ck

[Home](#)
[Statistics](#)
[Security](#)
[Bootp Server](#)
[Data Editor](#)

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Applet started Internet zone

Dynamic Data

The LEDs in the upper left hand corner of the screen provide a dynamic report on the Embedded Server module status.

LEDs	Color if On	Meaning if On	Meaning if Blinking	Meaning if Off
RUN	Green	Running normally	---	Power Off
ERR	Red	Module fault	Not configured	Running normally
STS	Red	Network address fault or station out of range	---	No error

Links

The back arrow will take you to the Rack Viewer page for this controller. Links at the bottom of the PLC Personality page connect to the home page, Statistics, the Bootp Server, the Data Editor, the Alarm Viewer, or the Graphic Editor.

4.5 Option Modules Diagnostics

Overview of Option Modules Diagnostics

Overview

Several default Web pages provide information about configured option modules

- FIP I/O Module Diagnostics page
- Digital I/O Module Diagnostics page
- Analog I/O Module Diagnostics page
- Communication Module Diagnostics page
- PCMCIA Communication Diagnostics page
- Standard Module Diagnostics page

What's in this Section?

This Section contains the following Maps:

Topic	Page
FIP I/O Module Diagnostics Page	72
Digital I/O Module Diagnostics Page	79
Analog I/O Module Diagnostics Page	81
AS-i Module Diagnostics Page	83
PCMCIA Communication Card Diagnostics Page	85
Standard Module Diagnostics Page	87

FIP I/O Module Diagnostics Page

Overview

If you click the FIP I/O link on the controller icon in the Rack Viewer page, you will reach the FIP I/O Module Diagnostics page.

This is the FIP I/O page.

Premium Diagnostic Equipment - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back For- Stop Refresh Home Search Fa- History Mail Print Edit

Address <http://139.158.12.116/secure/system/plccfg.htm> Go Links>>

<i>Leds:</i>	<i>Rack:</i>	0	<i>Product</i>	Premium
● RUN	<i>Slot:</i>	0	<i>Trade Type:</i>	Processor
● I/O	<i>Module</i>	Missing	<i>Product Type:</i>	TSX
	<i>Reference</i>	TSX 57 352 Fipio	<i>Reference Config-</i>	TSX 57 352 Fipio
	<i>Version:</i>	3.7		

Fipio Activity	Fipio devices in
MAST Cycle Time 0	
FAST Cycle Time 0	
Sent Variables: 0	
Received Variables: 0	
Retried messages: 0	

[Bus FIPIO exploration](#)

←

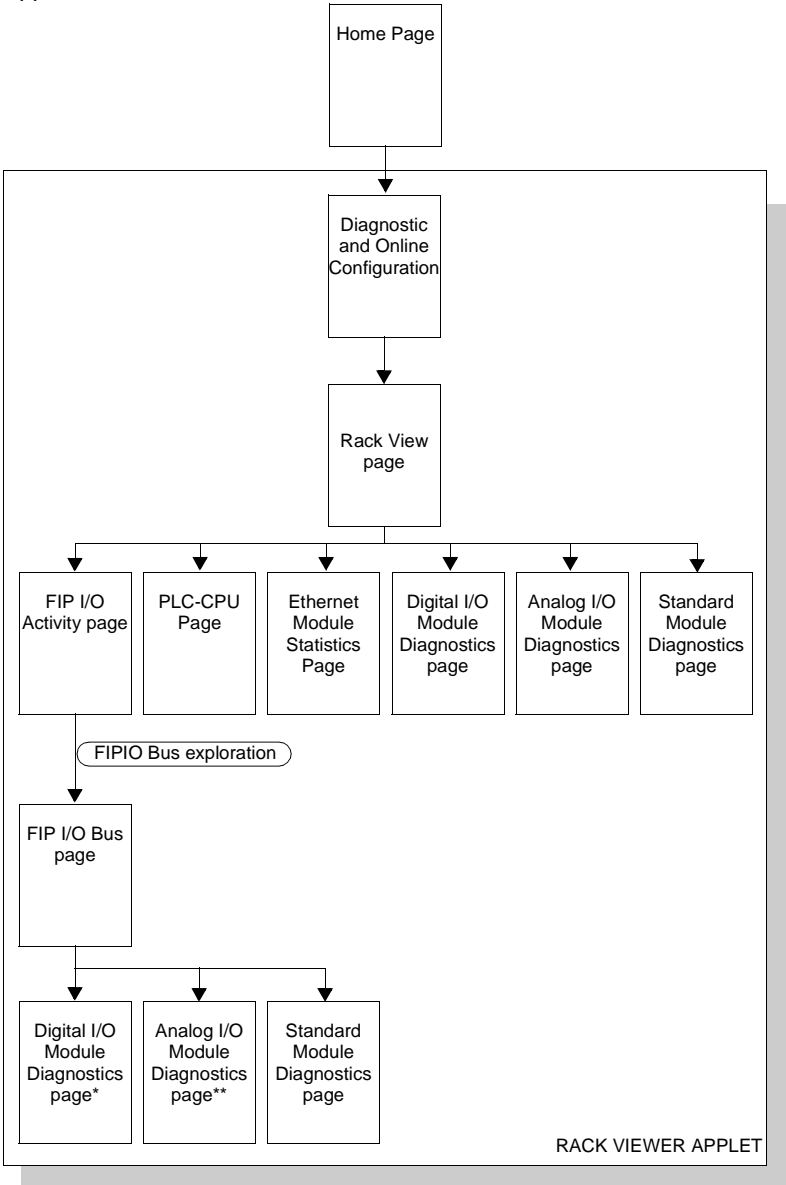
[Data Editor](#) | [Graphic Editor](#) | [Alarm Viewer](#) | [Home](#)

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Done Internet zone

Rack Viewer Navigation

The following illustration represents the navigation page tree of the Rack Viewer Applet.

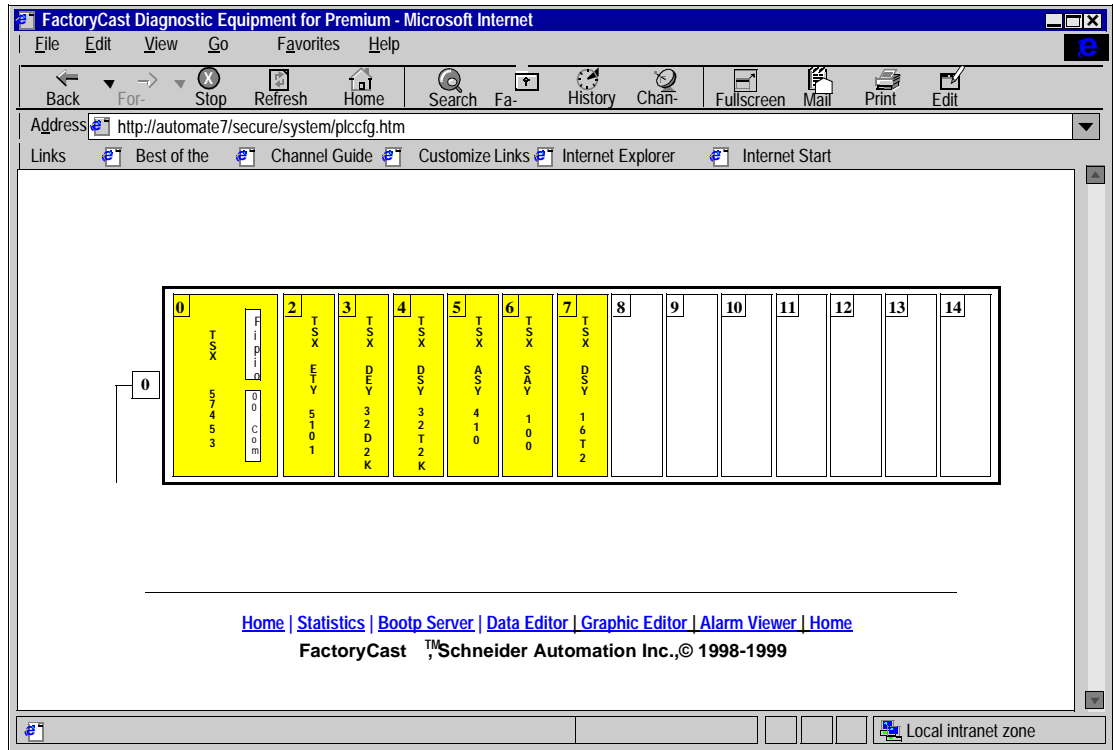


* Only for Digital TBX-7 modules

** Only for Analog TBX-7 modules

Rack Viewer

Click the Rack Viewer link. The applet starts and displays the current configuration of the local rack, including the controller, Embedded Server module, and any I/O modules.



FIP bus link

If Premium has a CPU with FIP bus link, click the FIP I/O link and the first level diagnostic page of FIP I/O is displayed.

Leds:	Rack:	0	Product Range:	Premium
● RUN	Slot:	0	Trade Type:	Processor
● I/O	Module State:	Run	Product Type:	TSX
	Reference Present:	TSX 57352 Fipio	Reference Configured	TSX 57352 Fipio
	Version:	3.4		

Fipio Activity

MAST Cycle Time (ms): **6**
FAST Cycle Time (ms): **0**
Sent Variables: **33293**
Received Variables: **52412**
Retried messages: **0**

Fipio devices in fault

Device at connection point 2

Bus FIPIO exploration

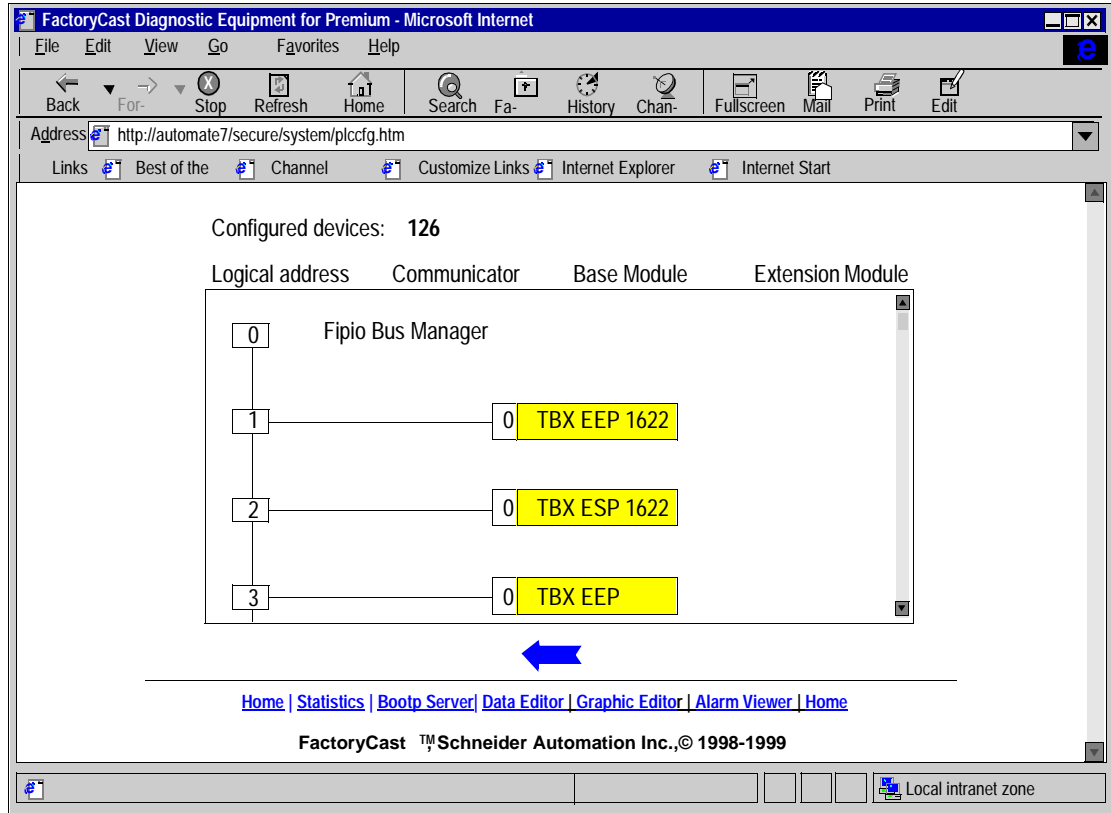


[Data Editor](#) | [Graphic Data Editor](#) | [Alarm Editor](#) | [Home Page](#)
Premium Web Utility© ,Schneider Automation Inc.

FIP I/O Bus Page In FactoryCast Client, there is a button at the bottom of the FIP I/O activity page, named Bus FIP I/O exploration. If you click on this button, the FIP I/O Bus page is displayed.

Note: The button FIP I/O Bus exploration is enable only if a FIP I/O bus is configured in the PLC application. Otherwise, the button is disabled (grayed).

This is the FIP I/O Bus Page.



At the top of the page, the number of FIP I/O devices configured on FIP I/O Bus is displayed. A scroll window displays all configured devices on FIP I/O Bus. A small circle indicates the device connection point. If a FIP I/O Device is fault, the background color of its logical address indicator is red. A FIP I/O device module in fault is also displayed when the box containing the module number has a red background color.

Note: A FIP I/O device displayed in fault by FIP I/O Bus page is also displayed in fault by FIP I/O devices in the fault list of FIP I/O activity page.

If the Base Module of FIP I/O device is "modular" type, a **Communicator** is displayed. If Base Module of FIP I/O device is "compact" type, there is no **Communicator**.

**Base Module
links and
Extension
Module links
Diagnostic Page**

If present, Base Module links and Extension Module links are mouse sensitive
Clicking the module allows you to access its diagnostic page in the same way as an in-rack module.

FactoryCast Diagnostic Equipment for Premium - Microsoft Internet
File Edit View Go Favorites Help
Back For- Stop Refresh Home Search Fa- History Chan- Fullscreen Mail Print Edit
Address http://automate7/secure/system/plccfg.htm
Links Best of the Channel Customize Links Internet Explorer Internet Start

Leds: Rack: 0 Product Range: Premium
● RUN Slot: 3 Trade Type: Digital
● ERR Module State: Ok Product Type: In-rack
● I/O Reference Present SX DEY 32D2K Reference Config- TSX DEY 32D2K
● +32 Version: 1.0

Status: No Fault Module configurable: Yes

Channels	0	1	2	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	31
%I	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
States	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
%Q																																

E = Error FB = Falling Back F = Forced

ck

[Home](#) | [Statistics](#) | [Bootp Server](#) | [Data Editor](#) | [Graphic Editor](#) | [Alarm Viewer](#) | [Home](#)

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Applet started Local intranet zone

November 2001

77

Types of Diagnostic Pages

On FIP I/O modules, there are three kinds of diagnostic pages. The display depends on Product Range and of Trade Type.
A Standard Module Diagnostics page is displayed except for Digital TBX-7 and for Analog TBS-7 modules.
They are displayed respectively as the Digital I/O Module Diagnostics page and the Analog I/O Module Diagnostics page.

Dynamic Data

The LEDs in the upper left hand corner of the screen provide a dynamic report on the FIP I/O module status.

LEDs	Color if On	Meaning if On	Meaning if Off
RUN	Green	Link active	Link inactive
I/O	Red	Remote device in fault	Remote device operating normally

Links

The back arrow will take you to the Rack Viewer page for this controller. Links at the bottom of the PLC Personality page connect to the home page, Statistics, the Bootp Server, the Data Editor, the Alarm Viewer, or the Graphic Editor.

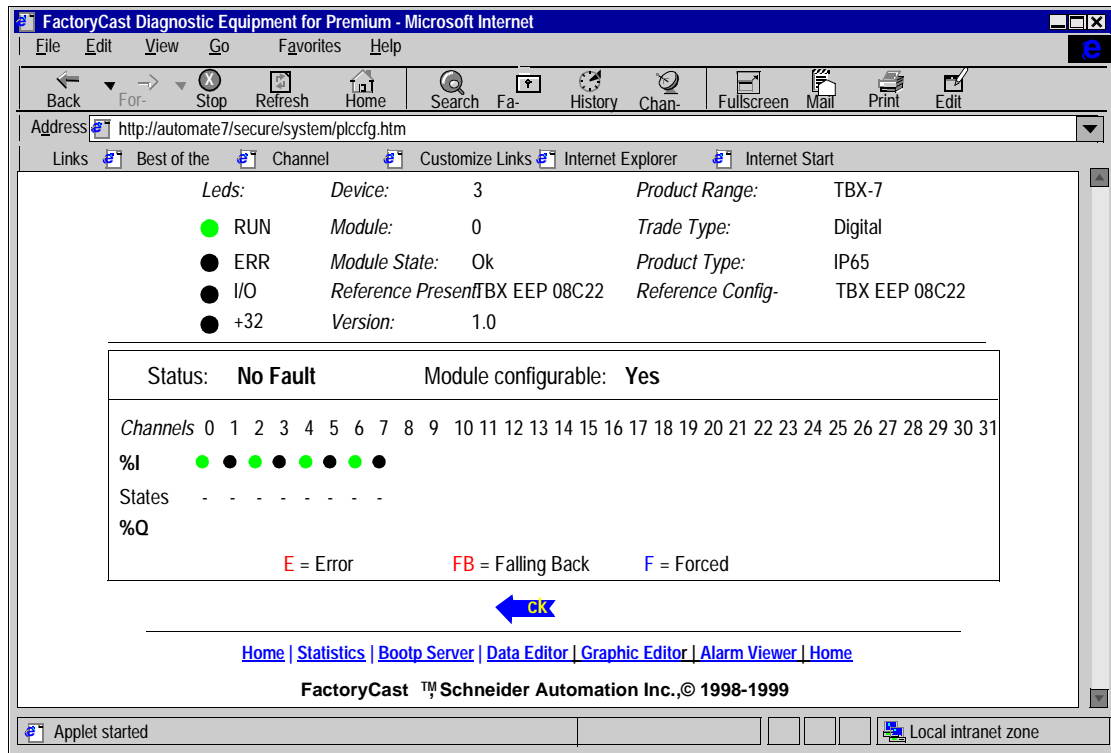
Digital I/O Module Diagnostics Page

Overview

If you click a digital I/O module in the Rack Viewer, you will reach a Digital I/O Module Diagnostics page with detailed information about that module.

Sample Page

Here is an example of Digital I/O Module Diagnostics page.



Dynamic Data

The LEDs in the upper left hand corner of the screen provide a dynamic report on the module status.

LED	Color if On	Meaning if On	Meaning if Blinking	Meaning if Off
RUN	Green	Running normally	---	Faulty module
ERR	Red	Module failure	Communication fault	No error
I/O	Red	Overloaded short circuit or server/preactuator voltage fault	Terminal Block fault	No error
+32	Green	Channels 32 ... 63 displayed	---	Channels 0 ... 31 displayed

The LED panel in the lower part of the screen provides a dynamic status report for each channel.

Links

The back arrow will take you to the Rack Viewer page for this controller. Links at the bottom of the PLC Personality page connect to the home page, Statistics, the Bootp Server, the Data Editor, the Alarm Viewer, or the Graphic Editor.

Analog I/O Module Diagnostics Page

Overview If you click an analog I/O module icon in the Rack Viewer, you will reach an Analog I/O Module Diagnostics page with detailed information about that module.

Sample Page Here is an example of an Analog i/O Module Diagnostics page.

FactoryCast Diagnostic Equipment for Premium - Microsoft Internet

File Edit View Go Favorites Help

Back Forward Stop Refresh Home Search Favorites History Channels Fullscreen Mail Print Edit

Address http://automate7/secure/system/plccfg.htm

Links Best of the Channel Customize Links Internet Explorer Internet Start

Leds: Rack: 0 Product Range: Premium

● RUN Slot: 5 Trade Type: Analog

● ERR Module State: Ok Product Type: In-rack

● I/O Reference Present: TSX ASY 410 Reference Config: TSX ASY 410

Version: 1.0

Analog Channel Viewer

Channels	Channel 0	Channel 1	Channel 2	Channel 3
%IW				
States				
%QW	10000	10000	10000	10000

E = Error F = Forced

Home Statistics Bootp Server Data Editor Graphic Editor Alarm Viewer Home

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Applet started

Local intranet zone

November 2001

81

Dynamic Data

The LEDs in the upper left hand corner of the screen provide a dynamic report on the module status.

LED	Color if On	Meaning if On	Meaning if Blinking	Meaning if Off
RUN	Green	Running normally	---	Faulty module or no power
ERR	Red	Module failure	Communication fault with PLC	No error
I/O	Red	Range overshoot or sensor link fault	Terminal Block fault	No error

Links

The back arrow will take you to the Rack Viewer page for this controller. Links at the bottom of the PLC Personality page connect to the home page, Statistics, the Bootp Server, the Data Editor, the Alarm Viewer, or the Graphic Editor.

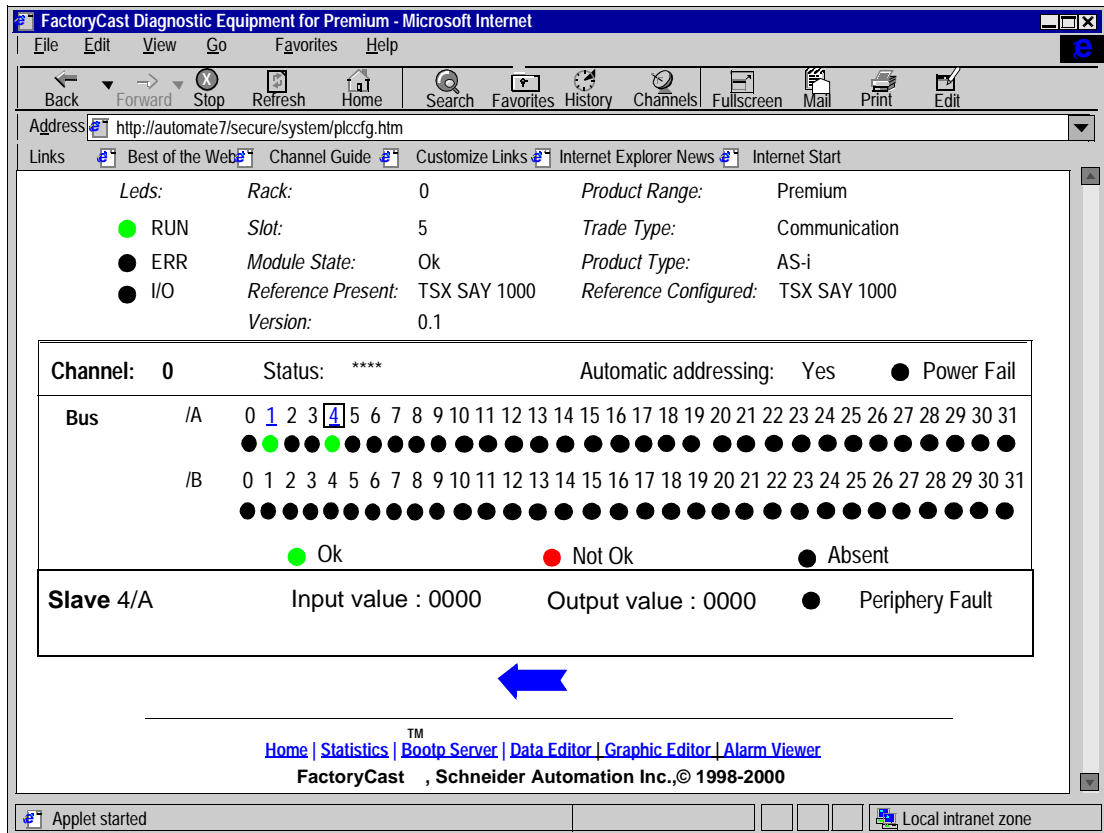
AS-i Module Diagnostics Page

Overview

If you click an AS-i module icon in the Rack Viewer, you will reach an AS-i Module Diagnostics page with detailed information about that module.

Sample Page

Here is an example of an AS-i Module Diagnostics page.



Note: Clic on slave green LED to display the slave I/O values. When a slave is selected, I/O values and "Peripheral Fault" LED are displayed.

Dynamic Data

The LEDs in the upper left hand corner of the screen provide a dynamic report on the module status.

LED	Color if On	Meaning if On	Meaning if blinking	Meaning if Off
RUN	Green	Module OK and configured	Awaiting configuration	HS Module or autotest fault
ERR	Red	Serious non-rectifiable Module fault	Rectifiable module fault (PL7 configuration, AS-i power supply)	Module OK
I/O	Red	AS-i bus Fault	Fault or awaiting user configuration	AS-i Bus OK

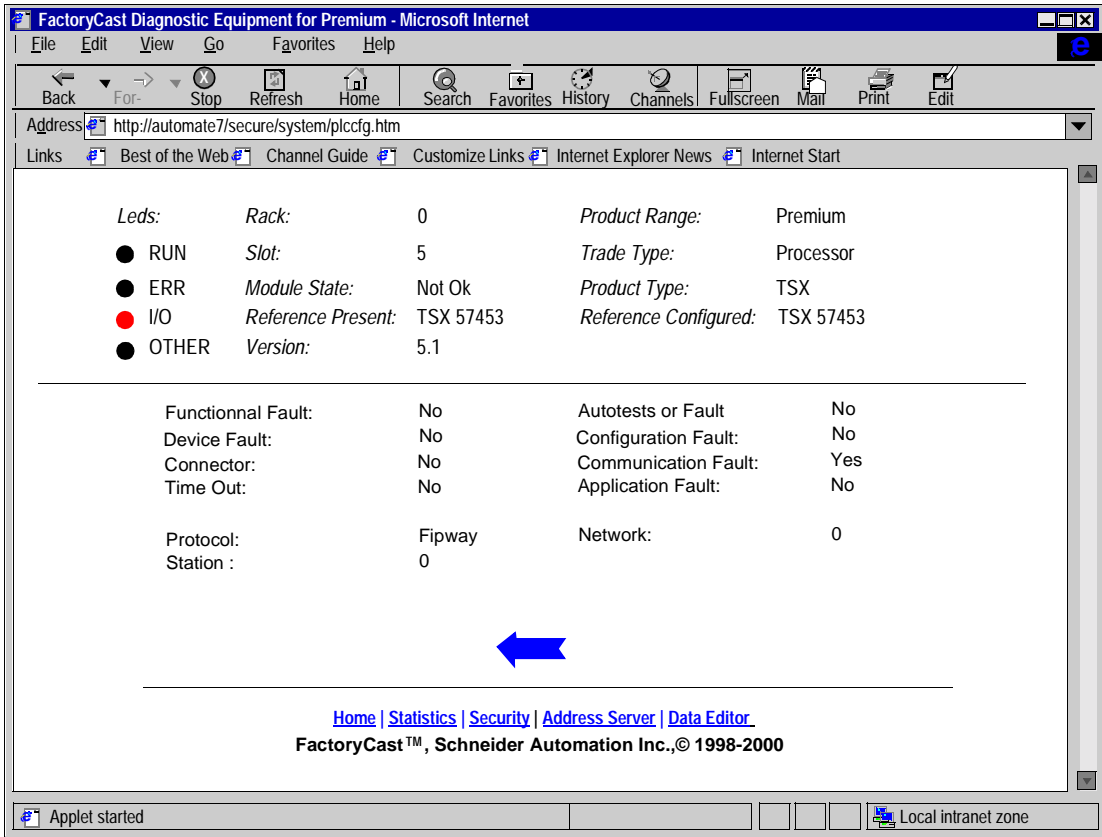
Links

The back arrow will take you to the Rack Viewer page for this controller. Links at the bottom of the PLC Personality page connect to the home page, Statistics, the Bootp Server, the Data Editor, the Alarm Viewer, or the Graphic Editor.

PCMCIA Communication Card Diagnostics Page

Overview If you click a PCMCIA icon in the Rack Viewer, you will reach a PCMCIA Communication Card Diagnostics page with detailed information about that module.

Sample Page Here is an example of a PCMCIA Communication Card Diagnostics page.



Dynamic Data

The following table describes the role of each LED.

LED	Color if On	Meaning if On	Meaning if Flashing	Meaning if Off
RUN	Green	PLC running normally, program executing.	PLC in STOP mode or blocked by software error.	PLC not configured: application missing, invalid or incompatible.
ERR	Red	processor or system error.	<ul style="list-style-type: none">● PLC not configured (application missing, invalid or incompatible),● PLC blocked by a software error,● memory card battery error,● X Bus error.	normal state, no internal error.
I/O	Red	input/output errors coming from a module, a channel or a configuration error.	X Bus error.	normal state, no internal error.

Links

The back arrow will take you to the Rack Viewer page for this controller. Links at the bottom of the PLC Personality page connect to the home page, Statistics, the Bootp Server, the Data Editor, the Alarm Viewer, or the Graphic Editor.

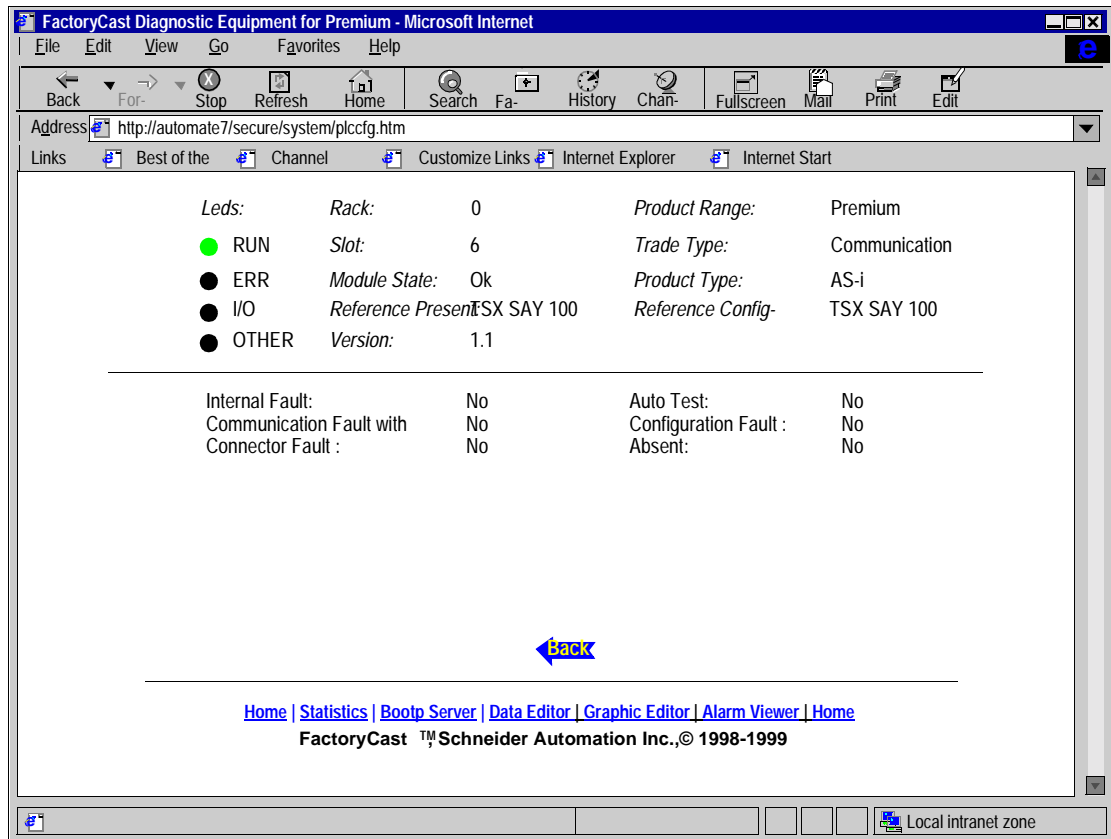
Standard Module Diagnostics Page

Overview

If you click any other type of module in the Rack Viewer page, you reach a standard Module Diagnostics page with detailed information about that module.

Sample Page

Here is an example of a Standard Module Diagnostics page.



Dynamic Data

The LEDs in the upper left hand corner of the screen provide a dynamic report on the module status.

LED	Color if On	Meaning if On	Meaning if Blinking	Meaning if Off
RUN	Green	Running normally	***	***
ERR	Red	Module fault	Not configured	No error
I/O	Red	I/O event	---	No error
OTHER	Yellow	***	***	***
*** The meaning depends on the module type. For more information, refer to the user manual for the appropriate module.				

Links

The back arrow will take you to the Rack Viewer page for this controller. Links at the bottom of the PLC Personality page connect to the home page, Statistics, the Bootp Server, the Data Editor, the Alarm Viewer, or the Graphic Editor.

Default Web Site for Micro

5

Default Web Site for Micro

Overview

When you receive the device, it already contains a default Web site with the on-line configuration and diagnostics pages pre-loaded.

You may view these pages simply by installing the module and configuring its IP address. To access the site, type the IP address of the module in your browser and enter the default user name and password of "USER". However, Schneider Automation recommends that you complete the setup procedures as outlined in Creating a New Configuration, p. 113.

Note: This section describes only the Web pages common for all FactoryCast platforms : Rackviewer, Data Editor and Graphic Editor. Other pages are described in TSX ETZ User's Guide.

What's in this Chapter?

This Chapter contains the following Sections:

Section	Topic	Page
5.1	Micro Home Pages	90
5.2	Rack Viewer	95
5.3	Controller Diagnostics	96
5.4	Option Modules Diagnostics	105

5.1 Micro Home Pages

Overview of Micro Home Pages

Overview

When you access the default Web site for Micro, you encounter a FactoryCast Home Page first and then a Micro Welcome Page. This section describes those pages.

What's in this Section?

This Section contains the following Maps:

Topic	Page
FactoryCast Home Page	91
Micro Welcome Pages	93

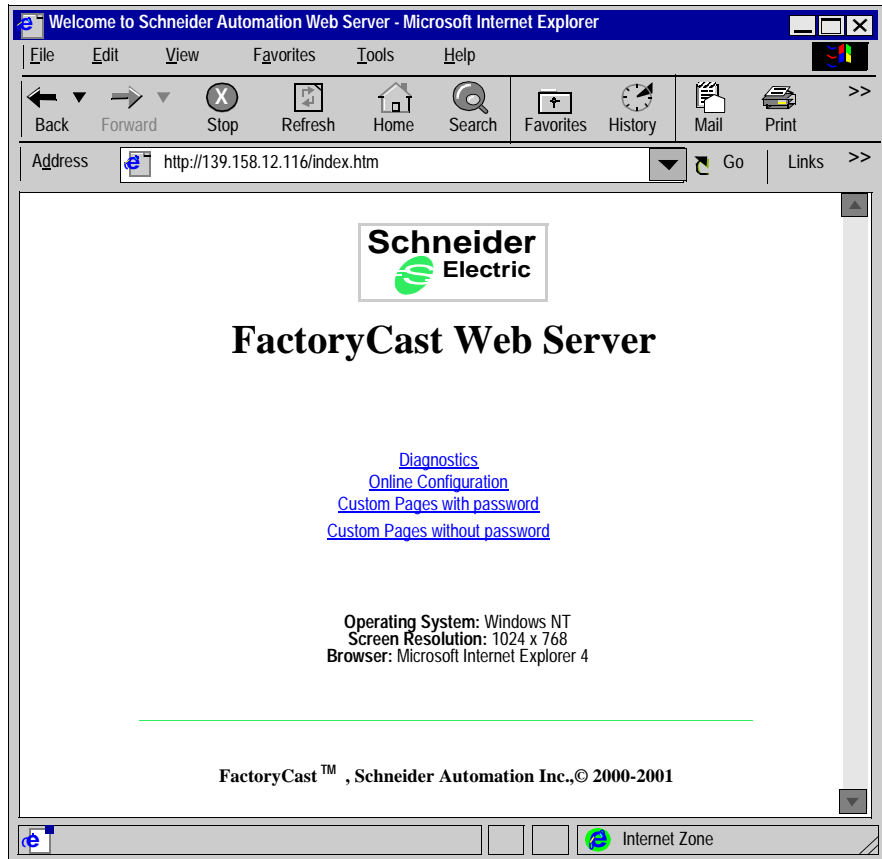
FactoryCast Home Page

Overview

The FactoryCast home page is the first page a visitor will encounter. No password is required to access this page.

Home Page

This is how the FactoryCast Home Page looks.



Data

The home page reports on three items.

- Operating system
- Screen resolution
- Browser type and version

Links

The home page offers four links.

- Diagnostics links to the default diagnostic Web pages and the Data Editor
- Online Configuration links to the ETZ configuration Web pages.
- Custom Pages with Password will link to any Web pages you add to the site with password security
- Custom Pages without Password will link to any Web pages you add to the site without password security

Note: ETZ pages are in English language only.

Customize

The home page can be customized to meet your specific needs. Simply edit the HTML and download the page to the Embedded Server. For a complete description, see Downloading a Custom Home Page, p. 207.

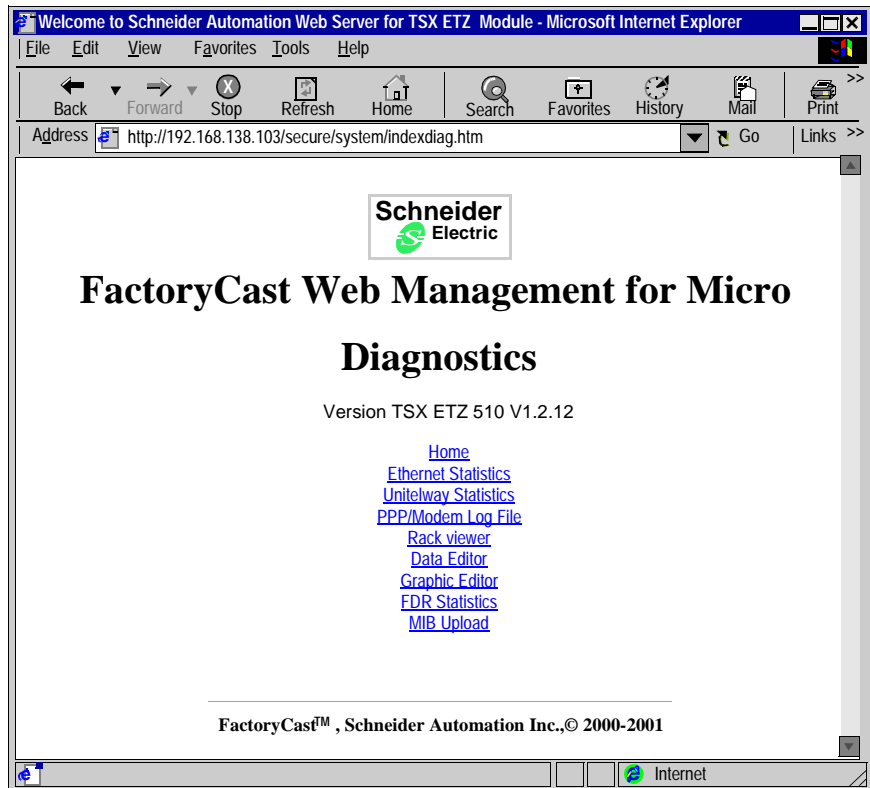
Micro Welcome Pages

Overview

When a visitor clicks the Diagnostics or Online Configuration links on the FactoryCast home page, the visitor is directed to the Micro Welcome Pages. The visitor must supply a user name and password to view these pages.

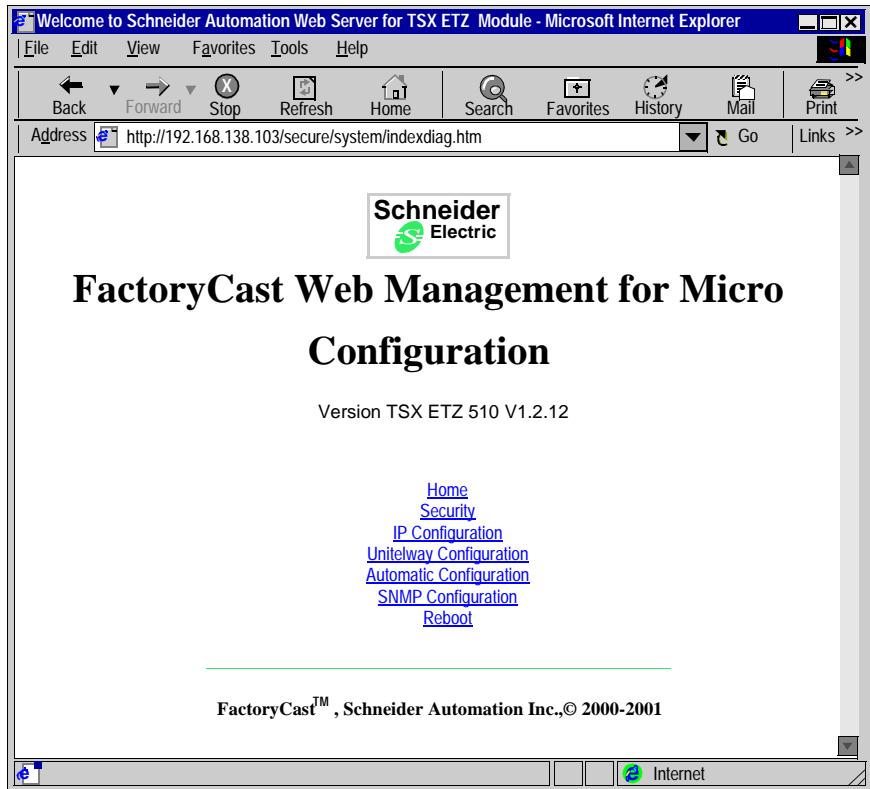
Diagnostics Welcome Page

This is how the Micro Diagnostics Welcome Page looks.



Online Configuration Welcome Page

This is how the Micro Online Configuration Welcome Page looks.



Links

- The Diagnostics Welcome Page provides links to Ethernet Statistics, Rack Viever, FDR Statistics and MIB Upload.
- The Online Configuration Welcome Page provides links to Security, IP Configuration, Uni-Telway Configuration, Automatic Configuration and the Reboot.

5.2 Rack Viewer

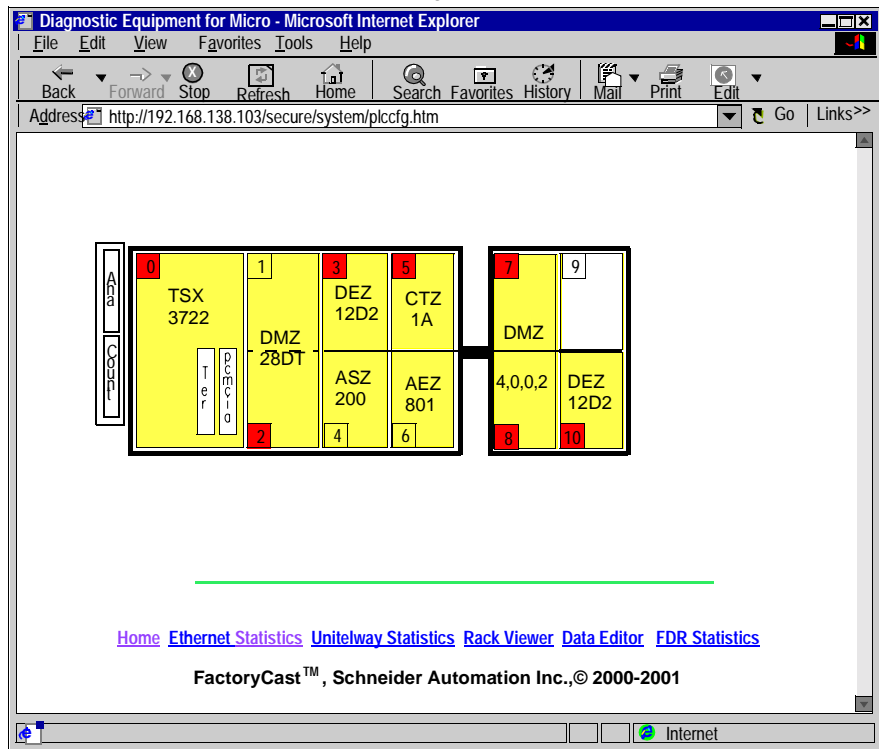
Rack Viewer Page

Overview

The Rack Viewer Page displays the current configuration of the TSX Micro.

Sample Page

Here is an example of a Rack Viewer page.



Data

The following information is provided for each module displayed in the rack.

- A vertical label displays the module type and part number
- The box in the upper left hand corner of the module displays the slot number and module health:
 - A yellow box indicates that the module is functioning properly
 - A red box indicates that the module is not functioning properly

Links

Click a module icon to obtain detailed information about that module.

5.3 Controller Diagnostics

Overview of Controller Diagnostics

overview

The PLC Personality page provides up-to-date information about the controller and its configuration.

What's in this Section?

This Section contains the following Maps:

Topic	Page
PLC Personality Page	97
PLC Communication Pages	99
PLC Analog I/O Page	101
PLC Counter Page	103

PLC Personality Page

Overview

The PLC Personality page provides information about the controller and its configuration.

Sample Page

Here is an example of a PLC Personality page.

FactoryCast Diagnostic Equipment for Premium - Microsoft Internet

File Edit View Go Favorites Help

Back Forward Stop Refresh Home Search Favorites History Channels Fullscreen Mail Print Edit

Address <http://automate7/secure/system/plccfg.htm>

Links [Best of the Web](#) [Channel Guide](#) [Customize Links](#) [Internet Explorer New](#) [Internet Start](#)

Leds:	Slot:	0	Product Range:	Micro
● RUN	Module State:	Ok	Trade Type:	Processor
● I/O	Reference Present:	TSX 3722	Product Type:	TSX
● ERR	Version:	3.0	Reference Configured:	TSX 3722

Processor	Cartridge	Application	Signature
RAM Size (KB): 40	Status: No	Name: STATION	Application: 15943
FLASH Size (KB): 30	Size (KW): 0	Version: 0.0	Local I/O: 1115
Internal Version: IE 63	Type: Ram	Protected: No	Remote I/O: 2618
Run/Stop Input: Off	Battery: Ok	State: STOP	Binary Code: 18951
Safety Output: On	Write Protect: No	Modifying: No	Graphic: 17743
Clock Calendar: February 1, 2001 3:24:52 PM		Checksum: Ok	Constant: 23345
		Forced Bits: 0	Symbol: 6941
			Reserved: 9505

←

[Home](#) [Ethernet Statistics](#) [Unitelway Statistics](#) [Rack Viewer](#) [Data Editor](#) [FDR Statistics](#)

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Local intranet zone

Dynamic Data

The LEDs in the upper left hand corner of the screen provide a dynamic report on the controller status.

LEDs	Color if On	Meaning if On	Meaning if Blinking	Meaning if Off
RUN	Green	Application running	Stopped	PLC error
I/O	Red	I/O event	---	No error
ERR	Red	PLC error	Not configured	No error

Links

The back arrow will take you to the Rack Viewer page for this controller. Links at the bottom of the PLC Personality page connect to the home page, Ethernet Statistics, Unitelway Statistics, the Rack Viewer, the Data Editor, or FDR Statistics.

PLC Communication Pages

Overview

The TER and PCMCIA pages provide information about the communication links and their configuration.

TER Page

Here is an example of a TER page.

The screenshot shows a Microsoft Internet Explorer window titled "FactoryCast Diagnostic Equipment for Premium - Microsoft Internet". The address bar shows "http://automate7/secure/system/plccfg.htm". The page content is as follows:

<i>Leds:</i>	<i>Slot:</i>	0	<i>Product Range:</i>	Micro
● RUN	<i>Module State:</i>	Ok	<i>Trade Type:</i>	Processor
● I/O	<i>Reference Present:</i>	TSX 3722	<i>Product Type:</i>	TSX
● ERR	<i>Version:</i>	3.0	<i>Reference Configured:</i>	TSX 3722

Functionnal Faul:	No	Autotests or fault:	No
Device Fault:	No	Configuration Fault:	No
Connector:	No	Communication Fault:	No
Time Out:	No	Application Fault:	No

Channel:	Ter	Speed:	9600
Parity:	Odd	Number of bit:	8
Stop bit:	1	Protocole:	Unitelway Master

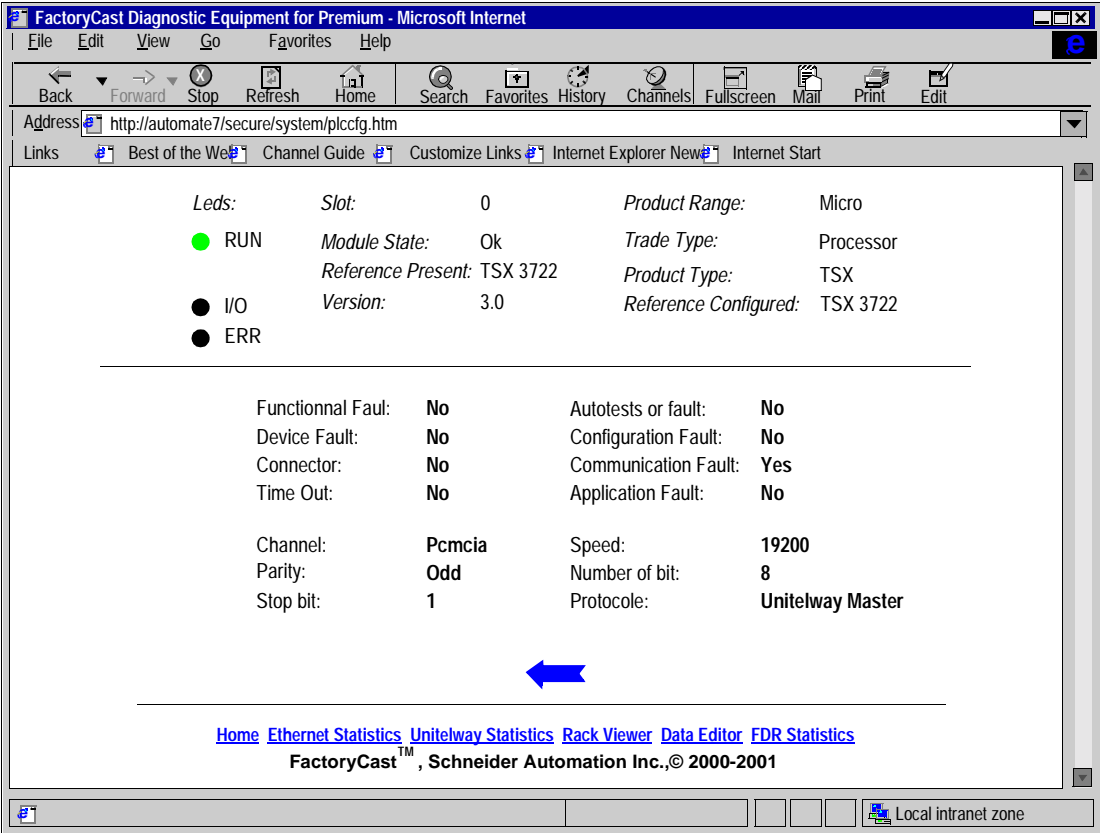
←

[Home](#)
[Ethernet Statistics](#)
[Unitelway Statistics](#)
[Rack Viewer](#)
[Data Editor](#)
[FDR Statistics](#)

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PCMCIA Page Here is an example of a PCMCIA page.



Dynamic Data The LEDs in the upper left hand corner of the screen provide a dynamic report on the controller status.

LEDs	Color if On	Meaning if On	Meaning if Blinking	Meaning if Off
RUN	Green	Application running	Stopped	PLC error
I/O	Red	I/O event	---	No error
ERR	Red	PLC error	Not configured	No error

Links The back arrow will take you to the Rack Viewer page for this controller. Links at the bottom of the PLC Personality page connect to the home page, Ethernet Statistics, Unitelway Statistics, the Rack Viewer, the Data Editor, or FDR Statistics.

PLC Analog I/O Page

Overview

The Analog I/O page provide information about the embedded Analog I/O and its configuration.

Analog I/O Page Here is an example of a Analog I/O page.

FactoryCast Diagnostic Equipment for Premium - Microsoft Internet

File Edit View Go Favorites Help

Back Forward Stop Refresh Home Search Favorites History Channels Fullscreen Mail Print Edit

Address <http://automate7/secure/system/plccfg.htm>

Links Best of the Web Channel Guide Customize Links Internet Explorer New Internet Start

Leds: Slot: 0 Product Range: Micro

● RUN Module State: Ok Trade Type: Processor

● I/O Reference Present: TSX 3722 Product Type: TSX

● ERR Version: 3.0 Reference Configured: TSX 3722

Functionnal Fault: No Autotests: No

Device Fault: No Configuration Fault: No

Connector: No Absent: No

Analog Channel Viewer								
Channels:	Channel 0	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6	Channel 7
%IW	80	40	40	40	40	40	40	40
States:	-	-	-	-	-	-	-	-
%QW	0							

E= Error F= Forced

[Home](#) [Ethernet Statistics](#) [Unitelway Statistics](#) [Rack Viewer](#) [Data Editor](#) [FDR Statistics](#)

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Local intranet zone

Dynamic Data

The LEDs in the upper left hand corner of the screen provide a dynamic report on the controller status.

LEDs	Color if On	Meaning if On	Meaning if Blinking	Meaning if Off
RUN	Green	Application running	Stopped	PLC error
I/O	Red	I/O event	---	No error
ERR	Red	PLC error	Not configured	No error

Links

The back arrow will take you to the Rack Viewer page for this controller. Links at the bottom of the PLC Personality page connect to the home page, Ethernet Statistics, Unitelway Statistics, the Rack Viewer, the Data Editor, or FDR Statistics.

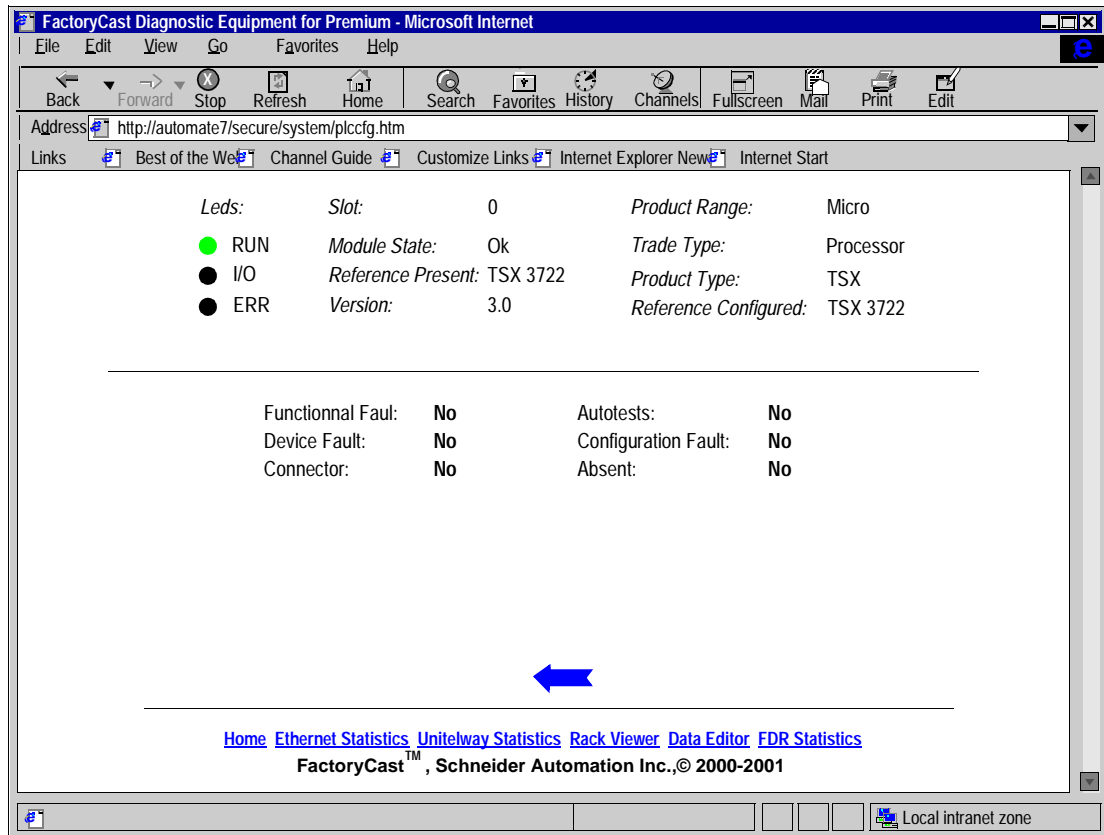
PLC Counter Page

Overview

The Counter page provide information about the embedded counter and its configuration.

Counter Page

Here is an example of a counter page.



Dynamic Data

The LEDs in the upper left hand corner of the screen provide a dynamic report on the controller status.

LEDs	Color if On	Meaning if On	Meaning if Blinking	Meaning if Off
RUN	Green	Application running	Stopped	PLC error
I/O	Red	I/O event	---	No error
ERR	Red	PLC error	Not configured	No error

Links

The back arrow will take you to the Rack Viewer page for this controller. Links at the bottom of the PLC Personality page connect to the home page, Ethernet Statistics, Unitelway Statistics, the Rack Viewer, the Data Editor, or FDR Statistics.

5.4 Option Modules Diagnostics

Overview of Option Modules Diagnostics

Overview

- Several default Web pages provide information about configured option modules
- Digital I/O Module Diagnostics page
 - Analog I/O Module Diagnostics page
 - Standard Module Diagnostics page (TSX STZ, Counting Devices, ASI Devices)

What's in this Section?

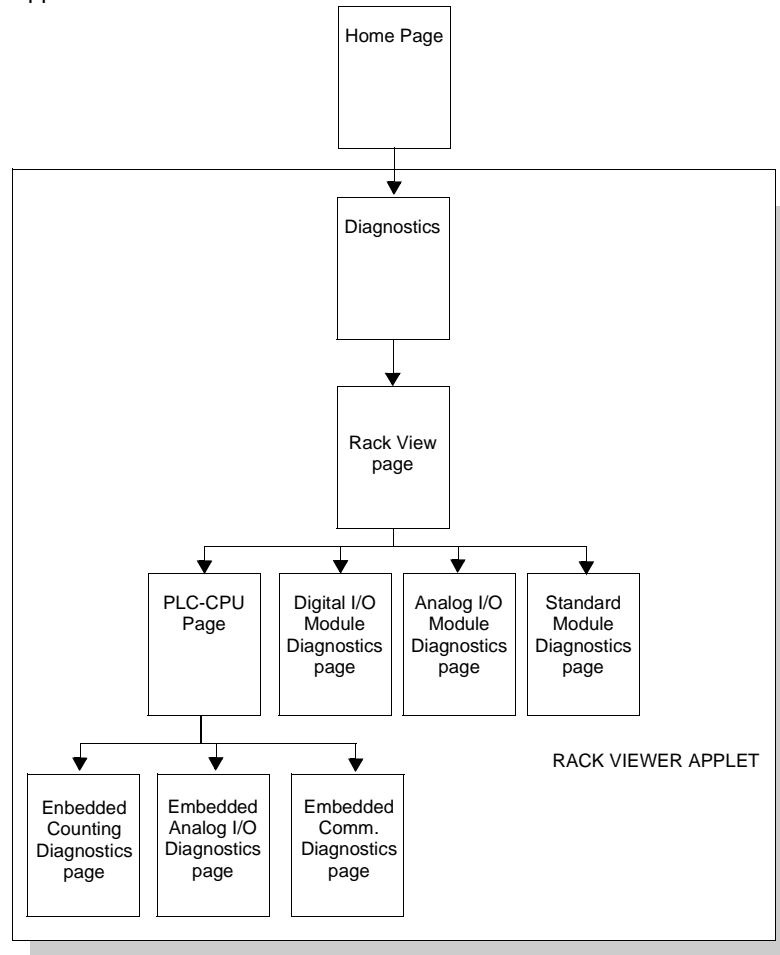
This Section contains the following Maps:

Topic	Page
Rack Viewer	106
Digital I/O Module Diagnostics Page	108
Analog I/O Module Diagnostics Page	109
Standard Module Diagnostics Page	110

Rack Viewer

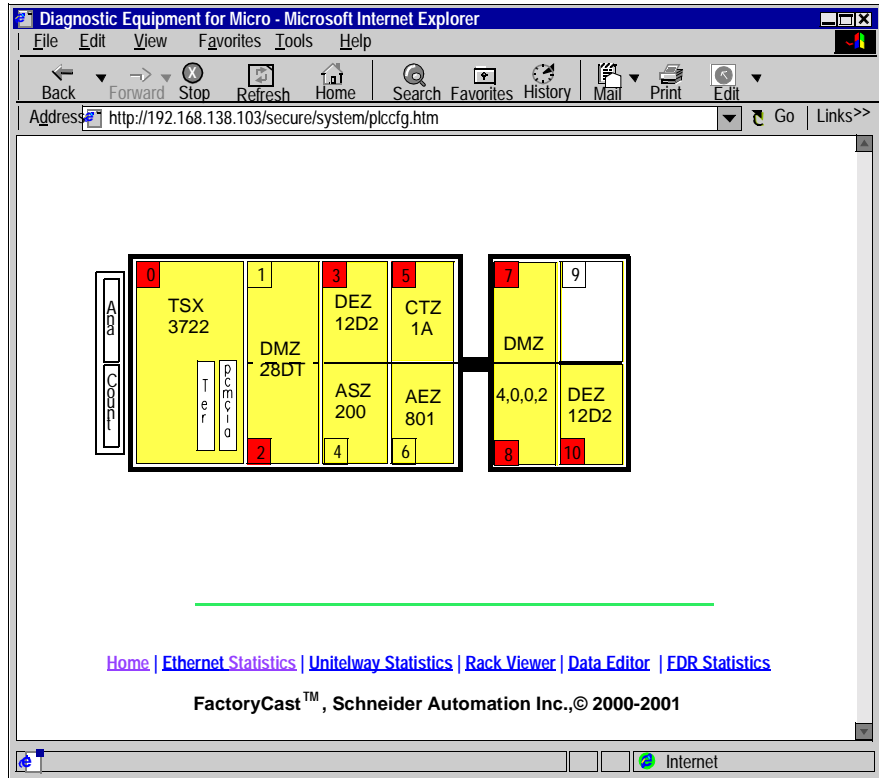
Rack Viewer Navigation

The following illustration represents the navigation page tree of the Rack Viewer Applet.



Rack Viewer

Click the Rack Viewer link. The applet starts and displays the current configuration of the TSX Micro.



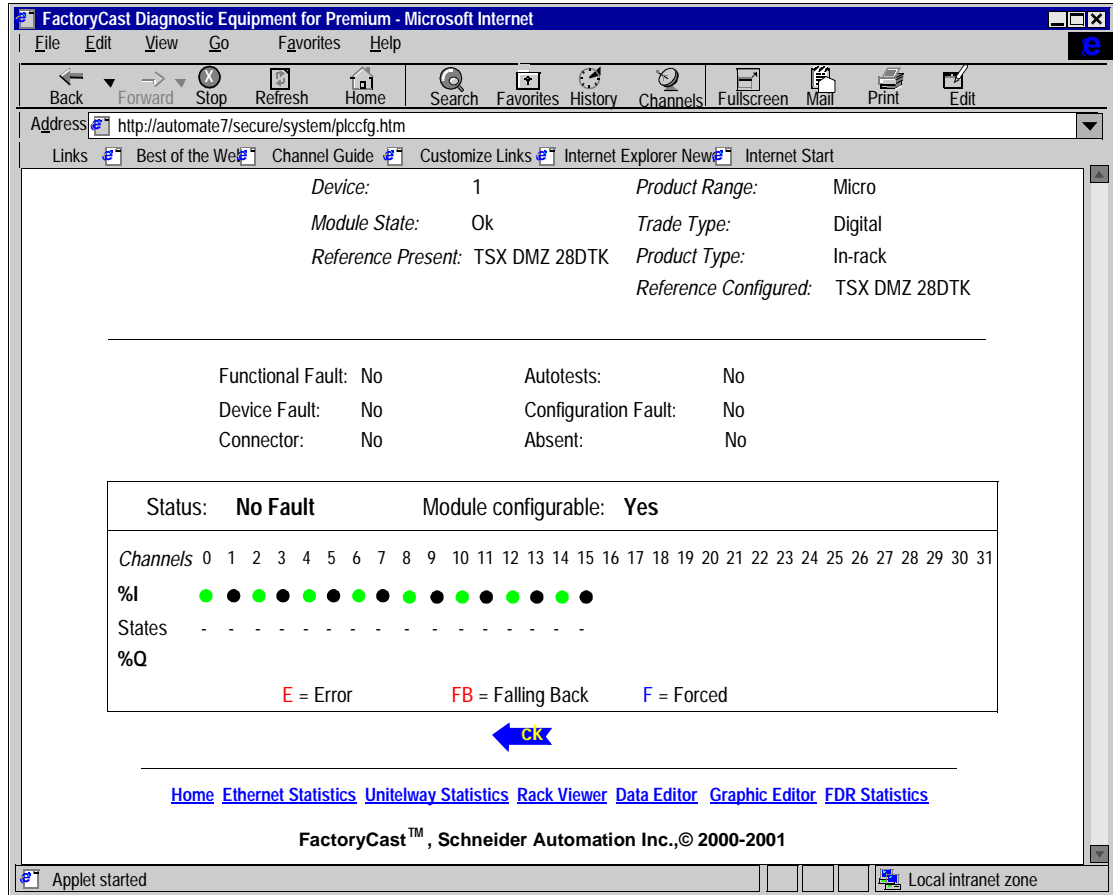
Digital I/O Module Diagnostics Page

Overview

If you click a digital I/O module in the Rack Viewer, you will reach a Digital I/O Module Diagnostics page with detailed information about that module.

Sample Page

Here is an example of Digital I/O Module Diagnostics page.



Links

The back arrow will take you to the Rack Viewer page for this controller. Links at the bottom of the PLC Personality page connect to the home page, Ethernet Statistics, Unitelway Statistics, the Data Editor, FDR Statistics, or the Graphic Editor.

Analog I/O Module Diagnostics Page

Overview

If you click an analog I/O module icon in the Rack Viewer, you will reach an analog I/O Module Diagnostics page with detailed information about that module.

Sample Page

Here is an example of Analog I/O Module Diagnostics page.

The screenshot shows a Microsoft Internet Explorer browser window titled "FactoryCast Diagnostic Equipment for Premium - Microsoft Internet". The address bar displays "http://automate7/secure/system/plccfg.htm". The page content includes the following information:

Device: 6 Product Range: Micro
Module State: Ok Trade Type: Analog
Reference Present: TSX AEZ 801 Product Type: In-rack
Reference Configured: TSX AEZ 801

Functionnal Fault: No Autotests: No
Device Fault: No Configuration Fault: No
Connector: No Absent: No

Analog Channel Viewer								
Channels:	Channel 0	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6	Channel 7
%IW	0	0	0	0	0	0	0	0
States:	-	-	-	-	-	-	-	-
%QW								

E= Error F= Forced

At the bottom of the table, a blue arrow points from the "F= Forced" label to the "Channel 3" column.

Links at the bottom of the page: [Home](#) [Ethernet Statistics](#) [Unitelway Statistics](#) [Rack Viewer](#) [Data Editor](#) [FDR Statistics](#)

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The status bar at the bottom indicates "Local intranet zone".

Links

The back arrow will take you to the Rack Viewer page for this controller. Links at the bottom of the PLC Personality page connect to the home page, Ethernet Statistics, Unitelway Statistics, the Data Editor, FDR Statistics, or the Graphic Editor.

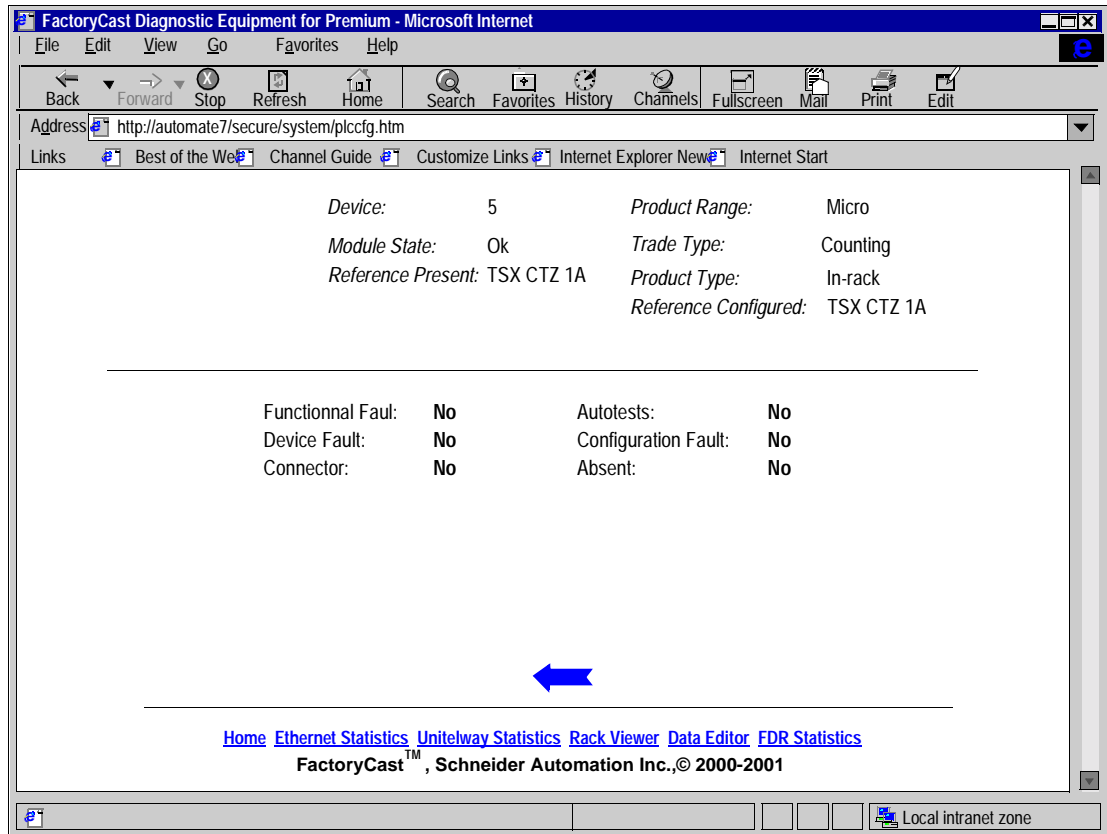
Standard Module Diagnostics Page

Overview

If you click any other type of module in the Rack Viewer page, you reach a standard Module Diagnostic page with detailed information about that module.

Sample Page

Here is an example of a Standard Module Diagnostics page.



Links

The back arrow will take you to the Rack Viewer page for this controller. Links at the bottom of the PLC Personality page connect to the home page, Ethernet Statistics, Unitelway Statistics, the Data Editor, FDR Statistics, or the Graphic Editor.

FactoryCast Configurator

6

FactoryCast Configurator

Overview

The FactoryCast Configurator gives you the ability to manage your Web site. This section describes how to

- Set up a Web site
- Create a Web-enabled database with symbols (variables) and direct addresses
- Download data to the Embedded Server
- Maintain the site

If you only want users to view the default Web pages and to view direct addresses in the Data Editor—if you are not planning to customize the site in any way or to view symbols (variables) or to modify data online—you only need to complete the setup procedures.

What's in this Chapter?

This Chapter contains the following Sections:

Section	Topic	Page
6.1	Creating a New Configuration	112
6.2	Creating a Namespace	122
6.3	Transferring Files to the Web Server	136
6.4	FactoryCast Embedded Server Maintenance	143

6.1 Creating a New Configuration

Overview of Creating a New Configuration

Overview Follow the procedures in this section to create a new FactoryCast configuration.

What's in this Section? This Section contains the following Maps:

Topic	Page
Creating a New Configuration	113
Setting Passwords	115
Setting the IP Address	118
Setting File Locations	119
Setting Default Symbol (Variable) Access	120
Saving the Settings	121

Creating a New Configuration

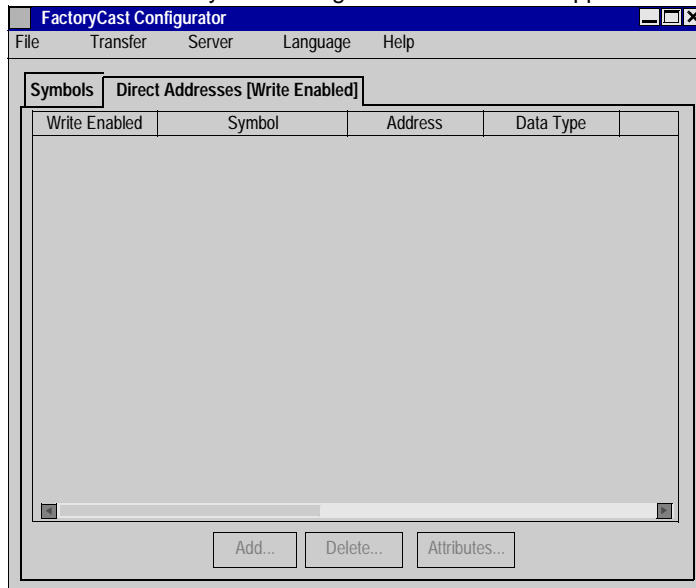
Overview

This section describes how to start the FactoryCast Configurator.

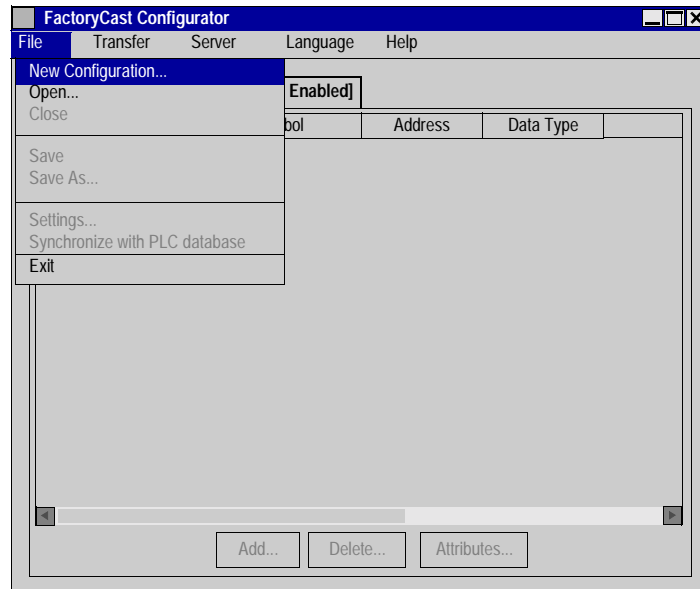
Creating a New Configuration

Select the FactoryCast Configurator application from **Programs** in the **Start** menu.

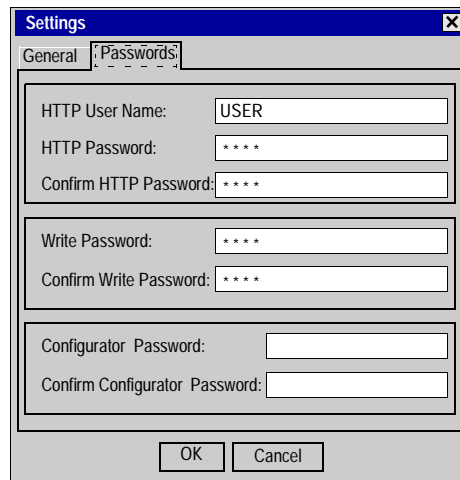
Result: The FactoryCast Configurator main window appears.



From the FactoryCast Configurator menu bar, select **File | New Configuration**.



Result: The Settings dialog box appears and opens to the default tab, which is **Passwords**.



Setting Passwords

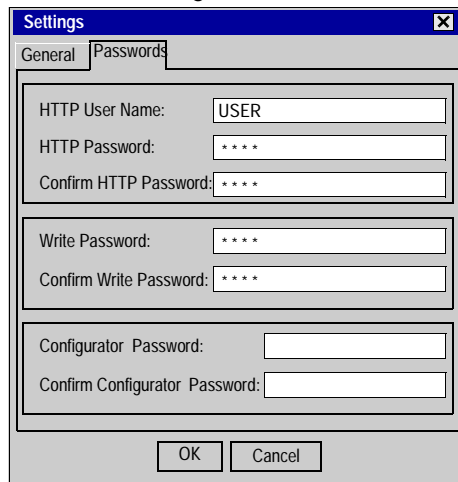
Overview

The first step in setting up your Web site is to specify the passwords for viewing and modifying data.

When you create a new configuration, the Settings window appears automatically with the **Passwords** dialog. Use this dialog to set the passwords.

Passwords Dialog

The following illustration shows the **Settings** dialog box and the fields in the **Passwords** dialog.



The screenshot shows a dialog box titled "Settings" with a close button (X) in the top right corner. It has two tabs: "General" and "Passwords", with "Passwords" being the active tab. The dialog contains three groups of password fields, each with a label and two input boxes. The first group is for HTTP access, with "HTTP User Name" set to "USER" and "HTTP Password" and "Confirm HTTP Password" both masked with four asterisks. The second group is for Write access, with "Write Password" and "Confirm Write Password" both masked with four asterisks. The third group is for the Configurator, with "Configurator Password" and "Confirm Configurator Password" both empty. At the bottom of the dialog are "OK" and "Cancel" buttons.

Default Settings

Until you apply your own password settings.

- The default **HTTP User Name** is USER
 - The default **HTTP Password** is USER
 - The default **Write Password** is USER
 - There is **no** default **Configurator Password**
-

Read Access

Complete the first three fields of the dialog box to set the user name and password for viewing the Web site. Anyone who wants to view the Web site will be prompted for this user name and password.

- **HTTP User Name** is limited to fifteen characters.
- **HTTP Password** is also limited to fifteen characters.
- Confirm the HTTP password by entering it again in the **Confirm HTTP Password** field.

Note: To read Web pages you do not need the Configurator password.

Write Access

Complete the **Write Password** and **Confirm Write Password** in the fourth and fifth fields of the dialog box to set a password for modifying the Web site. Anyone who wants to modify the Web site with the Data Editor or Graphic Editor must supply this password to gain write access.

- **Write Password** is limited to fifteen characters.
 - Confirm the write password by entering it again in the **Confirm Write Password** field.
-

Configurator Access

The Configurator Password, when provided, prompts you to enter the Configurator Password before downloading any of the following features into the Embedded Server.

- Web files
 - Namespace
 - Security
 - Restore
 - Restore Defaults
 - Set XWay Address
 - Plug-ins
-

We Recommend

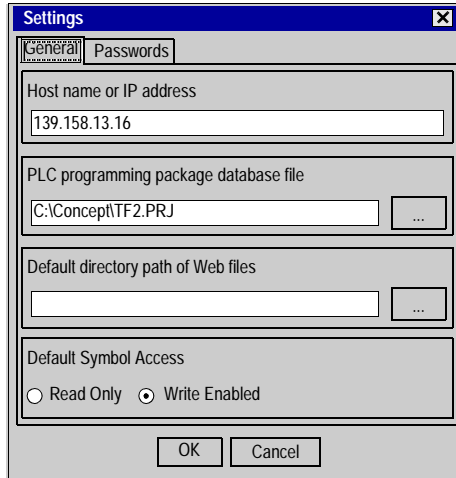
After initially entering the Configurator Password, FactoryCast will remember that password for the duration of the session. It is recommended to close the FactoryCast Configurator after each session to prevent unauthorized people from using your password to gain write access to your Embedded Server.

Accessing the General Dialog

Accessing the General tab allows you to enter any of the following:

- **Host name or IP address**
- **PLC programming package database file**
- **Default directory path of Web files**
- **Default Symbol Access**

Select the **General** tab on the **Settings** window to access the General settings dialog.

The image shows a screenshot of the 'Settings' dialog box with the 'General' tab selected. The dialog has a title bar with 'Settings' and a close button. Below the title bar are two tabs: 'General' (selected) and 'Passwords'. The 'General' tab contains four sections: 1. 'Host name or IP address' with a text field containing '139.158.13.16'. 2. 'PLC programming package database file' with a text field containing 'C:\Concept\TF2.PRJ' and a browse button (...). 3. 'Default directory path of Web files' with an empty text field and a browse button (...). 4. 'Default Symbol Access' with two radio buttons: 'Read Only' (unselected) and 'Write Enabled' (selected). At the bottom of the dialog are 'OK' and 'Cancel' buttons.

The following sections of this manual describe setting these fields.

Setting the IP Address

Overview

In the **Settings** dialog box, you will want to specify either the **Host Name** or **IP Address** of the Embedded Server.

Setting the IP Address

Enter the **Host Name** or **IP Address** of the Embedded Server.

Note: The IP address of the Quantum or Premium or Micro Embedded Server and any host name should be assigned by your system administrator. For performance reasons, if you do not have a DNS, you should add the Host Name and IP address to your Hosts file on your Windows PC.

Setting File Locations

Overview

If you want to customize your Web site, use the **Settings | General** dialog to tell the FactoryCast Configurator where to find the following files or directories. Use the following guidelines.

Give the location of	In order to add
Programming software database file	Symbols (variables) from a Concept or PL7 database to the Namespace

Use the following guidelines.

Give the location of	In order to add
Directory containing custom Web files	Custom Web files

Specifying File Locations

Enter the directory path in the text entry field, or use the ellipsis buttons to the right of the text boxes to browse for the desired files and directories.

Setting Default Symbol (Variable) Access

Overview

If you want to view and modify symbols (variables) in your Web site, use the **Settings | General** dialog box to set the Default Symbol Access. This setting determines the initial access rights for all the symbols you will add to the Namespace.

Options

Select one of the following radio buttons.

- **Write Enabled** sets write permission for all symbols (variables) as you add them to the configuration. A user who supplies the write password would be able to modify these symbols.
- **Read Only** sets read-only access for all symbols (variables) as you add them to the configuration. Even if a user supplies the write password, he would not be allowed to modify these symbols.

These settings can be modified later for individual symbols.

Saving the Settings

Overview

If you are satisfied with your settings, click **OK** to save them and to exit the **Settings** dialog box.

Planning Ahead

- If you are using the Premium ETY Embedded Server or the Micro ETZ Embedded Server, you must set the XWay Address (see Setting the XWay Address, p. 147).
- If you are using the Quantum NOE Embedded Server and you **are** adding a database of symbols (variables) and write-enabled direct addresses to your Web site, you may proceed to Creating a Namespace, p. 122.
- If you are using the Quantum NOE Embedded Server and you are **not** adding a database of symbols (variables) or write-enabled direct addresses to your Web site, you may proceed to Adding Custom Pages to the Site, p. 205

Note: At this point, save your configuration file to disk (using the File → Save As....)
--

6.2 Creating a Namespace

Creating a Namespace

Overview

A namespace is a Web-enabled database containing symbols (variables) and/or write-enabled direct addresses.
This section describes how to use symbols (variables) from a software database and direct addresses to create a namespace for your Web site.

What's in this Section?

This Section contains the following Maps:

Topic	Page
Importing Symbols (Variables)	123
Setting Symbol (Variable) Access	126
Adding Direct Addresses	127
Direct Address Blocks and Symbol (Variable) Security	131
Editing and Deleting Direct Addresses	133
Synchronizing Your Namespace with Its Database	134

Importing Symbols (Variables)

Overview

If you want to view symbols (variables) in the Data Editor, Graphic Editor, or Alarm Viewer, you must include them in the namespace. The Data Editor will not allow you to view symbols (variables) which are not found in the namespace

This section describes how to:

- Import symbols into a namespace
 - Delete symbols from a namespace
-

Accessing Your Software Database

To access a Concept database, you must have the Concept software installed on your computer. Concept database files have a .prj file extension.

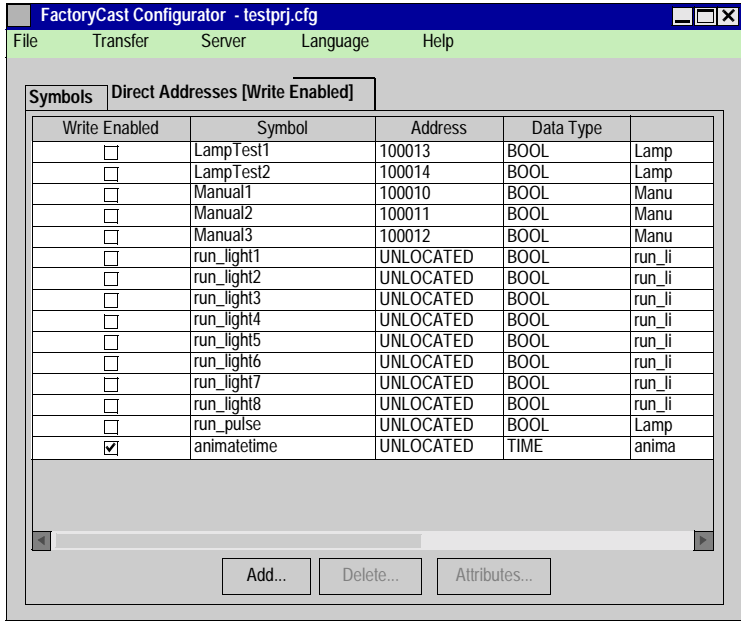
A PL7 database is accessible from any mapped drive. PL7 database files have a .fef file extension.

Accessing Your Project Database

In order to access your symbols (variables) and/or direct addresses from your project database, you must specify the project location in the **File | Settings** settings dialog box. Select the **General** tab and enter the project database routing path in the "PLC Programming Package Database File" entry field.

Adding Symbols (Variables) Follow the steps in the table below to import symbols (variables) from a Concept or PL7 database into your namespace.

Step	Action																																								
1	<div>Click the Add button at the bottom of the Symbols window.</div> <div></div> <p>Note: The location of the software database file must have been entered in the File Settings window in order for the Add button to be enabled.</p> <p>Result:The Lookup Variables window appears. It displays symbols (variables) associated with the database.</p> <div><table><tr><th>Symbol</th><th>Address</th><th>Data Type</th><th>Comments</th></tr><tr><td>reg40009</td><td>40009</td><td>INT</td><td></td></tr><tr><td>reg40008</td><td>40008</td><td>INT</td><td></td></tr><tr><td>reg40007</td><td>40007</td><td>INT</td><td></td></tr><tr><td>reg40006</td><td>40006</td><td>INT</td><td></td></tr><tr><td>COUNT_9</td><td>40038</td><td>INT</td><td></td></tr><tr><td>COUNT_8</td><td>40037</td><td>INT</td><td></td></tr><tr><td>reg40005</td><td>40005</td><td>INT</td><td></td></tr><tr><td>COUNT_7</td><td>40036</td><td>INT</td><td></td></tr><tr><td>reg40004</td><td>40004</td><td>INT</td><td></td></tr></table></div>	Symbol	Address	Data Type	Comments	reg40009	40009	INT		reg40008	40008	INT		reg40007	40007	INT		reg40006	40006	INT		COUNT_9	40038	INT		COUNT_8	40037	INT		reg40005	40005	INT		COUNT_7	40036	INT		reg40004	40004	INT	
Symbol	Address	Data Type	Comments																																						
reg40009	40009	INT																																							
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reg40006	40006	INT																																							
COUNT_9	40038	INT																																							
COUNT_8	40037	INT																																							
reg40005	40005	INT																																							
COUNT_7	40036	INT																																							
reg40004	40004	INT																																							

Step	Action
2	<p>Click on the symbols in the Symbol column to highlight them individually or in blocks. Press the CTRL key to highlight symbols (variables) which are not adjacent to one another.</p> <p>Note: The Lookup Variables window also allows the user to filter variable by:</p> <ul style="list-style-type: none"> • Data Type - Elementary or Structured • Variable Type - Unlocated or Located • Variable Name <p>Use the Rescan button to apply a filter and rescan the database.</p>
3	<p>Click Apply to add the selected symbols (variables) to the namespace without exiting the Lookup Variables window. Otherwise, click OK to exit the Lookup Variables window.</p> <p>Result: The symbols (variables) you selected appear in the Symbols window.</p> 
4	<p>To add more symbols (variables), click the Add button at the bottom of the Symbols window and repeat steps 2 and 3.</p>

Deleting Symbols (Variables)

To delete a symbol (variable) from a namespace, select the symbol (variable) and click the **Delete** button at the bottom of the **Symbols** window

Setting Symbol (Variable) Access

Overview


FactoryCast Configurator sets default security for each symbol (variable) as you add it to the namespace, based on your selection for the Default Symbol Access in the **Settings** dialog.

This section discusses security considerations and describes two ways for you to modify the security setting for a symbol.

Two Levels of Access

Each symbol (variable) may be write-enabled or read-only.

- **Write Enabled** means users can modify the symbol value after supplying the write password.
- **Read Only** means users cannot modify symbol (variable) values, even after supplying the write password.

	CAUTION
	<p>CHANGES TO SYMBOLS (VARIABLES) MAY RESULT IN CHANGES TO YOUR APPLICATION.</p> <p>Be careful about which symbols (variables) you allow to be modified online, and be cautious about who has permission to modify them. Unauthorized or incorrect changes to symbols (variables) may change the behavior of your application in ways that may be undesirable or even dangerous.</p> <p>Failure to observe this precaution can result in injury or equipment damage.</p>

Using the Attributes Button to Set Access

Follow the steps in the table below to use the Attributes button to set symbol (variable) access.


Step	Action
1	Highlight one or more symbols (variables) in the Symbol window.
2	Click the Attributes button at the bottom of the window.
3	Click either the Write Enabled or Read Only button to set the access option.
4	Click OK .

Adding Direct Addresses

Overview

If you only want users to view direct addresses, you do not need to include them in the namespace. The Data Editor and Graphic Editor can view any direct address. If you want users to be able to modify a direct address, you must include it in the namespace. Any direct address included in the namespace is automatically write-enabled.

This section describes how to include direct addresses in a namespace.

	CAUTION
	<p>CHANGES TO DIRECT ADDRESSES MAY RESULT IN CHANGES TO YOUR APPLICATION.</p> <p>Be careful about which direct addresses you allow to be modified online, and be cautious about who has permission to modify them. Unauthorized or incorrect changes to direct addresses may change the behavior of your application in ways that may be undesirable or even dangerous.</p> <p>Failure to observe this precaution can result in injury or equipment damage.</p>

Micro Register Values

The Micro register values are shown below.

Address Range	Type	R(ead)/W(rite) Access
%S0 - %S127	Boolean	R/W
%SW0 - %SW127	Word 16	R/W
%SD0 - %SD126	Word 32	R/W
%M0 - %M255	Boolean	R/W
%MW0 - %MW17920	Word 16	R/W
%MD0 - %MD17919	Word 32	R/W
%MF0 - %MF17919	Real 32	R/W

**Premium
Register Values**

The Premium register values are shown below.

Address Range	Type	R(ead)/W(rite) Access
%S0 - %S127	Boolean	R/W
%SW0 - %SW255	Word 16	R/W
%SD0 - %SD254	Word 32	R/W
%M0 - %M12151	Boolean	R/W
%MW0 - %MW31367	Word 16	R/W
%MD0 - %MD31366	Word 32	R/W
%MF0 - %MF31366	Real 32	R/W

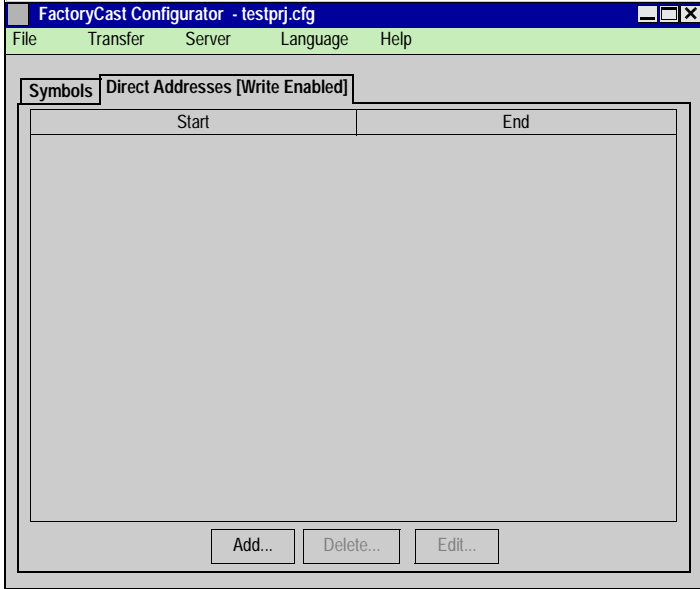
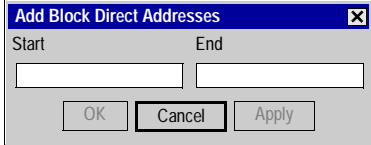
**Quantum
Register Values**

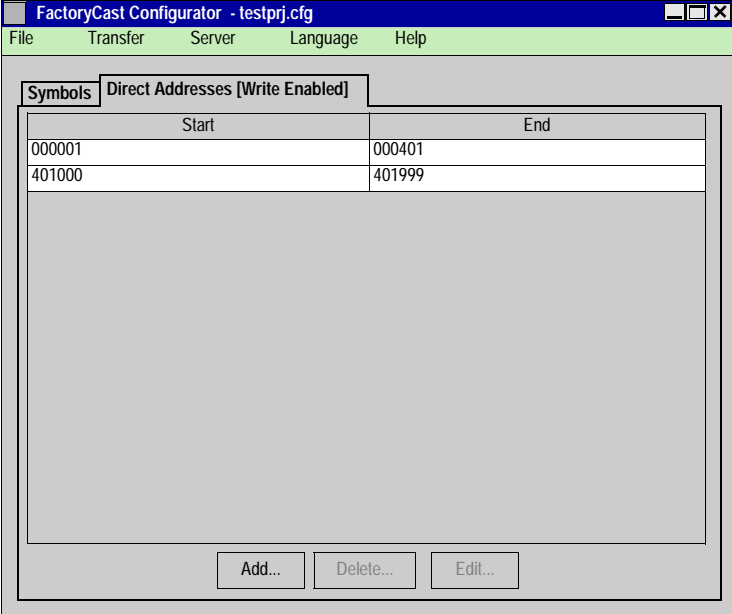
The Quantum register values are shown below.

Start Value	End Value
000001	065536
400001	465536
600000	699999

Adding Direct Addresses

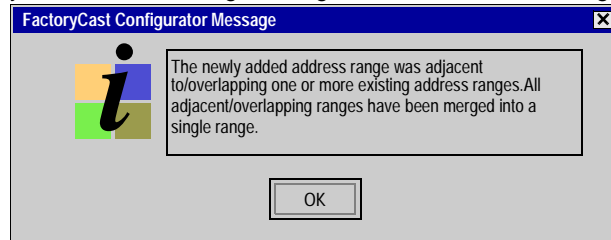
Follow the steps in the table below to import direct addresses into a namespace.

Step	Action
1	<p>Select the Direct Addresses [Write Enabled] tab in the FactoryCast Configurator window.</p> <p>Result: The Direct Addresses [Write Enabled] screen appears.</p> 
2	<p>Click the Add button at the bottom of the window.</p> <p>Result: The Add Block Direct Addresses dialog appears.</p> 
3	<p>Enter a valid range of addresses for your Quantum or Premium or Micro controller.</p> <p>Note: If you are only using direct addresses in your namespace, you may specify any valid range for the controller. If you are including symbols (variables) in the namespace, you may only specify direct addresses which are actually configured.</p>

Step	Action
4	<p>Click Apply to save the specified registers to the namespace without exiting the dialog.</p> <p>Otherwise, Click OK to save the registers and return to the Direct Addresses [Write Enabled] window.</p> <p>Result: The direct address register ranges are displayed in the window</p> 
5	To add more direct addresses, repeat steps 2 through 4

Overlapping Register Ranges

If the register range that you have specified overlaps with a range already in the namespace, FactoryCast Configurator merges them into a single range and notifies you with the following message. Click **OK** to acknowledge the message.



Direct Address Blocks and Symbol (Variable) Security

Overview

When you import a block of direct addresses into a namespace which already contains symbols (variables), you may inadvertently include addresses associated with symbols (variables). This can create a conflict between the security setting for the symbol (variable) itself and for its address.

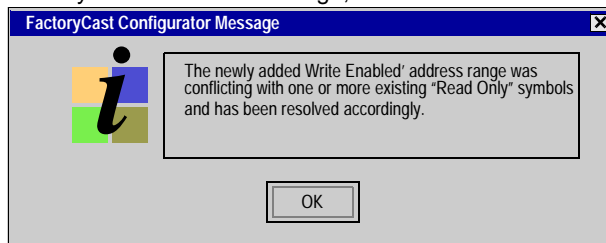
Likewise, when you import symbols (variables) into a namespace which already contains a block of direct addresses, you may include symbols (variables) whose address is included in the direct address range. This also can create a security conflict.

This section describes how the FactoryCast Configurator notifies you and resolves the conflict.

Conflict#1

If your block of direct addresses includes a symbol (variable) which has already been included in the namespace as read-only, FactoryCast Configurator sends you a message and removes the address from the block. The symbol (variable) remains read-only.

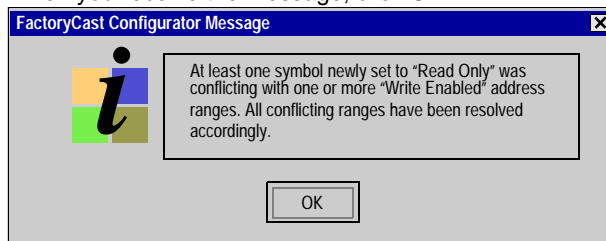
When you receive the message, click **OK**.



Conflict#2

If a symbol (variable) is imported into the namespace as read-only OR if you change its security setting from write-enabled to read-only, and that symbol (variable) is included in a block of direct addresses, FactoryCast Configurator sends you a message and removes the address from the block.

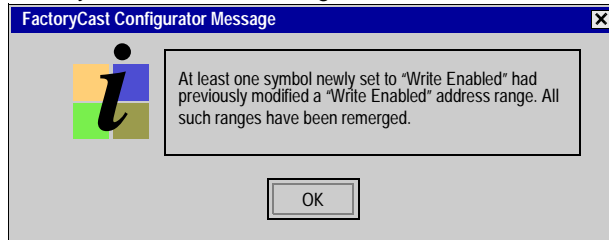
When you receive the message, click **OK**.



Reversing a Conflict

If you change the security setting on a symbol (variable) from read-only to write-enabled and that symbol (variable) had been removed from a block of direct addresses, FactoryCast Configurator sends you a message and will restore it to the block.

When you receive the message, click **OK**.



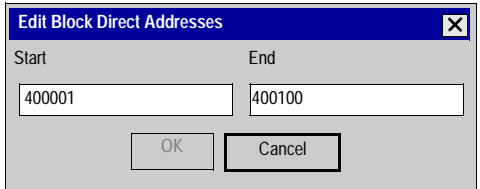
Editing and Deleting Direct Addresses

Overview

This section describes how to edit or delete direct addresses in the namespace.

Editing Direct Addresses

Follow the steps in the table below to edit a block of direct addresses.

Step	Action
1	Select a block of addresses in the Write Enabled Direct Addresses window.
2	Click the Edit button at the bottom of the window Result: The Edit Block Direct Addresses dialog appears 
3	Modify the register range by typing a new value in the Start or End field.
4	Click OK .

Deleting Direct Addresses

To delete a direct address from the namespace, select it in the **Direct Address [Write Enabled]** window and click the **Delete** button at the bottom of the window.

Synchronizing Your Namespace with Its Database

Overview

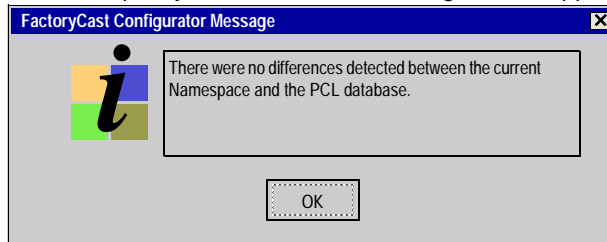
Over time, you may make changes to the Concept or PL7 database from which you created your namespace. The FactoryCast Configurator will automatically notify you of differences between the database and your namespace when you open a configuration that has a PLC database file set for it. This section describes how the Configuration tool notifies you and prompts you to synchronize your namespace with the database.

Verifying Discrepancies

Select **File | Synchronize with PLC database** to verify whether differences exist between the current namespace and the corresponding database. The **Synchronization Status** window appears to notify you if differences are detected between the configuration and the database.

No Differences Detected

If no discrepancy is detected, the following window appears.

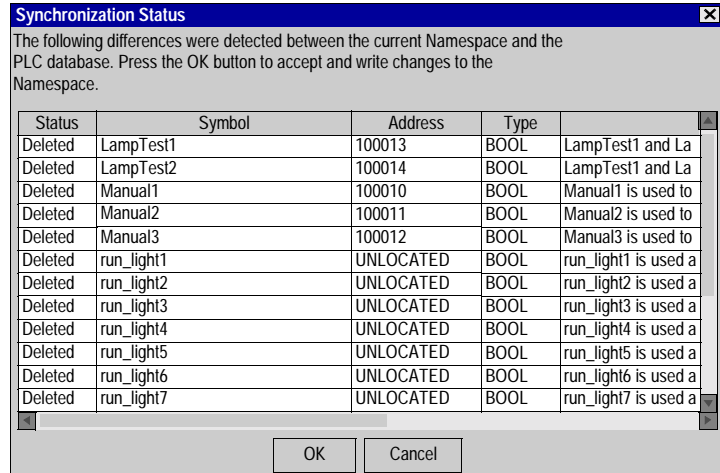


Differences Detected

If a discrepancy between the namespace and the database is detected, a notification appears in the **Synchronization Status** dialog. Discrepancies include

- A symbol in the namespace has been deleted from the database.
- A symbol in the namespace has had its address or data type changed in the database.
- A symbol in the namespace has had its name changed in the database

The following dialog box displays.



Click the **OK** button to accept the results of synchronization. Synchronizing will alter item(s) that differ from the database

Note: After synchronizing the namespace with its database, you will want to save the namespace to the configuration file and download the namespace to the Embedded Server.

If You Don't Synchronize

Until the files are synchronized, you will not be able to add symbols (variables) to the namespace.

6.3 Transferring Files to the Web Server

Transferring Files to the Web Server

Overview

This section describes transferring files to the Embedded Server, files such as Custom Web File, loading the Namespace File, and loading the Security File, along with describing processes such as backing up and restoring the Embedded Server's Web directory.

What's in this Section?

This Section contains the following Maps:

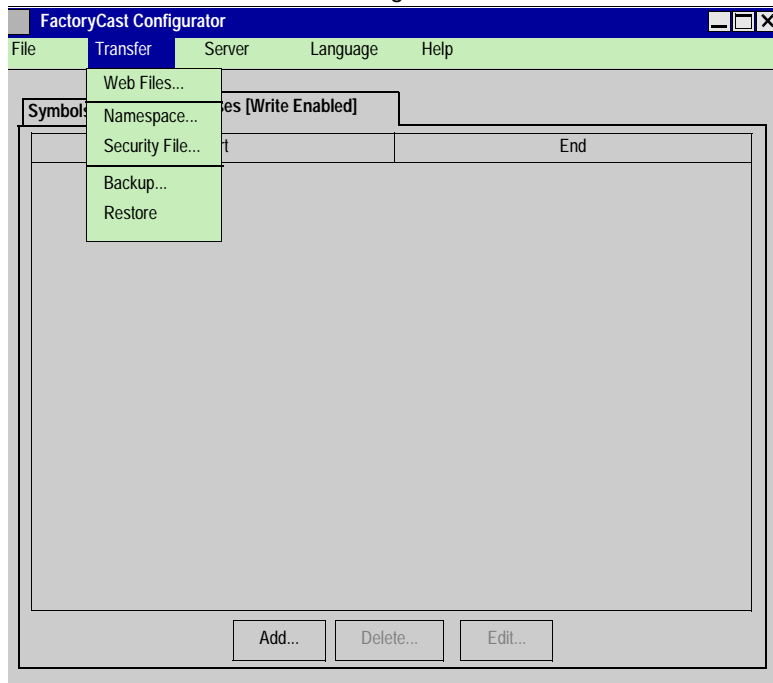
Topic	Page
Custom Web File	137
Loading the Namespace File	139
Loading the Security File	140
Backing Up the Web Server	141
Restoring the Web Server from a Backup	142

Custom Web File

Overview

The **Transfer** menu items enable you to perform functions that control your programs, for example, transferring files to and from the server, and **Backup** and **Restore** of the Web site on the server.

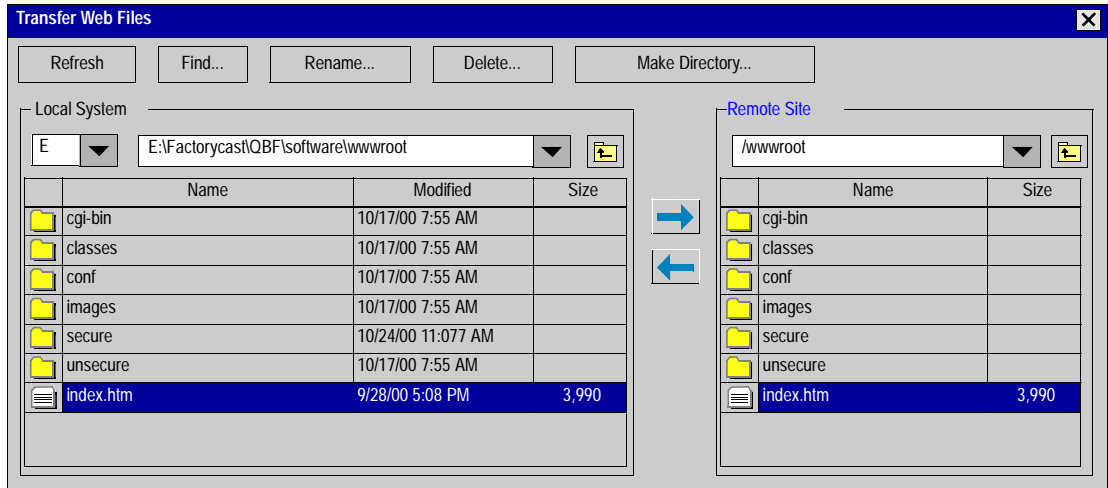
The **Transfer** menu has the following commands.



Transfer Web Files Dialog Box

The **Transfer Web Files** dialog box is new to Factory Cast with v2.2. **Transfer Web Files** is an FTP utility that allows you to delete, modify, or transfer files to the Embedded Server.

This dialog is presented when you select the menu item **Transfer | Web Files**.



Main Features of Transfer Web Files

The main features of this dialog box are:

- Two windows are provided for listing the contents of a directory—one on the left for the local PC's file system, and one on the right for the remote file system of the server.
- The local directory is set initially to the **Default Directory of Web Files** specified in the **Settings** dialog. If no configuration is open, or the specified directory does not exist, then the local directory is set to the FactoryCast Configurator's current working directory.
- The remote directory is set initially to the **wwwroot** directory.
- In addition to the ← and → buttons, standard drag-and-drop is supported for transferring files between the local and remote file systems.
- Multiple files and directories can be selected for deletion or transfer via a single user operation.
- When a directory is transferred, all of its contents (including subdirectories and their contents, recursively) are transferred.
- When a directory is deleted, all of its contents (including subdirectories and their contents, recursively) are deleted.
- A directory can be created on the local or remote file system via the **Make Directory...** button.
- A file can be found on the remote file system via a **Find** dialog, which is presented when the **Find...** button is clicked. The dialog lists the full path names of all files that match a specified search criteria. Standard wildcard searches using the asterisk (*) and question (?) characters are supported.

Loading the Namespace File

Overview

After modifying the namespace, you will want to save the namespace as part of the configuration file and then download the namespace to the Embedded Server.

Loading the Namespace File

Follow the steps in the table below to save the namespace file in your configuration file, and then download the namespace file to the Embedded Server.

Step	Action
1	Select File Save from the menu bar. Result: The namespace is saved in the configuration file.
2	Select Transfer Namespace to download the namespace to the Embedded Server. Result: A Download Confirmation dialog appears with the IP address and any host name of the Embedded Server. Note: If the host name or IP address is incorrect, make the appropriate changes in the Settings window. (Refer to Setting the IP Address, p. 118)
3	Click OK to confirm the IP address and begin the download.

Loading the Security File

Overview

After modifying the security file, you will want to save the security file as part of the configuration file and then download the security file to the Embedded Server.

Loading the Namespace File

Follow the steps in the table below to save the security file in your configuration file, and then download the security file to the Embedded Server.

Step	Action
1	Select File Save from the menu bar. Result: The security is saved in the configuration file.
2	Select Transfer Security to download the security file to the Embedded Server. Result: A Download Confirmation dialog appears with the IP address and any host name of the Embedded Server. Note: If the host name or IP address is incorrect, make the appropriate changes in the Settings window. (Refer to Setting the IP Address, p. 118)
3	Click OK to confirm the IP address and begin the download.

Backing Up the Web Server

Overview

The **Transfer | Backup** option is used to archive the entire file contents of the Embedded Server. A zip file is created in the directory specified as a result of the backup operation.

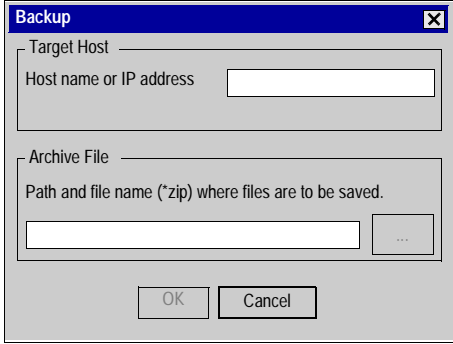
The contents of the backup can be used to restore the Embedded Server to the configuration at the time of the backup.

Do Not Modify Backup Files

You should not make any modifications to the directory structures of files in the zip file.

Create a Backup

Step Action Element

Step	Action
1	<p>Select Transfer Backup.</p> <p>Result: The Backup dialog box appears.</p> 
2	Enter the Host Name or IP Address of the Embedded Server.
3	Enter the Path and File Name where you would like to store the backup file. Use the Ellipsis button to the right of the text box to browse for a location.
4	Click OK to begin the backup.

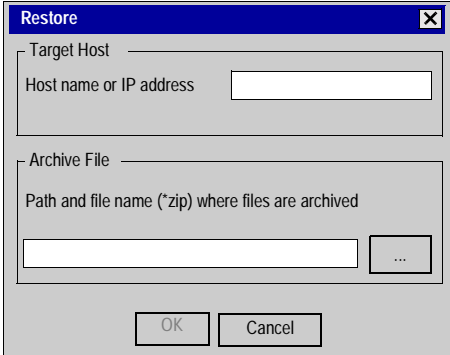
Restoring the Web Server from a Backup

Overview

The **Transfer | Restore** option is used to restore the contents of a backup file to the FactoryCast Configurator.

Restoring the Web Server

Follow the steps below to restore your Web server from a backup.

Step	Action
1	Select Transfer Restore . Result: The Restore dialog box appears. 
2	Enter the Host Name or IP Address of the Embedded Server.
3	Enter the Path and File Name of the backup file. Use the Ellipsis button to the right of the text box to browse for the file.
4	Click OK .

6.4 FactoryCast Embedded Server Maintenance

Embedded Server Maintenance

Overview This section describes how to maintain your Embedded Server.

What's in this Section? This Section contains the following Maps:

Topic	Page
Checking Embedded Server Status	144
Restoring Module Defaults	146
Setting the XWay Address	147
Loading the FactoryCast Applet Plug-ins	148

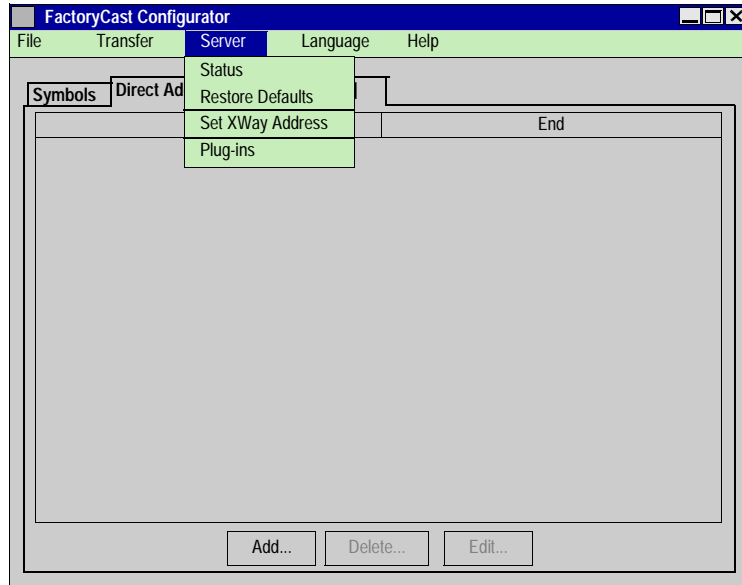
Checking Embedded Server Status

Overview

The **Server** menu enables you to check the Embedded Server status by selecting one of four menu items: **Status**, **Restore (module) Defaults**, **Set XWay Address**, and **Plug-ins**. The Plug-ins menu item allows you to choose which options will be downloaded to the Embedded Server.

Embedded Server

The **Server** menu has the following commands.



You can check the following with the FactoryCast Configurator.

- Bytes of free memory in the Embedded Server
- The file name of the last configuration (namespace) downloaded to the Embedded Server

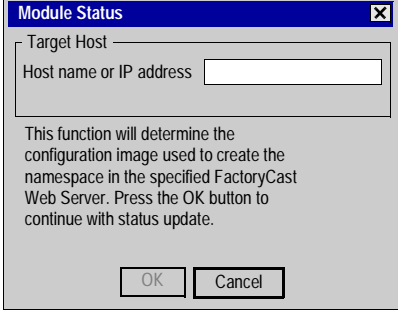
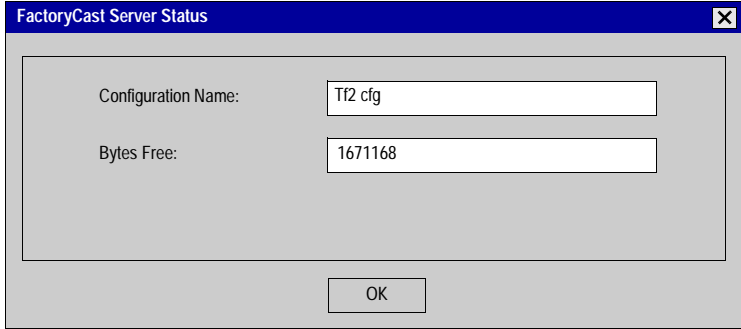
Memory Capacity

Consult the table below to find out how much memory your Embedded Server provides for customizing your Web site.

Embedded Server Model	Memory Available for Customizing the site
Quantum 140 NOE 2x1 10	Customizable based on plug-ins configured <1Mb
Premium TSX ETY 110 WS	Customizable based on plug-ins configured <2Mb
Quantum 140 NOE 771 1•	<8Mb
Premium TSX ETY 510•	<8Mb
Micro TSX ETZ 510	<8Mb

Check Server Status

Follow the steps in the procedure below to check the server status.

Step	Action
1	<p>Select Server Status from the menu bar.</p> <p>Result: The Module Status dialog box appears.</p> 
2	<p>In the Host Name or IP Address box, enter the Host Name or the IP Address of the Embedded Server.</p>
3	<p>Click OK.</p> <p>Result: The FactoryCast Server Status dialog box appears. It displays the current configuration file for the Embedded Server and the number of bytes free in memory.</p> 
4	<p>Click OK to exit the Module Status dialog box.</p>

Restoring Module Defaults

Overview

If the server fails or its files become corrupted through user error, you can use the **Server | Restore Defaults** option to restore the FactoryCast Configurator files. This menu item restores the selected module to the state in which it was shipped from the factory. This may take some time, so be prepared.

Conditions for Restoring

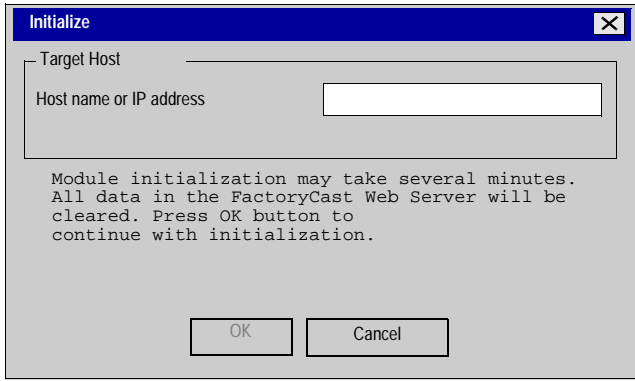
In order to restore the Embedded Server to the factory supplied configuration, you must have unaltered FactoryCast Configurator files on your hard drive. If you have altered the FactoryCast Configurator directory files on your hard drive in any way—for instance, by replacing the default home page with your own home page—you must reinstall FactoryCast Configurator on your hard drive before you reflash the module. Otherwise, the module will be restored with the files on your hard drive which may have caused the initial problem.

Consequences of Restoring

Module initialization deletes all files on the FactoryCast Server except the data templates for the Data Editor and Graphic Editor displays.

Restore Defaults Command

When **Restore Defaults** is selected, the module will be cleared (except rdt and gdt directories) and the default plug-ins will be downloaded again. Follow the steps below.

Step	Action
1	<p>Select Server Restore Defaults.</p> <p>Result: The Initialize dialog box appears.</p> 
2	Enter the Host Name or IP Address of the Embedded Server.
3	<p>Click OK.</p> <p>Note: After a module has been initialized, it may be necessary to download the Plug-ins that are needed for your installation. (For a description of the available plug-ins, see Loading the FactoryCast Applet Plug-ins, p. 148.)</p>

Setting the XWay Address

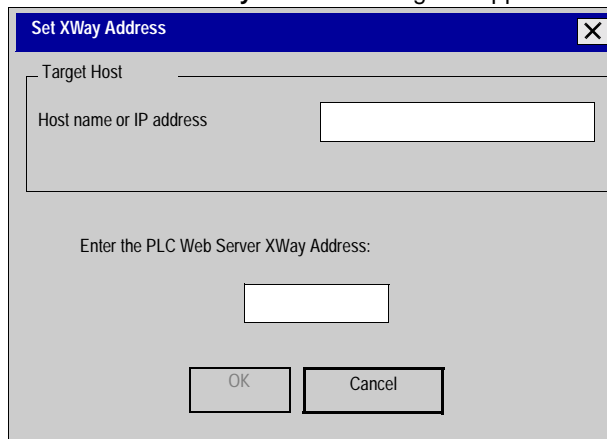
Overview

XWay is a Telemecanique communications protocol. If you are using the Premium ETY Embedded Server or the ETZ Embedded Server, you must set its XWay Address.

Accessing the XWay Address Dialog

Select **Server | Set XWay Address** from the menu bar.

Result: The **Set XWay Address** dialog box appears.

The image shows a screenshot of the 'Set XWay Address' dialog box. The dialog has a blue title bar with the text 'Set XWay Address' and a close button (X). Below the title bar, there is a section labeled 'Target Host' which contains a text input field for 'Host name or IP address'. Below this section, there is a label 'Enter the PLC Web Server XWay Address:' followed by another text input field. At the bottom of the dialog, there are two buttons: 'OK' and 'Cancel'.

Setting the XWay Address

Enter the **Host Name** or **IP Address**, and the **XWay Address** of the Embedded Server.

The XWay address includes the address destination of the Premium ETY or Micro ETZ Embedded Server module and the address source of the PC. FactoryCast Client will scan a free source in this network from a network.63 nested 10 station address (net.63 to net.54). You must be careful to leave at least one address free in this range.

Note: The IP address of the Embedded Server and any host name should be assigned by your system administrator.

Applying the XWay Address

Click **OK** to download the XWay Address to the Premium ETY or the Micro ETZ Embedded Server.

Loading the FactoryCast Applet Plug-ins

Overview

Plug-ins are client components of FactoryCast that allow you to use system tools on the Diagnostics and Online Configurations Web page.

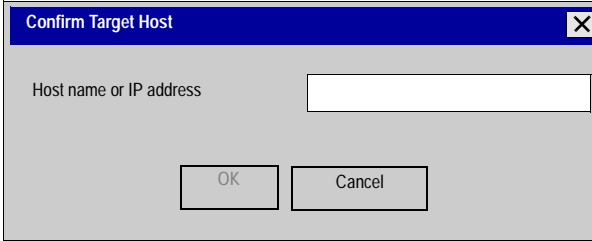
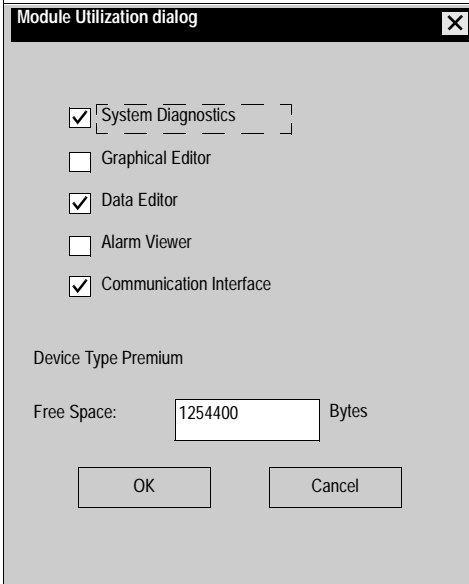
FactoryCast Plug-ins

In the table below is a description of each of the FactoryCast Plug-ins.

Plug-in	Description
System Diagnostics	Gives the Embedded Server access to system health information such as I/O card, Controller, Ethernet, and Remote I/O health. This plug-in is installed when the Embedded Server is shipped.
Graphic Editor	The Graphic Editor allows you to create and view data using Java Beans for visualization. Each graphic object can be linked to a symbol (variable) or direct address in the Embedded Server. See Graphic Editor, p. 166
Data Editor	The Data Editor allows you to view and modify symbols (variables) and direct addresses which have been included in a namespace on the Embedded Server. See Data Editor, p. 152
Alarm Viewer Premium Only	When the Premium PLC application has diagnostic properties activated, the Alarm Viewer allows you to display potential application faults. See Alarm Viewer, p. 249
Communication Interface	Allows the Embedded Server access data from the controller. Must be installed in order for any other Plug-in to be downloaded to the Embedded Server. This Plug-in is installed when the Embedded Server is shipped.

Installing the FactoryCast Plug-ins

Follow these steps to install plug-ins.

Step	Action
1	<p>Select Server Plug-ins from the Server menu. Result: The Confirm Target Host dialog box appears.</p>  <p>The dialog box titled "Confirm Target Host" has a blue header bar with a close button (X). It contains a text field labeled "Host name or IP address" and two buttons at the bottom: "OK" and "Cancel".</p>
2	<p>In the Host Name or IP Address box, enter the Host Name or the IP Address of the Embedded Server.</p>
3	<p>Click OK. Result: The FactoryCast Module Utilization dialog appears. This screen displays installed and uninstalled Plug-ins on the Embedded Server along with free space in the Embedded Server.</p>  <p>The dialog box titled "Module Utilization dialog" has a black header bar with a close button (X). It contains a list of modules with checkboxes: "System Diagnostics" (checked), "Graphical Editor" (unchecked), "Data Editor" (checked), "Alarm Viewer" (unchecked), and "Communication Interface" (checked). Below the list, it says "Device Type Premium". At the bottom, it shows "Free Space: 1254400 Bytes" with a text field for the value. There are "OK" and "Cancel" buttons at the bottom.</p>
4	<p>Select the Plug-ins that you wish to install in the Embedded Server. Note: Alarm Viewer is available for the TSX Premium only.</p>

Step	Action
5	Click OK . An Updating Plug-ins box will appear indicating that the Plug-ins are being installed. When the box disappears, the update is complete.

Editors

7

Editors

Overview

This chapter describes the Data Editor and the Graphic Editor and Java applets that enable you to create either dynamic data tables or dynamic graphic displays. Both editors are dynamically updated with run-time data from the PLC.

What's in this Chapter?

This Chapter contains the following Sections:

Section	Topic	Page
7.1	Data Editor	152
7.2	Graphic Editor	166

7.1 Data Editor

Data Editor

Overview

Every default Web page contains a link to the Data Editor. The Data Editor is a Java applet that enables you to create dynamic data tables that are updated with run-time data from the PLC.

This section describes how to use the Data Editor to view and modify the values of symbols (variables) and direct addresses.

What's in this Section?

This Section contains the following Maps:

Topic	Page
The Data Editor Spreadsheet	153
Creating a Data Template	158
inserting Symbols (Variables) in a Data Template	160
Inserting Direct Addresses in a Template	161
Modifying Data Values	162
Saving a Data Template	163
Using an Existing Data Template	164
Data Editor Applet Parameters	165

The Data Editor Spreadsheet

Overview

The Data Editor displays data in a spreadsheet with the following fields:

- **Variable Name**
- **Address**
- **Data Type**
- **Value**
- **Format**
- **Status**

This section provides a snapshot of the spreadsheet and an explanation of each field.

Spreadsheet

Here is a Data Editor spreadsheet.

FactoryCast Data Editor for Quantum - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites History Mail Print Edit

Address http://139.158.13.16/secure/system/rde.htm Go Links >>

<new> Save... Delete... Lookup... Insert Rows... Cut Rows... Paste Rows Password...

PLC program is TF2:1/5/01 4:15:21 AM.

	Variable Name	Address	Data Type	Value	Format	Status
1	COUNT_1	400030	INT	54	decimal	OK
2	COUNT_2	400031	INT	0	decimal	OK
3	TIME_1	400060	TIME	1m_14s_990ms	time	OK
4	TIME_2	400062	TIME	820ms	time	OK
5	TIME_3	400064	TIME	54s_980ms	time	OK
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						

Home | Configured Local Rack | Controller Status | Ethernet Statistics | RIO Status | Graphic Editor

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Internet zone

**Variable Name
Field**

The **Variable Name** column contains the names of Concept or PL7 symbols (variables).

The only symbols (variables) which may be used in the Data Editor are the ones in the namespace on the Embedded Server. If you try to enter a symbol (variable) which is not in the namespace, a "variable not found" message appears.

Note: The Data Editor can only read values from a namespace which was created from the same program as the one running in the controller. The program used in the controller is displayed at the top of the Data Editor. If the namespace was created using a different program, its name is displayed at the bottom of the Data Editor.

Address Field

The Address column contains direct addresses and the addresses of Concept or PL7 symbols (variables). Any direct address may be viewed by entering its reference in this field. It does not have to be included in the namespace.

**Valid Direct
Addresses for
Quantum**

- Coils (0x)
 - Discrete inputs (1x)
 - Input registers (3x)
 - Output/holding registers (4x)
 - Extended memory registers (6x)
-

**Valid Direct
Addresses for
Micro**

Here are the valid direct addresses for Micro.

Address	Type	R(ead) or W(rite) Access
%KWi	WORD 16	R
%KDi	WORD 32	R
%MDi	WORD 32	R/W
%SDi	WORD 32	R/W
%Is.c	BOOLEAN	R
%Qs.c	BOOLEAN	R/W
%Mi	BOOLEAN	R/W
%Si	BOOLEAN	R/W
%MFi	REAL 32	R/W
%IW.s.c.i	WORD 16	R
%MWi	WORD 16	R/W
%SWi	WORD 16	R/W
%QWs.c.i	WORD 16	R/W
%MWs.c.i	WORD 16	R/W
%MWs.MOD.i	WORD 16	R/W
%KW.s.c.i	WORD 16	R/W
s=slot number, c=channel number, and i=range number		

Valid Direct Addresses for Premium

Here are the valid direct addresses for Premium.

Address	Type	R(ead) or W(rite) Access
%KWi	WORD 16	R
%KDi	WORD 32	R
%MDi	WORD 32	R/W
%SDi	WORD 32	R/W
%Irs.c	BOOLEAN	R
%Qrs.c	BOOLEAN	R/W
%Mi	BOOLEAN	R/W
%Si	BOOLEAN	R/W
%MFi	REAL 32	R/W
%IWrs.c.i	WORD 16	R
%MWi	WORD 16	R/W
%SWi	WORD 16	R/W
%QWrs.c.i	WORD 16	R/W
%MWrs.c.i	WORD 16	R/W
%MWrs.MOD.i	WORD 16	R/W
%KWrs.c.i	WORD 16	R/W
r=rack number, s=slot number, c=channel number, and i=range number		

FIP I/O Addresses

Here are the valid FIP I/O addresses.

Address	Type	R(ead) or W(rite) Access
%Irs.2.d\m.c	BOOLEAN	R
%Qrs.2.d\m.c	BOOLEAN	R/W
%Iwrs.2.d\m.c.i	WORD 16	R
%Qwrs.2.d\m.c.i	WORD 16	R/W
%Mwrs.2.d\m.c.i	WORD 16	R/W
%Kwrs.2.d\m.c.i	WORD 16	R
r=rack number, s=slot number, c=channel number, i=range number, d=device number, and m=module number		

Data Type Field

The Data Type field contains the data type of the symbol (variable) or direct address. Symbol (variable) data types appear automatically when the symbol (variable) is located. Direct address data types must be set by the user from a drop-down list. The following data types are valid.

Abbreviation	Data Type
INT	16-bit signed integer
UINT	16-bit unsigned integer
DINT	32-bit signed integer
UDINT	16-bit unsigned integer
REAL	32-bit IEEE floating point
TIME	32-bit unsigned integer (in ms)
BOOL	1-bit discrete (boolean)

Value Field

The Value column will be filled with the value of the symbol (variable) or direct address. This field is updated continuously.

Format Field

The Format field contains the format type for displaying the value of the symbol (variable) or direct address. The following formats are available.

Abbreviation	Format Type
bool	Boolean
dec	Decimal
hex	Hexadecimal
binary	Binary
ASCII	bytes displayed as ASCII characters
time	day_hr_min_sec_ms

Status Field

The Status column contains messages about the status of communications with the symbol (variable) or direct address. If communications are normal, the status message will be "OK".

If there is a problem communicating with the symbol (variable) or direct address, the **Status** column will contain an error message describing the problem.

Creating a Data Template

Overview

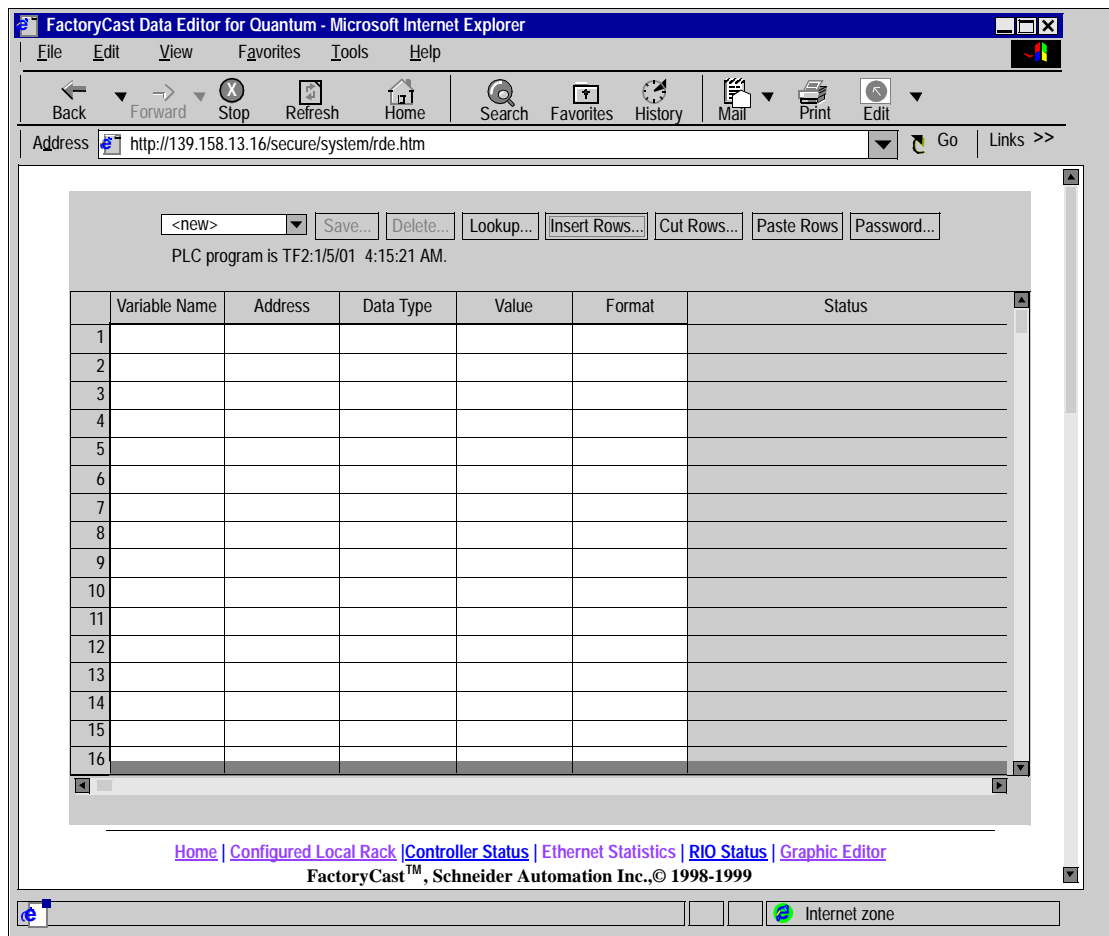
When you want to see the values of symbols (variables) or direct addresses, you enter the symbol (variable) name or direct address on a Data Editor spreadsheet. The spreadsheet containing your data is called a data template.

To Get a Fresh Spreadsheet

A blank spreadsheet appears when you open the Data Editor.

If you have been working with a spreadsheet in the Data Editor and would like a fresh one, select **<new>** from the drop-down menu in the upper left corner of the applet.

Here is the browser window with a fresh spreadsheet.



Note: Save the current spreadsheet before selecting a new spreadsheet.
Selecting a new spreadsheet will delete the current spreadsheet.

inserting Symbols (Variables) in a Data Template

Overview

If you want to view or modify the value of a symbol (variable) in the namespace, you must insert that symbol (variable) in a data template.

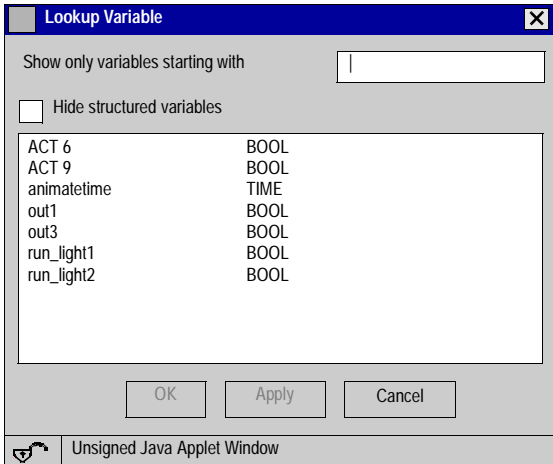
Two Ways to Insert Symbols (Variables)

To insert a symbol (variable) in a data template, you can choose one of two methods.

- Type the symbol's (variable's) name into a **Variable Name** cell in an empty row on the spreadsheet and press the ENTER key.
- Use the **Lookup Variable** dialog.

Using the Lookup Variable Dialog

How to use the Lookup Variable dialog.

Step	Action
1	<p>Click the Lookup button above the spreadsheet. Result: The Lookup Variable dialog box appears.</p> 
2	Select the symbols (variables) you want to insert in the data template.
3	<p>Click OK. Result: The symbols (variables) you selected are displayed in the template.</p>

Inserting Direct Addresses in a Template

Overview

If you want to view or modify the value of a direct address, you must insert that direct address in a data template.

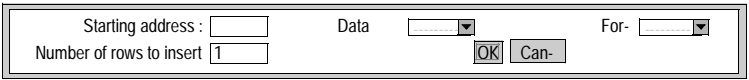
Two Ways to Insert Direct Addresses

To insert a direct address(es) in a data template, you can choose one of two methods.

- Type the address in an **Address** cell in an empty row of the spreadsheet and press the ENTER key.
- Use the **Insert Rows** dialog.

Using the Insert Rows Dialog

Follow the steps in the table below to use the **Insert Rows** dialog.

Step	Action
1	<p>Click the Insert Rows button above the spreadsheet</p> <p>Result: The Insert Rows dialog box appears.</p> 
2	<p>In the Starting address box, type the address, and in the Number of rows to insert box, insert the desired number of rows. In the Data Type box, select the Select data type. This will insert a block of rows beginning with the starting address.</p> <p>Result: The Data type and a default Format will appear automatically.</p>
3	<p>You may adjust the Data type and Format by selecting from the drop-down menus.</p>
4	<p>Click OK.</p> <p>Result: The direct addresses you specified are displayed in the template.</p>

Modifying Data Values

Overview

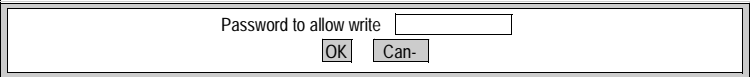
You can use the Data Editor to modify the values of some symbols (variables) and direct addresses and send the new values to the controller.

Restrictions on Modifying Data

You can only modify the values of symbols (variables) or direct addresses which are write-enabled in the namespace.

Modifying Data

The following steps explain how to modify data.

Step	Action
1	Display the symbol (variable) or direct address in a data template.
2	<p>Click the Password button from the Data Editor menu.</p> <p>Result: A Password dialog appears.</p> 
3	Enter the write password.
4	Click OK .
5	Change the value of the symbol (variable) or direct address in the Value field of the template.
6	<p>Press ENTER.</p> <p>Result: The new value is sent to the controller.</p>

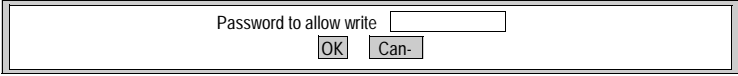
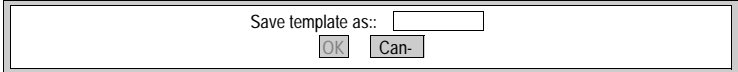
Saving a Data Template

Overview

If you save a data template, you can use it again to view or modify the same symbols (variables) or direct addresses.

Saving a Data Template

Follow the steps in the table below to save a data template.

Step	Action
1	Click the Password button from the Data Editor menu. Result: A Password dialog appears. 
2	Enter the Write Password .
3	Click OK . Result: The Save button is enabled on the Data Editor menu.
4	Click the Save button. Result: The Save template as: box appears.  Type a name for the data template in the text box. A template name must be eight characters or less. Names are case sensitive. They may contain upper or lower-case characters, digits, underscores, dashes, and dollar signs.
5	Click OK .

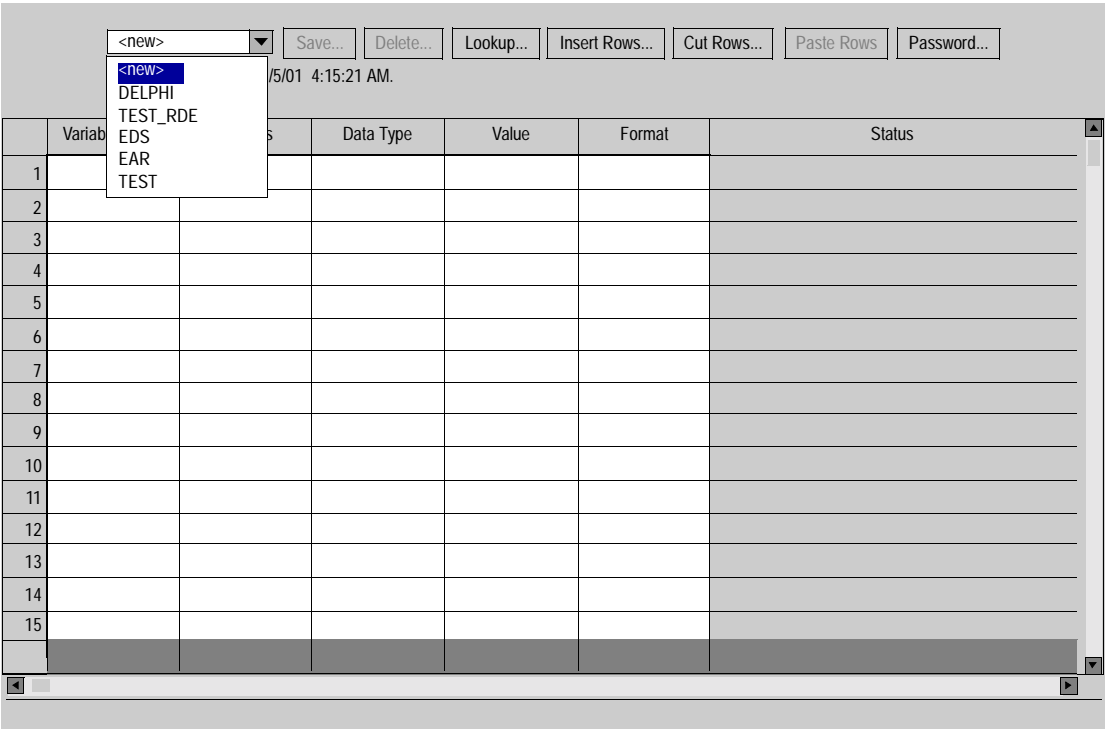
Using an Existing Data Template

Overview

Once you have saved a data template, you can use it to view or modify the values of the same symbols (variables) and direct addresses.

Finding a Data Template

A drop-down menu on the Data Editor lists all the data templates which have been saved.



Retrieving a Data Template

Select the data template you want from the drop-down menu. It will appear on a spreadsheet.

Modifying a Data Template

If you enter the **Write Password**, you can modify and save a new version of a data template.

Data Editor Applet Parameters

Overview

The Data Editor supports two applet parameters to customize its behavior. Applet parameters are specified with <PARAM> tags within the <APPLET> tag in the Data Editor's HTML page. The parameters recognized by the Data Editor applet are

- **TEMPLATE**—This parameter tells the Data Editor to auto-load a specific template file when it starts. If the specified file does not exist, an error message is presented to you. If this parameter is not provided in the <APPLET> tag, then no template file is auto-loaded at startup, and you must select the initial template file from the list provided by the Data Editor.
- **AUTO-LOGIN**—This parameter tells the Data Editor to automatically enter the password that is required to permit writing to the PLC. Setting this parameter to **TRUE** will cause the Data Editor to allow writing to the PLC without the user having to enter the password. The possible values for this parameter are **FALSE** (default) and **TRUE**.

Example

The following is an example of an applet tag for the Data Editor that will cause it to automatically load the file named "UNIT_1". The Web browser user would be allowed to send values to the PLC, if they have entered the write-access password.

```
<APPLET codebase="/classes" archive="SAComm.jar,RDE.jar"
code="com.schneiderautomation.rde.LiveDataApplet"
width="700" height="514">
<PARAM name="TEMPLATE" value="UNIT_1">
<PARAM name="AUTO_LOGIN" value="FALSE">
</APPLET>
```

7.2 Graphic Editor

Graphic Editor

Overview

This section describes the functions and features for the Graphic Editor. The Graphic Editor is a Java applet which enables you to create dynamic graphic displays, via a Web browser, using a set of pre-defined graphic objects. The Graphic Editor serves as both the editor for creating and modifying the displays and the run-time environment for viewing the displays as they are dynamically animated with run-time data from the PLC.

What's in this Section?

This Section contains the following Maps:

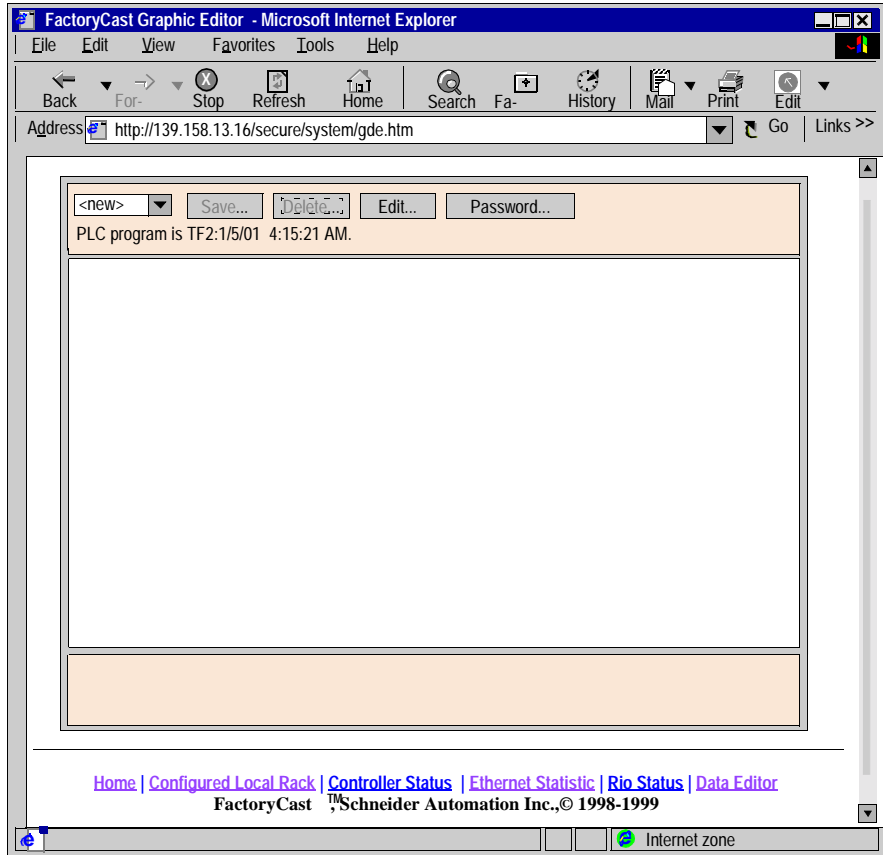
Topic	Page
Graphic Editor Overview	167
Top Window User Functions	170
Display Window User Functions	175
Property Sheet	178
Security	180
Graphic Editor Applet Parameters	181
Graphic Objects	183

Graphic Editor Overview

Top Window	The Graphic Editor applet is divided into three windows. The Top Window provides the area for presenting all the user controls and dialogs for creating, saving, reading and editing a graphic display.
Display Window	The Display Window provides the area for presenting the current graphic display. When you create a new graphic display, this window becomes an "empty canvas", ready for you to add the graphic objects that will make up the desired graphic display.

Message Window

The Message Window provides a scrollable message window for presenting any messages that are generated by the Graphic Editor. The figure below shows the Graphic Editor applet with its initial top window and empty display and message windows.



Note: On the 140 NOE 211 10 and NOE 251 10 Factory Cast Servers you cannot download both the Data Editor and Graphic Editor because of memory restrictions. If you want both, you must remove an equivalent amount of plug-ins.

Graphic Objects	All the graphic objects that are provided with the Graphic Editor are capable of communicating with the PLC from which the Graphic Editor applet was downloaded. There is no additional "wiring" of the graphic objects with "communication objects". All the graphic objects are designed as stand-alone, meaning that there are no connections required between the objects, and each is capable of operating independently.
Viewing a Graphic Display	After the Graphic Editor applet has been uploaded to a Web browser, you will typically be interested in either viewing a graphic display (for monitoring/controlling the PLC application) or creating/modifying a graphic display. For a user who just wants to view and interact with existing graphic displays (e.g., an operator), they can select the desired graphic displays from the list that is available as soon as the applet is presented. They will need to enter a password only if they want to write data to the PLC.
Create and Modify Graphic Displays	If you want to create and modify graphic displays, click the Edit... button and you are presented with the customary editing capabilities for a graphic editor. That is, select objects from a palette, drop them onto a canvas, move and size them with a mouse, and set their properties. You can immediately test the modified graphic display with run-time data from the PLC by exiting editor mode (click the Done button). When satisfied with your creation, the graphic display can be saved to the PLC for re-use by clicking the Save... button, if you have entered the correct password.
User Functions	Most of the Graphic Editor's user functions are available from the top window, which is discussed in Top Window User Functions Top Window User Functions, p. 170. From the display window, you can directly manipulate a graphic object's size and location. All properties of a graphic object (e.g., scaling values, labels, colors, PLC addresses of the run-time data) are set by means of the Property Sheet, which is described in Property Sheet. See Property Sheet, p. 178.

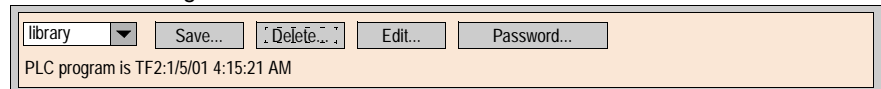
Top Window User Functions

Overview

The Graphic Editor applet's top window consists of several "dialog panels," only one of which is shown at time. Switching from one dialog to another is done by clicking buttons on the current dialog. This section describes the dialog panels that comprise the top window.

Top Dialog

The **Top Dialog** is the dialog panel that is initially shown in the top window when the Graphic Editor applet is started. Access to all other dialog panels of the top window is from this dialog.

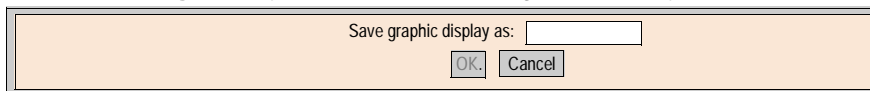


The controls of the **Top Dialog** provide the following functions.

- **Drop-down List.** The drop-down list box shows all the graphic display files that have been saved to the Web server module, and are available for retrieving. When you select a graphic display from this list, the graphic display currently visible in the window is replaced with the one selected. If the current graphic display has been modified since it was last saved, you will be asked for confirmation that the changes are to be discarded. If the special entry <new> is chosen from the list, then the display window is cleared, and a new graphic display can be created.
 - **Save.** The **Save** button causes the **Save Dialog** to become visible. This button is disabled until you have entered a correct write-enable password.
 - **Delete.** The **Delete...** button causes the **Delete Dialog** to become visible. This button is disabled until you have entered a correct password, or if the current graphic display has not yet been saved.
 - **Edit.** The **Edit...** button causes the **Edit Dialog** to become visible.
 - **Password.** The **Password...** button causes the **Password Dialog** to become visible.
 - **Information display area.** The information display area shows the name and version of the Concept or PL7 program that is running in the connected PLC.
-

Save Dialog

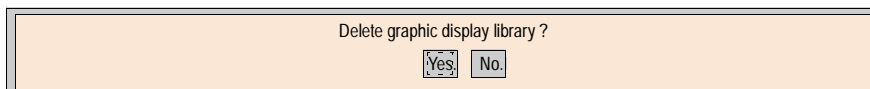
The **Save Dialog** allows you to save the current graphic display.

A screenshot of the 'Save Dialog' box. It has a light orange background and a thin grey border. At the top, it says 'Save graphic display as:'. Below this is a white text input field. At the bottom right, there are two buttons: 'OK.' and 'Cancel'.

When the **Save Dialog** is presented, the name of the current graphic display is shown in the dialog's text field. If the current graphic display has never been saved (i.e., a "new" graphic display), then the text field is blank. Once you have either accepted the current name (a "save" operation) or provided a new name (a "save as" operation), then you can click the **OK** button to save the contents of the current graphic display to the Web server module. The **Cancel** button will cause the **Top Dialog** to be shown again, with no action being taken.

Delete Dialog

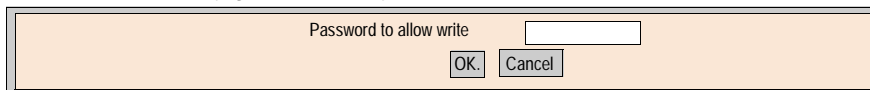
The **Delete Dialog** allows you to delete the current graphic display.

A screenshot of the 'Delete Dialog' box. It has a light orange background and a thin grey border. At the top, it says 'Delete graphic display library?'. Below this, there are two buttons: 'Yes' and 'No'.

If you click the **Yes** button, the existing graphic display window is cleared and the graphics file on the Web server module is deleted. Clicking the **No** button will cause the **Top Dialog** to be shown again, with no action being taken.

Password Dialog

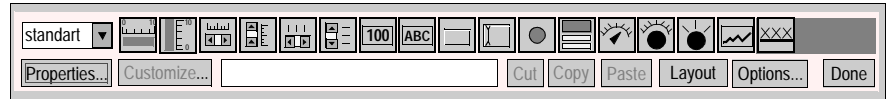
The **Password Dialog** allows you to enter the password that enables those user functions that modify graphic display files or PLC run-time data values.

A screenshot of the 'Password Dialog' box. It has a light orange background and a thin grey border. At the top, it says 'Password to allow write'. Below this is a white text input field. At the bottom right, there are two buttons: 'OK.' and 'Cancel'.

If you enter the correct password and click the **OK** button, then you will be allowed to save and delete the current graphic display. Correct password entry also permits you to write new values to the PLC (via those graphic objects that support writing values to a PLC, if any). If you click the **OK** button when the text field is empty, then the current password permissions, if any, are cleared. The **Cancel** button will cause the **Top Dialog** to be shown again, with no changes made to current password permissions.

Edit Dialog

The **Edit Dialog** allows you to select a graphic object for placement in the display window, and provides access to all of the graphic editing functions. The graphic objects that are available to you are presented in a set of palettes, with one palette visible at a time.

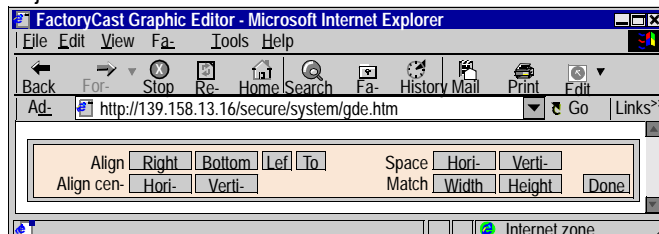


The controls of the **Edit Dialog** provide the following functions.

- The **Drop-down List Box** shows the set of palettes that are available. When you select the name of a palette from the list, the graphic objects that are in that palette are presented in the palette display area of the dialog.
- The **Palette** shows the graphic objects that are in the current palette with an icon that depicts each graphic object's type (meter, button, etc.). When you click any of the icons in the palette, a graphic object of the corresponding type becomes selected for insertion. While the Graphic Editor is in "insert mode," if you click in an open area of the display window, an instance of the selected graphic object is inserted into the graphic display.
- The **Information Area** shows the name and size of the graphic object that is currently selected.
- The **Cut** button causes the currently selected graphic object(s) to be removed from the graphic display and saved to a buffer (i.e., an internal clipboard), replacing any existing contents of the buffer.
- The **Copy** button causes the currently selected graphic object(s) to be copied to the buffer, replacing any existing contents.
- The **Paste** button causes the content of the clipboard to be inserted into the upper left corner of the graphic display. The pasted graphic objects can then be moved to the desired location in the display.
- The **Properties** button causes the Properties Sheet for the currently selected graphic object to be shown. See Property Sheet, p. 178.
- The **Customize** button causes the Customizer for the currently selected object to be shown, if the graphic object has been provided with one. See Customizing Complex Graphic Objects, p. 177.
- The **Layout** button causes the **Layout Dialog** to become visible.
- The **Options** button causes the **Options Dialog** to become visible.
- The **Done** button causes the **Top Dialog** to be shown again.

Layout Dialog

The **Layout Dialog** allows you to change the position and size of a group of graphic objects.



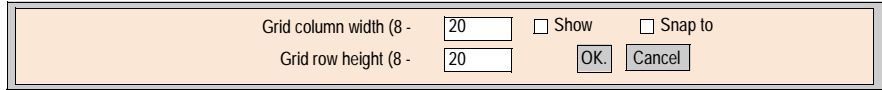
The controls of the **Layout Dialog** provide the following functions.

- For aligning graphic objects' edges, the **Right**, **Bottom**, **Left**, and **Top** buttons cause the currently selected graphic objects to be moved so that their specified sides are at the same position. At least two graphic objects must be selected for these buttons to be enabled.
- For aligning graphic objects' center lines, the **Horizontally**, and **Vertically** buttons cause the currently selected graphic objects to be moved so that their vertical or horizontal center lines, respectively, are at the same position. At least two graphic objects must be selected for these buttons to be enabled.
- For positioning graphic objects so that they are evenly spaced, the **Horizontally** and **Vertically** buttons cause the currently selected graphic objects to be moved so that either the horizontal or vertical spacing between the objects is the same. At least three graphic objects must be selected for these buttons to be enabled.
- To automatically size graphic objects, use the **Width** and **Height** buttons to re-size the currently selected graphic objects so that either the widths or heights, respectively, of the objects match. At least two graphic objects must be selected for these buttons to be enabled.
- The **Done** button causes the **Edit Dialog** to be shown again.

Note: For all layout operations (except **Space evenly**) one of the selected objects is considered the "reference object" to which all other selected objects refer in order to know their new position or dimension. For example, when the "Width" button is pressed, all of the selected objects will have their width changed to match the width of the reference object. The reference object is differentiated from the other selected objects by making its selection box a different color than the others.

Options Dialog

The **Options Dialog** allows you to change the settings related to a grid that can be drawn in the display window. The grid is solely for assistance in editing a graphic display and is shown only when the Graphic Editor is in "edit mode." Edit mode starts when you switch to the **Edit Dialog** and ends when you return to the **Top Dialog**.



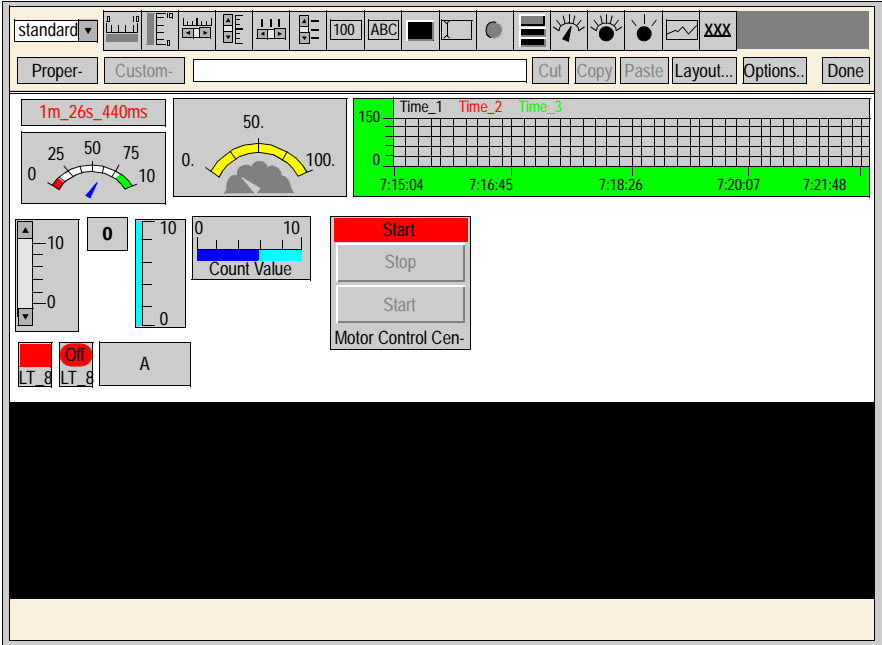
The controls of the **Options Dialog** provide the following function.

- The cell size of the grid can be changed by the entering the grid's column width and row height into the dialog's text fields.
 - If the **Show grid** check-box is checked, the grid will be drawn; otherwise, no grid will be shown.
 - If the **Snap to grid** check-box is checked, then, when you change the size or position of a graphic object, the changed coordinate(s) or dimension(s) is automatically adjusted so that it coincides with a grid point.
 - The **OK** button causes the current option settings to become active, and the **Edit Dialog** to be shown again.
 - The **Cancel** button causes the **Edit Dialog** to be shown again, with no option settings being changed.
-

Display Window User Functions

Overview

The user functions available from the **Graphic Editor** display window include object selection, moving and sizing. All moving and sizing operations require that the graphic object(s) that is to be modified must first be selected. A selected object is indicated by surrounding it with a box; a deselected object has no surrounding box. The figure below shows the **Graphic Editor** display.



Selecting Graphic Objects

A graphic object's selection state (selected/deselected) can be set by the following user actions:

- A single graphic object can be selected by simply clicking on it with a mouse. If any other objects are currently selected, they will be deselected.
- Multiple graphic objects can be selected by constructing a bounding box in the display window. If you press a mouse button in an open area of the display window (i.e., not on a graphic object) and drag the mouse without releasing the mouse button, then a bounding outline (dotted box) will be shown, where one corner of the box is fixed at the location where the mouse button was initially pressed, and the opposite corner tracks the current mouse position. When the mouse button is released, all of the objects that intersect the bounding box will be selected. Any objects that are outside the bounding outline will be deselected.
- A graphic object's selection state can be toggled between selected and deselected, without affecting the selection state of any other objects, by pressing the CTRL key when clicking on the object. With this action, graphic objects can be individually added or removed from the current group of selected objects.
- A graphic object can be selected, without affecting the selection state of any other objects, by pressing the SHIFT key when clicking on the object. When an object is selected by this action, it becomes the reference object (see Layout Dialog Top Window User Functions, p. 170) for the group of selected objects. The primary purpose of this action is to change the reference object in a group of selected objects prior to invoking one of the **Layout** operations.
- All graphic objects can be deselected by clicking the mouse in an open area of the display window, that is, not on a graphic object.

Sizing Graphic Objects

A graphic object's size can be changed by first selecting it, and then using the mouse to change the size of the object's selection box. As you move the mouse over an object's selection box, the mouse pointer changes to reflect the type of sizing operation that will be performed. If you press a mouse button while the mouse is over an object's selection box and drags the mouse without releasing the mouse button, then a bounding outline (dotted box) appears. When the mouse button is released, the object's size is changed to match the size of the bounding outline. There are eight possible sizing actions depending on which part of an object's selection box is dragged. Each corner of the box will allow only its adjacent sides to move, each side of the box will allow only that side to move.

Moving Graphic Objects

A graphic object's location in the display window can be changed by using the mouse. If you press a mouse button while the mouse is over an object and drag the mouse without releasing the mouse button, then a bounding box will be shown. When the mouse button is released, the object's position is changed to the location of the bounding box.

Multiple graphic objects can be moved by first selecting the objects to be moved, and then dragging the entire group of objects in the same way a single object is moved. When a group of objects is being moved, a bounding box is shown for each object in the group.

Setting Graphic Object Properties

You can set a graphic object's properties via the **Property Sheet** (see Property Sheet Property Sheet, p. 178). If the Property Sheet is visible, then the properties of the currently selected graphic object are presented for editing. The Property Sheet can be made visible by pressing the **Properties...** button or by double clicking the mouse anywhere on the selected object in the display window.

Customizing Complex Graphic Objects

Some complex graphic objects have a very large number of properties. Configuring such a graphic object with the Property Sheet could be cumbersome. To make it easier to configure complex graphic objects, a Customizer is available. A Customizer is a dialog window that is designed specifically to configure its associated graphic object. When the Graphic Editor detects that a selected graphic object has a Customizer, it will enable the **Customizer...** button. This button will present the graphic object's Customizer. When a graphic object that has a Customizer is double-clicked, its Customizer is presented instead of its Property Sheet. If a graphic object has a Customizer, the only property that will be presented in its Property Sheet is its name.

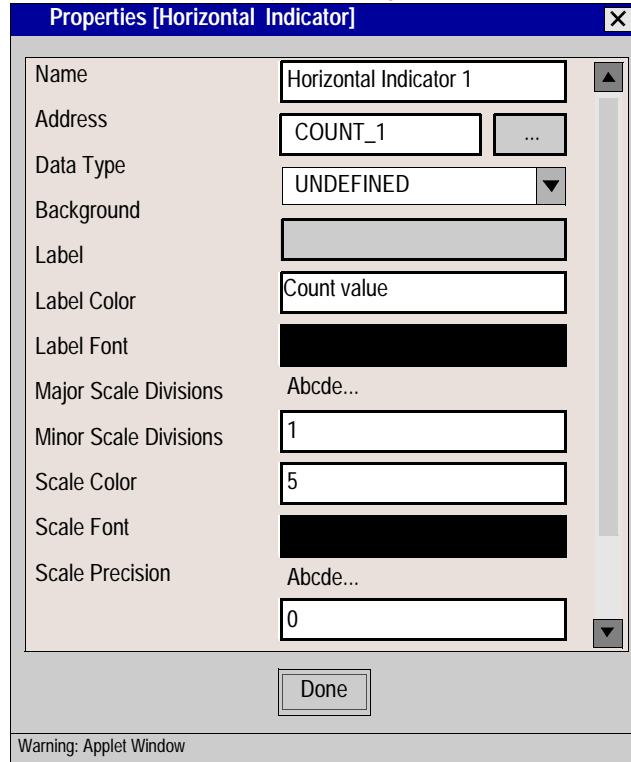
Display Background Image

A Graphic Editor display has a **Background Image** property that can be used to specify an image to be used as the display's background. This image maybe be either a GIF or a JPEG file. All file locations are relative to the /wwwroot directory of the Embedded Server. For example, if the image "cool.gif" was put in the/wwwroot/images directory of the Embedded Server, then the Background Image property should be set to /images/cool.gif.

Property Sheet

Overview

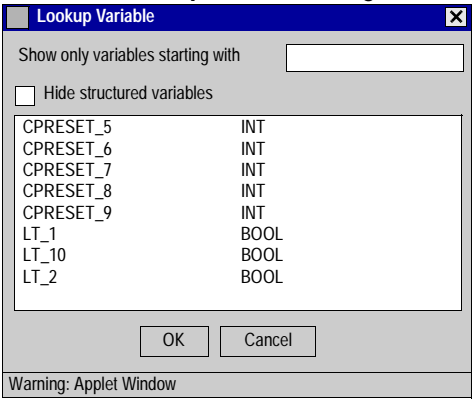
The Property Sheet is a "floating" (non-modal) dialog that presents all the settable properties of the currently selected graphic object.



The properties of a graphic object are specific to an object's type. The properties are presented in a scrollable list, with the name and the value of each property listed. See *Graphic Objects*, p. 183 for a description of the graphic objects provided with the Graphic Editor.

Lookup Dialog

For each of the graphic objects provided with the Graphic Editor, a property editor is provided for its **Address** property. This property editor not only allows you to directly enter the address of a Quantum/Premium register (or Concept/PL7 variable name), but also provides access to the **Lookup Dialog**. The Lookup Dialog allows you to pick a Concept/PL7 symbol (variable) name from a list of symbol (variables) that have been "Web enabled" by the FactoryCast Configurator. This is the **Lookup Variable** dialog box.



Security

Security

You are protected from unauthorized access to your PLC data in three ways.

- The HTML page containing the Graphic Editor applet has been placed in a "secure" directory on the Web module, then the Web browser user is asked for a password before being allowed to download the HTML page.
 - You must enter the correct password via the **Password Dialog** to have permission to save/delete files or send data values to the connected PLC. With respect to sending data values to the PLC, the Graphic Editor will enforce its "read-only" mode by disabling the user-input controls of all graphic objects.
 - The FactoryCast Configurator allows you to specify that an item is read-only. The **Graphic Editor** will enforce the read-only attribute of a symbol (variable) or address by rejecting any request to set a new value for the data item, and informing the user in the **Graphic Editor** message window.
-

Graphic Editor Applet Parameters

Overview

The **Graphic Editor** supports three applet parameters to customize its behavior. Applet parameters are specified with <PARAM> tags within the <APPLET> tag in the "Graphic Editor's" HTML page. The parameters recognized by the **Graphic Editor** applet are:

- **LOAD**—This parameter tells the **Graphic Editor** to auto-load a specific graphics file when it starts. If the specified file does not exist, an error message is presented to you. If this parameter is not provided in the <APPLET> tag, then no graphics file is auto-loaded at startup, and you must select the initial graphics file from the list provided by the **Graphic Editor**.
 - **MODE**—This parameter tells the **Graphic Editor** whether to startup in its normal "Edit Mode" or in a special "View Mode". When started in view mode, the **Graphic Editor** will show only its display window. When this parameter is used with the **LOAD** parameter, a Web site can be designed using HTML pages that are dedicated to specific graphic displays. No explicit selection of graphic files would be required by a user, providing more typical HMI screen behavior. The possible values for this parameter are
 - **EDIT**—the **Graphic Editor** will startup in its normal Edit Mode (default value).
 - **VIEW_RO**—the **Graphic Editor** will startup in read-only view mode. The Web browser user will not be allowed to send data values to the PLC.
 - **VIEW_RW**—the **Graphic Editor** will startup in read/write view mode. The Web browser user will be allowed to send data values to the PLC after entering the write-access password.
 - **AUTO_LOGIN**—This parameter tells the **Graphic Editor** to automatically enter the password that is required to permit writing to the PLC. If the **MODE** parameter is set to **VIEW_RW** or **EDIT**, then setting this parameter to **TRUE** will cause the **Graphic Editor** to allow writing to the PLC without the user having to enter the password. The possible values for this parameter are **FALSE** (default) and **TRUE**.
-

Example

The following is an example of an applet tag for the **Graphic Editor** that will cause it to startup in view mode and automatically load the graphics file named **UNIT_1**. The Web browser user would be allowed to send values to the PLC via any graphic objects that support sending values, if they have entered the write-access password.

```
<APPLET codebase="/classes"
archive="SAComm.jar,GDE.jar,Widgets.jar"
code="com.schneiderautomation.gde.GdeApplet"
width="700" height="514">
<PARAM name="LOAD" value="UNIT_1">
<PARAM name="MODE" value="VIEW_RW">
<PARAM name="AUTO_LOGIN" value="FALSE">
</APPLET>
```

Graphic Objects

Overview

The set of graphic objects provided in the **Graphic Editor** is intended to support building graphic displays that mimic conventional instrument panels. All of the data monitoring and control objects have built-in communication capabilities and are designed as stand-alone graphic objects.

Additionally, to support customers that want to put several simple applets on a single HTML page, each object in the **Graphic Editor** set is provided in an applet version. When used in conjunction with the `LiveBeanApplet`, the **Graphic Editor** graphic objects can be used in the same way as the `LiveLabelApplet`.

This section provides a description of the standard graphic objects and their properties.

Horizontal Indicator

A Horizontal Indicator provides an analog representation of the value of a symbol (variable) or direct address in a PLC by drawing a horizontal bar whose length is proportional to the value as a percentage of its range in engineering units. Optionally, a digital indication of the value can be shown in the center of the bar area. These are the properties for the Horizontal Indicator.

Property	Description	Limits
Name	The name for the graphic object	
Address	The direct address (or the name of a symbol (variable)) to monitor	See Note 1, Notes, p. 203
Data Type	The data type of the direct address or symbol (variable)	See Note 2, Notes, p. 203
Background	The background color for the graphic object	
Label	The label to be displayed as part of the graphic object	
Label Color	The color for the label	
Label Font	The font for the label	
Major Scale Divisions	The number of major (labeled) scale divisions	0 to 100
Minor Scale Divisions	The number of minor (unlabeled) scale divisions	0 to 100
Scale Color	The color for the scale and its labels	
Scale Font	The font for scale labels	
Scale Precision	The number of fractional digits to be shown for scale labels (Set to -1 to use a general exponential format.)	-1 to 6
Maximum EU Value	The maximum value, in engineering units, of the direct address or symbol (variable)	
Minimum EU Value	The minimum value, in engineering units, of the direct address or symbol (variable)	
Maximum PLC Value	The maximum raw (unscaled) value of the direct address or symbol (variable) in the PLC	See Note 3, Notes, p. 203
Minimum PLC Value	The minimum raw (unscaled) value of the direct address or symbol (variable) in the PLC	See Note 3, Notes, p. 203
Value Visible	Indicates whether a digital display of the scaled value is to be shown	
Value Font	The font for the digital display of the value, if shown	
Bar Background	The background color for the bar indicator area	

Property	Description	Limits
Bar Color	The color for the indicator bar (when scaled value within High/Low limits)	
High High Limit Value	The value in engineering units for the 'High High' limit	
High High Limit Color	The color for the indicator bar when scaled value is greater than the 'High High' limit	
High Limit Value	The value in engineering units for the 'High' limit	
High Limit Color	The color for the indicator bar when scaled value is greater than the 'High' limit	
Low Limit Value	The value in engineering units for the 'Low' limit	
Low Limit Color	The color for the indicator bar when scaled value is less than the 'Low' limit	
Low Low Limit Value	The value in engineering units for the 'Low Low' limit	
Low Low Limit Color	The color for the indicator bar when scaled value is less than the 'Low Low' limit	
Limit Deadband	The deadband (as percentage of EU range) to apply to High/Low limit checking	0 to 10
Border Width	The width (in pixels) for the graphic object's border	0 to 32
Border Color	The color for the graphic object's border	
PLC Value	A simulated, raw (unscaled) input value for testing the graphic object	See Note 3, Notes, p. 203

Vertical Indicator A Vertical Indicator provides an analog representation of the value of a symbol (variable) or direct address in a PLC by drawing a vertical bar whose length is proportional to the value as a percentage of its range in engineering units. These are the properties for the Vertical Indicator.

Property	Description	Limits
Name	The name for the graphic object	
Address	The direct address (or the name of a symbol (variable)) to monitor	See Note 1, Notes, p. 203
Data Type	The data type of the direct address or symbol (variable)	See Note 2, Notes, p. 203
Background	The background color for the graphic object	
Label	The label to be displayed as part of the graphic object	
Label Color	The color for the label	
Label Font	The font for the label	
Major Scale Divisions	The number of major (labeled) scale divisions	0 to 100
Minor Scale Divisions	The number of minor (unlabeled) scale divisions	0 to 100
Scale Color	The color for the scale and its labels	
Scale Font	The font for scale labels	
Scale Precision	The number of fractional digits to be shown for scale labels (Set to -1 to use a general exponential format.)	-1 to 6
Maximum EU Value	The maximum value, in engineering units, of the direct address or symbol (variable)	
Minimum EU Value	The minimum value, in engineering units, of the direct address or symbol (variable)	
Maximum PLC Value	The maximum raw (unscaled) value of the direct address or symbol (variable) in the PLC	See Note 3, Notes, p. 203
Minimum PLC Value	The minimum raw (unscaled) value of the direct address or symbol (variable) in the PLC	See Note 3, Notes, p. 203
Bar Background	The background color for the bar indicator area	
Bar Color	The color for the indicator bar (when scaled value within High/Low limits)	
High High Limit Value	The value in engineering units for the 'High High' limit	
High High Limit Color	The color for the indicator bar when scaled value is greater than the 'High High' limit	

Property	Description	Limits
High Limit Value	The value in engineering units for the 'High' limit	
High Limit Color	The color for the indicator bar when scaled value is greater than the 'High' limit	
Low Limit Value	The value in engineering units for the 'Low' limit	
Low Limit Color	The color for the indicator bar when scaled value is less than the 'Low' limit	
Low Low Limit Value	The value in engineering units for the 'Low Low' limit	
Low Low Limit Color	The color for the indicator bar when scaled value is less than the 'Low Low' limit	
Limit Deadband	The deadband (as percentage of EU range) to apply to High/Low limit checking	0 to 10
Border Width	The width (in pixels) for the graphic object's border	0 to 32
Border Color	The color for the graphic object's border	
PLC Value	A simulated, raw (unscaled) input value for testing the graphic object	See Note 3, Notes, p. 203

Horizontal or Vertical Slider

A Horizontal or Vertical Slider provides an analog representation of the value of a symbol (variable) or direct address in a PLC by drawing a scroll bar whose "thumb" position is proportional to the value as a percentage of its range in engineering units. With a mouse, a user can change the value of the scroll bar and cause a new value to be sent to the PLC.

These are the properties for the Horizontal or Vertical Slider.

Property	Description	Limits
Name	The name for the graphic object	
Address	The direct address (or the name of a symbol (variable)) to monitor	See Note 1, Notes, p. 203
Data Type	The data type of the direct address or symbol (variable)	See Note 2, Notes, p. 203
Background	The background color for the graphic object	
Label	The label to be displayed as part of the graphic object	
Label Color	The color for the label	
Label Font	The font for the label	
Major Scale Divisions	The number of major (labeled) scale divisions	0 to 100
Minor Scale Divisions	The number of minor (unlabeled) scale divisions	0 to 100
Scale Color	The color for the scale and its labels	
Scale Font	The font for scale labels	
Scale Precision	The number of fractional digits to be shown for scale labels (Set to -1 to use a general exponential format.)	-1 to 6
Maximum EU Value	The maximum value, in engineering units, of the direct address or symbol (variable)	
Minimum EU Value	The minimum value, in engineering units, of the direct address or symbol (variable)	
Maximum PLC Value	The maximum raw (unscaled) value of the direct address or symbol (variable) in the PLC	See Note 3, Notes, p. 203
Minimum PLC Value	The minimum raw (unscaled) value of the direct address or symbol (variable) in the PLC	See Note 3, Notes, p. 203
Block Increment	The amount that the scaled value should change when the scroll bar's scroll area is clicked	
Unit Increment	The amount that the scaled value should change when the scrollbar's arrow buttons are clicked	

Property	Description	Limits
Border Width	The width (in pixels) for the graphic object's border	0 to 32
Border Color	The color for the graphic object's border	

Horizontal or Vertical Selector

A Horizontal or Vertical Selector allows a user to make a selection from a set of choices. When a selection is made, the value corresponding to the choice is sent to the PLC. The choices are shown as labels of a "scale," with the current selection indicated by the position of the "thumb" of a scroll bar.

These are the properties for the Horizontal or Vertical Selector.

Property	Description	Limits
Name	The name for the graphic object	
Address	The direct address (or the name of a symbol (variable)) to monitor	See Note 1, Notes, p. 203
Data Type	The data type of the direct address or symbol (variable)	See Note 2, Notes, p. 203
Background	The background color for the graphic object	
Choices	The choices for the selector. Each choice is given as a 'label=value' entry (when a user selects 'label,' 'value' is sent to PLC)	Minimum of two choices required
Label	The label to be displayed as part of the graphic object	
Label Color	The color for the label	
Label Font	The font for the label	
Scale Visible	Indicates whether a "scale," labeled with the choices, is to be shown	
Scale Color	The color for the scale and its labels	
Scale Font	The font for scale labels	
Border Width	The width (in pixels) for the graphic object's border	0 to 32
Border Color	The color for the graphic object's border	

Digital Indicator

A Digital Indicator provides a numeric representation of the value of a symbol (variable) or direct address in a PLC. The value can be shown in various formats, and can be made to change color when a preset high or low limit is exceeded. These are the properties for the Digital Indicator.

Property	Description	Limits
Name	The name for the graphic object	
Address	The direct address (or the name of a symbol (variable)) to monitor	See Note 1, Notes, p. 203
Data Type	The data type of the direct address or symbol (variable)	See Note 2, Notes, p. 203
Background	The background color for the graphic object	
Label	The label to be displayed as part of the graphic object	
Label Color	The color for the label	
Label Font	The font for the label	
Value Format	The format (decimal, hex, etc.) to use in displaying the scaled value	
Value Precision	The number of fractional digits to be shown for the scaled value (Set to -1 to use a general exponential format.)	-1 to 6
Value Background	The background color for the value display area	
Value Color	The text color for the digital display of the value	
Value Font	The font for the digital display of the value	
Units	The label for the engineering units of the value (appended to the numeric display of the value)	
Maximum EU Value	The maximum value, in engineering units, of the direct address or symbol (variable)	
Minimum EU Value	The minimum value, in engineering units, of the direct address or symbol (variable)	
Maximum PLC Value	The maximum raw (unscaled) value of the direct address or symbol (variable) in the PLC	See Note 3, Notes, p. 203
Minimum PLC Value	The minimum raw (unscaled) value of the direct address or symbol (variable) in the PLC	See Note 3, Notes, p. 203
High High Limit Value	The value in engineering units for the 'High High' limit	
High High Limit Color	The color for the indicator bar when scaled value is greater than the 'High High' limit	
High Limit Value	The value in engineering units for the 'High' limit	

Property	Description	Limits
High Limit Color	The color for the indicator bar when scaled value is greater than the 'High' limit	
Low Limit Value	The value in engineering units for the 'Low' limit	
Low Limit Color	The color for the indicator bar when scaled value is less than the 'Low' limit	
Low Low Limit Value	The value in engineering units for the 'Low Low' limit	
Low Low Limit Color	The color for the indicator bar when scaled value is less than the 'Low Low' limit	
Limit Deadband	The deadband (as percentage of EU range) to apply to High/Low limit checking	0 to 10
Border Width	The width (in pixels) for the graphic object's border	0 to 32
Border Color	The color for the graphic object's border	
PLC Value	A simulated, raw (unscaled) input value for testing the graphic object	See Note 3, Notes, p. 203

Message Display A Message Display shows a text message based on the value of a symbol (variable) or direct address in a PLC. For each specified message, a value is also specified that will trigger its display.

These are the properties for the Message Display.

Property	Description	Limits
Name	The name for the graphic object	
Address	The direct address (or the name of a symbol (variable)) to monitor	See Note 1, Notes, p. 203
Data Type	The data type of the direct address or symbol (variable)	See Note 2, Notes, p. 203
Background	The background color for the graphic object	
Messages	The set of messages to display. Each message is given as a 'value=text' entry (when the PLC value equals 'value', 'text' is displayed as the message)	Minimum of one message required
Message Background	The background color for the message display area	
Message Color	The color for the message text	
Message Font	The font for the message text	
Label	The label to be displayed as part of the graphic object	
Label Color	The color for the label	
Label Font	The font for the label	
Border Width	The width (in pixels) for the graphic object's border	0 to 32
Border Color	The color for the graphic object's border	
PLC Value	A simulated input value for testing the graphic object	See Note 3, Notes, p. 203

Push Button

A Push Button allows a user to send preset value(s) to a PLC when clicked with the mouse.

These are the properties for the Push Button.

Property	Description	Limits
Name	The name for the graphic object	
Address	The direct address (or the name of a symbol (variable)) to monitor	See Note 1, Notes, p. 203
Data Type	The data type of the direct address or symbol (variable)	See Note 2, Notes, p. 203
Background	The background color for the graphic object	
Values	The value(s) to send to the PLC	See Note 4, Notes, p. 203
Reset Values	The value(s) to send to the PLC after the reset delay time has expired. If no reset values are provided, no reset action will occur.	
Reset Delay	The delay time (milliseconds) that the Push Button should wait after sending the value(s) to the PLC before sending the reset value(s).	0-2000
Label	The label to be displayed as part of the graphic object	
Label Color	The color for the label	
Label Font	The font for the label	
Button Label	The text label for the button	
Button Background	The color for the button	0 to 100
Button Label Color	The color for the button label	
Button Label Font	The font for the button label	
Border Width	The width (in pixels) for the graphic object's border	0 to 32
Border Color	The color for the graphic object's border	

Direct Output Station

The Direct Output Station allows a user to enter a value into a text input field directly with their keyboard. When the entered text represents a numeric value that is within preset high and low limits, a **Set** button is enabled. While the **Set** button is enabled, the entered value will be sent to the PLC whenever the user presses either the **Set** button or the ENTER key (if the input field has keyboard input focus). These are the properties for the Direct Output Station.

Property	Description	Limits
Name	The name for the graphic object	
Address	The direct address (or the name of a symbol (variable)) to monitor	See Note 1, Notes, p. 203
Data Type	The data type of the direct address or symbol (variable)	See Note 2, Notes, p. 203
Background	The background color for the graphic object	
Label	The label to be displayed as part of the graphic object	
Label Color	The color for the label	
Label Font	The font for the label	
Maximum EU Value	The maximum value, in engineering units, of the direct address or symbol (variable)	
Minimum EU Value	The minimum value, in engineering units, of the direct address or symbol (variable)	
Maximum PLC Value	The maximum raw (unscaled) value of the direct address or symbol (variable) in the PLC	See Note 3, Notes, p. 203
Minimum PLC Value	The minimum raw (unscaled) value of the direct address or symbol (variable) in the PLC	See Note 3, Notes, p. 203
Maximum Input	The maximum value, in engineering units, that is valid for the entered input value	
Minimum Input	The minimum value, in engineering units, that is valid for the entered input value	
Border Width	The width (in pixels) for the graphic object's border	0 to 32
Border Color	The color for the graphic object's border	

Indicator Light

The Indicator Light provides a dual-state indication of the value of a symbol (variable) or direct address in a PLC. Unless the **Input Inverted** property is set to **TRUE**, an input value of zero is deemed **OFF** and a non-zero value is deemed **ON**. If the **Flash Interval** property is set to greater than zero, the light will flash while the input value is on.

These are the properties for the Indicator Light.

Property	Description	Limits
Name	The name for the graphic object	
Address	The direct address (or the name of a symbol (variable)) to monitor	See Note 1, Notes, p. 203
Data Type	The data type of the direct address or symbol (variable)	See Note 2, Notes, p. 203
Background	The background color for the graphic object	
Label	The label to be displayed as part of the graphic object	
Label Color	The color for the label	
Label Font	The font for the label	
Off Word	The text to show when the input value is off	
Off Word Background	The background color of the light when the Off Word is shown	
Off Word Color	The color for the Off Word text	
Off Word Font	The font for the Off Word text	
On Word	The text to show when the input value is on	
On Word Background	The background color of the light when the On Word is shown	
On Word Color	The color for the On Word font	
On Word Font	The font for the On Word text	
Flash Interval	The flashing time period (in milliseconds) of the light when the input value is on. Set to zero for no flashing.	200 to 2000
Shape	The shape (circle, rectangle, etc.) of the light	
Input Inverted	If TRUE , inverts the input value. (Light will show the Off Word when input value is on.)	
Border Width	The width (in pixels) for the graphic object's border	0 to 32
Border Color	The color for the graphic object's border	
PLC Value	A simulated input value for testing the graphic object	See Note 3, Notes, p. 203

Motor Control Station

The Motor Control Station is designed to mimic the typical start/stop push button station that is often used to control motors. This graphic object is essentially a composite of two Push Buttons and an Indicator Light. In order to make it easier to set this object's many properties, a Customizer is provided. All of the properties (except Name) are set with its Customizer, not with the **Graphic Editor's** Property Sheet.

These are the properties for the Motor Control Station.

Property	Description	Limits
Name	The name for the graphic object	
Background	The background color for the graphic object	
Label	The label to be displayed as part of the graphic object	
Label Color	The color for the label	
Label Font	The font for the label	
Border Width	The width (in pixels) for the graphic object's border	0 to 32
Border Color	The color for the graphic object's border	
Indicator Light	Same properties as the Indicator Light graphic object, excluding the common properties listed above	
Top Push Button	Same properties as the Push Button graphic object, excluding the common properties listed above	
Bottom Push Button	Same properties as the Push Button graphic object, excluding the common properties listed above	

Analog Meter

An Analog Meter provides an analog representation of the value of a symbol (variable) or direct address in a PLC by drawing a pointer on a circular dial whose position is proportional to the value as a percentage of its range in engineering units. The size of the meter's circular dial (degrees sweep of a circle), the colors for the dial, and the style of the pointer can all be set. These are the properties for the Analog Meter.

Property	Description	Limits
Name	The name for the graphic object	
Address	The direct address (or the name of a symbol (variable)) to monitor	See Note 1, Notes, p. 203
Data Type	The data type of the direct address or symbol (variable)	See Note 2, Notes, p. 203
Background	The background color for the graphic object	
Label	The label to be displayed as part of the graphic object	
Label Color	The color for the label	
Label Font	The font for the label	
Major Scale Divisions	The number of major (labeled) scale divisions	0 to 100
Minor Scale Divisions	The number of minor (unlabeled) scale divisions	0 to 100
Scale Color	The color for the scale and its labels	
Scale Font	The font for scale labels	
Scale Precision	The number of fractional digits to be shown for scale labels (Set to -1 to use a general exponential format.)	-1 to 6
Maximum EU Value	The maximum value, in engineering units, of the direct address or symbol (variable)	
Minimum EU Value	The minimum value, in engineering units, of the direct address or symbol (variable)	
Maximum PLC Value	The maximum raw (unscaled) value of the direct address or symbol (variable) in the PLC	See Note 3, Notes, p. 203
Minimum PLC Value	The minimum raw (unscaled) value of the direct address or symbol (variable) in the PLC	See Note 3, Notes, p. 203
Dial Degrees Sweep	The amount of a circular arc to use for drawing the dial	60 to 300
Pointer Type	The type (needle, arrow head, etc.) of pointer to use	
Pointer Color	The color for the pointer	

Property	Description	Limits
Dial Color	The color for the dial (that part that is within the High/Low limits)	
High High Limit Value	The value in engineering units for the 'High High' limit	
High High Limit Color	The color for the indicator bar when scaled value is greater than the 'High High' limit	
High Limit Value	The value in engineering units for the 'High' limit	
High Limit Color	The color for the indicator bar when scaled value is greater than the 'High' limit	
Low Limit Value	The value in engineering units for the 'Low' limit	
Low Limit Color	The color for the indicator bar when scaled value is less than the 'Low' limit	
Low Low Limit Value	The value in engineering units for the 'Low Low' limit	
Low Low Limit Color	The color for the indicator bar when scaled value is less than the 'Low Low' limit	
Border Width	The width (in pixels) for the graphic object's border	0 to 32
Border Color	The color for the graphic object's border	
PLC Value	A simulated, raw (unscaled) input value for testing the graphic object	See Note 3, Notes, p. 203

Rotary Slider

A Rotary Slider provides an analog representation of the value of a symbol (variable) or direct address in a PLC by drawing a knob on a circular dial whose position is proportional to the value as a percentage of its range in engineering units. The size of the circular dial (degrees sweep of a circle) and knob color can be set. With a mouse, a user can change the position of the knob and cause a new value to be sent to the PLC.

These are the properties for the Rotary Slider.

Property	Description	Limits
Name	The name for the graphic object	
Address	The direct address (or the name of a symbol (variable)) to monitor	See Note 1, Notes, p. 203
Data Type	The data type of the direct address or symbol (variable)	See Note 2, Notes, p. 203
Background	The background color for the graphic object	
Label	The label to be displayed as part of the graphic object	
Label Color	The color for the label	
Label Font	The font for the label	
Major Scale Divisions	The number of major (labeled) scale divisions	0 to 100
Minor Scale Divisions	The number of minor (unlabeled) scale divisions	0 to 100
Scale Color	The color for the scale and its labels	
Scale Font	The font for scale labels	
Scale Precision	The number of fractional digits to be shown for scale labels (Set to -1 to use a general exponential format.)	-1 to 6
Dial Degrees Sweep	The amount of a circular arc to use for drawing the dial	60 to 300
Dial Color	The color for the dial	
Knob Color	The color for the knob	
Maximum EU Value	The maximum value, in engineering units, of the direct address or symbol (variable)	
Minimum EU Value	The minimum value, in engineering units, of the direct address or symbol (variable)	
Maximum PLC Value	The maximum raw (unscaled) value of the direct address or symbol (variable) in the PLC	See Note 3, Notes, p. 203
Minimum PLC Value	The minimum raw (unscaled) value of the direct address or symbol (variable) in the PLC	See Note 3, Notes, p. 203

Property	Description	Limits
Border Width	The width (in pixels) for the graphic object's border	0 to 32
Border Color	The color for the graphic object's border	

Rotary Selector

A Rotary Selector allows a user to make a selection from a set of choices. When a selection is made, the value corresponding to the choice is sent to the PLC. The choices are shown as labels of a "scale," with the current selection indicated by the position of the knob. The size of the circular dial (degrees sweep of a circle) and knob color can be set.

These are the properties for the Rotary Selector.

Property	Description	Limits
Name	The name for the graphic object	
Address	The direct address (or the name of a symbol (variable)) to monitor	See Note 1, Notes, p. 203
Data Type	The data type of the direct address or symbol (variable)	See Note 2, Notes, p. 203
Background	The background color for the graphic object	
Choices	The choices for the selector. Each choice is given as a 'label=value' entry (when a user selects 'label,' 'value' is sent to PLC)	Minimum of two choices required
Label	The label to be displayed as part of the graphic object	
Label Color	The color for the label	
Label Font	The font for the label	
Scale Visible	Indicates whether a "scale," labeled with the choices, is to be shown	
Scale Color	The color for the scale and its labels	
Scale Font	The font for scale labels	
Dial Degrees Sweep	The amount of a circular arc to use for drawing the dial	60 to 300
Knob Color	The color for the knob	
Border Width	The width (in pixels) for the graphic object's border	0 to 32
Border Color	The color for the graphic object's border	

Trend Recorder

A Trend Recorder provides a continuous, time-based charting of the value of up to six symbol (variable)s or direct addresses in a PLC. A Trend Recorder emulates a strip-chart recorder, with the pens on the right, and the "paper" moving from right to left. A vertical scale can be shown on the left side of the chart for showing the range of the values being recorded, and a horizontal scale can be shown below the chart for showing the time span of the chart. The rate at which the chart is updated, and the appearance of the chart can be set.

In order to make it easier to set this object's many properties, a Customizer is provided. All properties (except Name) are set with its Customizer, not with the **Graphic Editor's** Property Sheet.

The following table describes properties for the Trend Recorder. Properties available for each pen are described in the next table.

Property	Description	Limits
Name	The name for the graphic object	
Background	The background color for the graphic object	
Label	The label to be displayed as part of the graphic object	
Label Color	The color for the label	
Label Font	The font for the label	
Major Scale Divisions	The number of major (labeled) scale divisions	0 to 100
Minor Scale Divisions	The number of minor (unlabeled) scale divisions	0 to 100
Scale Color	The color for the scale and its labels	
Scale Font	The font for scale labels	
Scale Precision	The number of fractional digits to be shown for scale labels (Set to -1 to use a general exponential format.)	-1 to 6
Maximum EU Value	The maximum value, in engineering units, of the direct address or symbol (variable)	
Minimum EU Value	The minimum value, in engineering units, of the direct address or symbol (variable)	
Update Period	The update interval (in seconds) for the chart	0.5 to 120
Time Scale Divisions	The number of horizontal scale divisions	0 to 6
Chart Background	The color for the chart area	
Grid Color	The color of the grid drawn in the chart area	
Vertical Grid Divisions	The number of vertical divisions for the grid	0 to 100

Property	Description	Limits
Border Width	The width (in pixels) for the graphic object's border	0 to 32
Border Color	The color for the graphic object's border	

These Trend Recorder properties are available for each pen.

Property	Description	Limits
Address	The direct address (or the name of a symbol (variable)) to monitor.	See Note 1, Notes, p. 203
Data Type	The data type of the direct address or symbol (variable).	See Note 2, Notes, p. 203
Maximum PLC Value	The maximum raw (unscaled) value of the direct address or symbol (variable) in the PLC.	See Note 3, Notes, p. 203
Minimum PLC Value	The minimum raw (unscaled) value of the direct address or symbol (variable) in the PLC.	See Note 3, Notes, p. 203
Pen Color	The color of the "pen" used to record the scaled value.	
Pen Label	The label used to identify the pen.	

Display Link

A Display Link is a special graphic object that allows the user to switch to another graphic display by clicking on it with a mouse. To indicate to the user that the object is a link to another display, the text label for the link is underlined and the mouse cursor changes to a hand icon when the mouse is moved over it. This object is especially useful when the **Graphic Editor** is used in its **view mode**, where no drop-down list of graphic displays is available for selecting a display.

A Display Link can also be used as a hyperlink to an HTML file. If a URL is entered as the **Link Display Name**, the URL can be opened in a new browser window if the user presses the SHIFT key while they click the link; otherwise, the existing browser window is replaced with the URL when the link is clicked.

If the **Link Display Name** is blank, then the **Label** will be shown as not underlined, and the displayed object becomes a simple text label.

These are the properties for the Display Link.

Property	Description	Limits
Label	The label for the link	
Link Display Name	The name of the graphic display to be loaded when the link is clicked, or a URL of a Web page	
Label Color	The color for the label	
Label Font	The font for the label	

Notes

These are the notes for the chapter.

1.	<p>If the Address property of a graphic object is a direct address, the Data Type property must be specified and cannot be set to UNDEFINED. If the Address property is a symbol (variable) name, the Data Type property does not have to be specified and can be set to UNDEFINED. If, however, the Data Type property is specified for a symbol (variable), it must exactly match the symbol (variable)'s actual data type.</p> <p>If the Address property is a direct address for a discrete PLC reference (Quantum 0x/1x reference), the Data Type property must be set to BOOL. The Data Type property may be set to BOOL only for a discrete PLC reference.</p>																							
2.	<p>The meaning of the possible values of the Data Type property are:</p> <table><tr><th>Data Type</th><th>Meaning</th></tr><tr><td>UNDEFINED</td><td>no data type specified</td></tr><tr><td>BOOL</td><td>1-bit discrete (Boolean)</td></tr><tr><td>SHORT</td><td>8-bit signed integer</td></tr><tr><td>USHORT</td><td>8-bit unsigned integer</td></tr><tr><td>INT</td><td>16-bit signed integer</td></tr><tr><td>UINT</td><td>16-bit unsigned integer</td></tr><tr><td>DINT</td><td>32-bit signed integer</td></tr><tr><td>UDINT</td><td>32-bit unsigned integer</td></tr><tr><td>REAL</td><td>32-bit IEEE floating point</td></tr><tr><td>TIME</td><td>32-bit unsigned integer (in milliseconds)</td></tr></table>		Data Type	Meaning	UNDEFINED	no data type specified	BOOL	1-bit discrete (Boolean)	SHORT	8-bit signed integer	USHORT	8-bit unsigned integer	INT	16-bit signed integer	UINT	16-bit unsigned integer	DINT	32-bit signed integer	UDINT	32-bit unsigned integer	REAL	32-bit IEEE floating point	TIME	32-bit unsigned integer (in milliseconds)
Data Type	Meaning																							
UNDEFINED	no data type specified																							
BOOL	1-bit discrete (Boolean)																							
SHORT	8-bit signed integer																							
USHORT	8-bit unsigned integer																							
INT	16-bit signed integer																							
UINT	16-bit unsigned integer																							
DINT	32-bit signed integer																							
UDINT	32-bit unsigned integer																							
REAL	32-bit IEEE floating point																							
TIME	32-bit unsigned integer (in milliseconds)																							
3.	<p>The limits for the Maximum PLC Value and Minimum PLC Value properties are the natural limits of the Data Type property that is set. A Data Type setting of UNDEFINED is treated as a REAL with respect to its limit values.</p>																							
4.	<p>For a Push Button, a minimum of one value must be provided. If the Address property is a symbol (variable) name, then only one value will ever be sent to the PLC, and any additional values are ignored. If the Address property is a direct address, then all of the values provided will be sent to the PLC as an array of values starting at the specified direct address.</p>																							

Adding Custom Pages to the Site

8

Adding Custom Pages to the Site

Overview

You may choose to add your own Web pages to the site on the Embedded Server. The FactoryCast Configuration Tool allows you to protect them with the same passwords as the default pages or to put them in an unprotected area, where anyone can view them without a password. FactoryCast provides some simple Java applets to help you include dynamic data from the controller in your custom Web pages. This section discusses how to add custom pages to the site and how to use the Java applets on those pages.

Note: When planning custom Web pages, be sure to keep them within the limits of the memory available for customization. (Refer to Checking Embedded Server Status, p. 144.)

What's in this Chapter?

This Chapter contains the following Sections:

Section	Topic	Page
8.1	Working with Custom Pages	206
8.2	Using FactoryCast's Java Applets Using HTML Code	210
8.3	Using FactoryCast's Microsoft FrontPage Extension	225

8.1 Working with Custom Pages

Working with Custom Pages

Overview

You may develop any pages you want to customize the FactoryCast site. FactoryCast Configurator gives you three different methods for adding these pages to the site.

- You may replace the default home page with one of your own by following a particular procedure.
 - You may add supporting pages and place them under password protection.
 - You may add supporting pages and make them available to any user.
-

What's in this Section?

This Section contains the following Maps:

Topic	Page
Downloading a Custom Home Page	207
Downloading Supporting Pages	209

Downloading a Custom Home Page

Overview

If you want to replace the default home page with one of your own, you must take the following steps:

- Back up the original FactoryCast configuration, so that you can restore it later if necessary
 - Create your home page
 - Move the default home page to a secure place
 - Put your home page in its place
 - Download your home page to the Embedded Server
-

Backing Up the Original Configuration

Before you change the default home page, you should back up the configuration, following the procedure in Backing Up Files (See Backing Up the Web Server, p. 141). That way, if any problems should develop with the Embedded Server, you will be able to restore the server to its original configuration.

Creating Your Home Page

You must give your home page the same name as the default home page: index.htm.

Moving the Default Home Page

Here is the location of the default home page:

\\FactoryCast\\software\\"module type\\"\\wwwroot\\index.htm, where "module type" is ety110, ety510•, etz510, noe211 or noe771 1•.

Move the default home page from the wwwroot directory to a secure place.

Placing Your Home Page

Copy your home page into the wwwroot directory where you found the default home page.

What About Image Files?

Any image files for your new home page should be placed in the same directory as your company logo.

Image file names must conform to DOS 8.3 format (no more than eight letter file name and three letter extension).

Downloading

Follow the steps in the table below to download your new home page to the Embedded Server.

Step	Action
1	Select Transfer Web Files from the menu bar. Result: The Confirm Host dialog box appears with the IP address and any host name of the Embedded Server. Note: If the IP address or host name is incorrect, make the appropriate changes in the IP Address dialog box. (Refer to Setting the IP Address , p. 118.
2	Click OK . Result: The Transfer Web Files dialog box appears.
3	Make sure that the right window is showing the /wwwroot directory of the Embedded Server. Locate and select the new home page in the left window.
4	Click the → button to transfer the home page, overwriting the index.htm file in the \wwwroot directory of the Embedded Server.

Downloading Supporting Pages

Overview

If you are adding supporting Web pages to the default Web site, you may choose to protect them with the same user name and password as the default pages, or you may choose to have them accessed without a password.

In order to add pages to the site, you must specify the directory where they are located and then download them to the server.

Specifying File Locations

Place the files for your Web pages and any images for the pages in a single directory. Each subdirectory should have a page named `index.htm`.

Make sure all file names conform to DOS 8.3 format (no more than eight letter file name and three letter extension).

Use the **Settings** dialog box to specify the location of the files. (Refer to Setting File Locations, p. 119.)

Download Options

For the pages to be protected, they must be copied for the `\wwwroot\secure\user` directory of Embedded Server.

Note: Remember to create new hyperlinks to the other Web pages so you can access them in the browser.

Downloading to a Server

Follow the steps below to download to the server.

Step	Action
1	Select Transfer Web Files from the menu. Result: The Confirm Host dialog box appears with the IP address and any host name of the Embedded Server. Note: If the IP address or host name is incorrect, make the appropriate changes in the IP Address dialog. (Refer to Setting the IP Address, p. 118.)
2	Click OK to confirm the IP address and begin the download. Result: The Transfer Web Files dialog appears.
3	Make sure that the right window is showing the desired directory in the Embedded Server. Locate and select the new pages in the left window.
4	Click the → button to transfer the pages to the Embedded Server.

8.2 Using FactoryCast's Java Applets Using HTML Code

Using FactoryCast's Java Applets on Custom Web Pages

Overview

This section describes how to use the Java applets that come with FactoryCast. Use these applets to create custom Web pages. To create those pages, use any text editor such as Microsoft Notepad. Creating custom Web pages with HTML, allows your browser to display live PLC data.

What's in this Section?

This Section contains the following Maps:

Topic	Page
Inserting Applets on a Web Page	211
Inserting LiveBeanApplet	212
Inserting LiveBeanApplet using HTML Code	215
Inserting LiveLabelApplet using HTML Code	218
Inserting LiveTableApplet using HTML Code	223

Inserting Applets on a Web Page

Overview

FactoryCast software includes several graphic objects (or Java beans) that are used to visualize live PLC data on a graphic display. Generally, an end-user builds a graphic display using the **Graphic Editor** tool available with FactoryCast. However, you can also build a graphic display using graphic objects inserted into a Web page via the LiveBeanApplet. Any of the graphic objects, such as an Analog Meter or a Push Button, can be inserted into a Web page so that dynamic data may be visualized outside the context of the Graphic Editor.

To view live PLC data with a browser, you may opt for one of two methods to insert a FactoryCast applet into a Web page.

- (1) Enter the HTML code found in these sections:
 - Inserting LiveBeanApplet using HTML code
 - Inserting LiveLabelApplet using HTML code
 - Inserting LiveTableApplet using HTML code
 - (2) Insert a Java applet and then fill in the dialog boxes using the FactoryCast extension for Microsoft FrontPage 2000. See Using FactoryCast's Microsoft FrontPage Extension, p. 225.
-

Inserting LiveBeanApplet

Overview

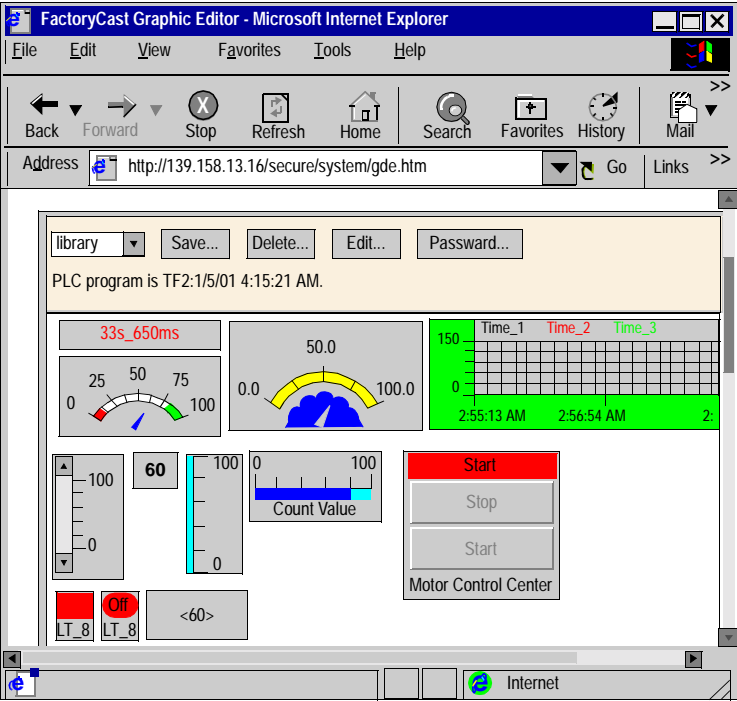
This document covers general concepts about inserting `LiveBeanApplet`. There is a section on inserting `LiveBeanApplet` using HTML and another using Microsoft's FrontPage Extension.

Note: Prior to inserting `LiveBeanApplet` into a Web page, you must first create a library of beans using the Graphic Editor that is part of the FactoryCast software. Generally a user will create a library of beans that has one instance of every object that they would like to use in a Web page. You can think of this library as a set of templates that are copied and customized in your Web pages. For example a library may have one analog meter, one rotary selector and one push button. Then multiple instances of each bean can be added to a Web page, each with a set of unique parameters such as address.

**Inserting a
LiveBeanApplet**

To insert a `LiveBeanApplet`, do the following.

Step	Action
1	<p>Using your Web browser, enter the name or IP address of your Web server module and go to the Graphic Editor applet found via the Diagnostic and Online Editors Web link.</p>  <p>The screenshot shows a Microsoft Internet Explorer window titled "Welcome to the FactoryCast Web Server for Quantum - Microsoft Internet Explorer". The address bar displays "http://139.158.13.16/secure/system/index.htm". The main content area shows the "FactoryCast Web Server for Quantum" title and a list of links: Home, Configured Local Rack, Controller Status, Ethernet Statistics, RIO Status, Graphic Editor, and Data Editor. The status bar at the bottom shows the address "http://139.158.13.16/secure/system/rde.htm" and the "Internet" icon.</p>

Step	Action
2	<p>Enter the Edit mode and create a library of beans you want to use on your Web pages. Customize each bean with a common set of parameters so that you only have to configure unique parameters, such as register address.</p>  <p>Note: For help using the Graphic Editor applet, see Graphic Editor, p. 166.</p>
3	<p>Once you have created your library, click the Done button in the editor window and then save your library.</p>

Inserting LiveBeanApplet using HTML Code

Overview

To graphically visualize data, use graphic objects such as Analog Meter or Push Button. Before any beans are inserted into a Web page, the special applet called `LiveBeanMgrApplet` must be inserted into the server.

LiveBean- MgrApplet

The `LiveBeanMgrApplet` allows the Web page to display dynamic data from the controller. This applet **must** be included **once** on the page if any instances of `LiveBeanApplet` are included in the page.

The `LiveBeanMgrApplet` can be included on a Web page in two possible forms.

- Invisible applet—if the Web page is used only to monitor PLC values, then no input is needed from the user
- Icon of a key—if the Web page is used both to send new values and to monitor values to the PLC, then input is needed from the user in order to send new values.

Note: If the applet is used as an icon of a key, the user enters a password in order to send values to the PLC. From the Web browser click on the applet (icon of a key), a dialog box appears requesting the user to enter a password; entering the password enables the user to write to the PLC.

Here is the HTML code that you use to include the applet on a Web page that is used only for monitoring:

```
<APPLET codebase="/classes"
archive="SAComm.jar,GDE.jar,Widgets.jar"
code="com.schneiderautomation.gde.LiveBeanMgrApplet"
width=0 height=0>
</APPLET>
```

Here is the HTML code that you use to include the applet on a Web page that is used for sending values to a PLC as well as monitoring:

```
<APPLET codebase="classes"
archive="SAComm.jar,GDE.jar,Widgets.jar"
code="com.schneiderautomation.gde.LiveBeanMgrApplet"
width=32 height=32>
<PARAM name=MODE value="READWRITE">
<PARAM name=AUTO_LOGIN value="FALSE">
</APPLET>
```

In the above example, if the value of the **AUTO_LOGIN** parameter is set to **TRUE**, instead of **FALSE**, then the password is automatically entered and the user is not required to enter the password.

LiveBeanApplet

The `LiveBeanApplet` is included one time for each symbol (variable) or direct address monitored/controlled on the Web page. For instance, if you are monitoring three symbols (variables), you would include the applet three times.

`LiveBeanApplet` allows any graphic object/Java Bean that was created with the **Graphic Editor** to be included on a Web page as a separate applet. (See **Graphic Editor**, p. 166, for information on the **Graphic Editor**.) Any graphic object that has been saved as part of a **Graphic Editor** graphic display can be retrieved from the graphic file and presented by the applet.

LiveBeanApplet Parameters

The `LiveBeanApplet` uses parameters that allow you to specify the graphic object to be presented by the applet and to set the applet's background color.

The applet's parameters and their meanings are shown below.

Parameter...	Defines...
LIBRARY	The name of the graphic display which contains the graphic object that is to be presented by the applet. (This will be the same name that was used when the graphic display was saved with the Graphic Editor .) This parameter is required.
BEAN	The name of the graphic object that is to be retrieved from the graphic display specified by the LIBRARY parameter. (This will be the name that appears as the 'Name' property of the graphic object.) This parameter is required.
BACKGRND	The background color for the applet. Acceptable values are WHITE, LT_GRAY, GRAY, DK_GRAY, BLACK, RED, PINK, ORANGE, YELLOW, GREEN, MAGENTA, CYAN, and BLUE. Also, a RGB color value can be entered using the format "0xRRGGBB" where RR, GG, and BB are the hexadecimal values for the red, green, and blue components, respectively. This parameter is optional but is normally set to match the color of the HTML page.

In addition to the above parameters, the `<APPLET>` tag for a `LiveBeanApplet` must include **width** and **height** attributes. Normally, the size of a `LiveBeanApplet` is set to match the size of the graphic object that it is presenting. To get the size of a graphic object, select the object while the **Graphic Editor** is in editing mode. The selected object's name and size are shown in the **Information Area** at the top of the **Graphic Editor** applet.

**LiveBeanApplet
Example**

All instances of `LiveBeanApplet` that are included in a Web page follow the same pattern, with only the applet's parameters and size varying for each instance. Here is the HTML code for including a `LiveBeanApplet` that will present the graphic object named **MyMeter** which was saved by the **Graphic Editor** as part of the graphic display, **Library1**.

```
<APPLET codebase="/classes"
archive="SAComm.jar,GDE.jar,Widgets.jar"
code="com.schneiderautomation.gde.LiveBeanApplet"
width=180 height=160>
<PARAM name=LIBRARY value="Library1">
<PARAM name=BEAN value="MyMeter">
<PARAM name=BACKGRND value="0xDDEEFF">
</APPLET>
```

More Information

For more information about creating Java applets and graphic objects to obtain runtime data from a PLC, refer to the Software Developer's Kit included in the FactoryCast installation.

Inserting LiveLabelApplet using HTML Code

Overview

Before any live labels are inserted into a Web page, the special applet called `LiveLabelMgrApplet` must be inserted into the page.

Note: However, if a Web page contains both `LiveLabelApplet` and `LiveBeanApplet`, then that page must contain a single instance of `LiveBeanMgrApplet`, not `LiveLabelMgrApplet`. (`LiveBeanMgrApplet` supports both `LiveLabelApplet` and `LiveBeanApplet`, while `LiveLabelMgrApplet` supports only `LiveLabelApplet`.)

LiveLabelMgrApplet

The `LiveLabelMgrApplet` allows the Web page to display dynamic data from the controller. This applet **must** be included **once** on the page if any instances of `LiveLabelApplet` are included on the page.

Here is the HTML code that you use to include the applet on a page.

```
<APPLET>
codebase="/classes" archive="SAComm.jar"
code="com.schneiderautomation.factorycast.LiveLabelMgrApple"
width=0 height=0>
</APPLET>
```

LiveLabelApplet

Use one `LiveLabelApplet` for every symbol (variable) or direct-address monitored on the Web page used. For example, if you are monitoring three symbols (variables), you would include the applet three times.

This applet displays the following three fields.

Field	Description
Label	Your label for the symbol (variable) or direct address
Value	Run-time value of the symbol (variable) or direct address
Units	The units you specify for the value

Data Parameters The applet's parameters, the their meaning, and the default values are shown below.

Parameter...	Defines...	With Default Value of...
LABEL	A text label to identify the data item	No label
UNITS	A text label to identify the value's engineering units	No units displayed
ADDRESS	The address of the Concept/PL7 symbol (variable) name or Quantum/Premium/Micro direct address	None
DATATYPE	The data type of the symbol (variable) or direct address. Acceptable values for this parameter are	UNDEFINED
	SHORT 8-bit signed integer	
	USHORT 8-bit unsigned integer	
	INT 16-bit signed integer	
	UINT 16-bit unsigned integer	
	DINT 32-bit signed integer	
	UDINT 32-bit unsigned integer	
	REAL 32-bit IEEE floating point	
	TIME 32-bit unsigned integer (in ms)	
	BOOL 1-bit discrete (boolean)	
	<p>NOTES: If the ADDRESS parameter is a direct address, a DATATYPE parameter must be provided.</p> <p>If ADDRESS is a direct address for a discrete PLC reference (Quantum 0x/1x reference), DATATYPE must be set to BOOL. DATATYPE may be set to BOOL only for discrete PLC references. If the ADDRESS parameter is the name of a Concept or PL7 symbol (variable), the DATATYPE parameter is optional. If the DATATYPE is specified for a symbol (variable), it must exactly match its actual data type.</p>	

Parameter...	Defines...	With Default Value of...
FORMAT	The display format for the value. Acceptable values for this parameter are	DEC for most data types
	DEC decimal	TIME for data type
	HEX hexadecimal	TIME
	BIN binary	BOOL for data type
	ASCII bytes displayed as ASCII characters	BOOL
	TIME 'day_hr_min_sec_ms'	
	BOOL ON_WORD or OFF_WORD (see below)	
	NOTE: If DATA TYPE is REAL, a FORMAT other than DEC will give unpredictable results if the value cannot be converted to an integer. Time is not a valid FORMAT for Premium (ETY).	
GAIN	The gain (multiplier) used for scaling the retrieved value to engineering units.	1.0
	NOTE: Scaling is to be performed only if GAIN or BIAS is set and FORMAT is DEC. Linear scaling is performed by the formula: $SCALED_VALUE = GAIN \times RAW_VALUE + BIAS$	
BIAS	The bias (offset) used for scaling the retrieved value to engineering units. See NOTE for GAIN.	0.0
ON_WORD	A text value to be shown when value is non-zero (Use only if the FORMAT is BOOL).	ON
OFF_WORD	A text value to be shown when value is zero (Use only if the FORMAT is BOOL).	OFF
FOREGRND	Foreground color of the applet. Acceptable values are: WHITE, LT_GRAY, DK_GRAY, BLACK, RED, PINK, ORANGE, YELLOW, GREEN, MAGENTA, CYAN, and BLUE Also, a RGB color value can be entered using the format "0xRRGGBB" where RR, GG, and BB are the hexadecimal values for the red, green, and blue components, respectively.	BLACK
BACKGRND	Background color for the applet. For acceptable values, see FOREGRND.	LT_GRAY

Parameter...	Defines...	With Default Value of...
ERROR_ COLOR	Foreground color of the VALUE field when unable to retrieve the value from the PLC. For acceptable values, see FOREGRND.	MAGENTA
LABEL_ ALIGN	Alignment of the text in the LABEL field, if the width of the field is greater than the length of the text. Acceptable values are: LEFT, CENTER, and RIGHT.	LEFT
VALUE_ ALIGN	Alignment of the text in the VALUE field, if the width of the field is greater than the length of the text. Acceptable values are: LEFT, CENTER, and RIGHT.	LEFT
UNITS_ ALIGN	Alignment of the text in the UNITS field, if the width of the field is greater than the length of the text. Acceptable values are: LEFT, CENTER, and RIGHT.	LEFT
FONT_ NAME	Name of the font used by the applet. Acceptable values are: SERIF, SANSSERIF, and MONOSPACE.	SANSSERIF
FONT_ BOLD	If set, displays all text in the applet as bold. Acceptable values are: TRUE and FALSE.	FALSE
FONT_ ITALIC	If set, displays all text in the applet in italics. Acceptable values are: TRUE and FALSE.	FALSE
FONT_SIZE	Sets the point size of the font used by the applet.	12
LABEL_ WIDTH	The width of the LABEL field.	
UNITS_ WIDTH	The width of the UNITS field.	

Size Parameters

The size of a `LiveLabelApplet` is specified in the width and height attributes of its `<APPLET>` tag. Unless the width of Label or Units field is set with the `LABEL_WIDTH` or `UNITS_WIDTH` parameters, the LABEL and UNITS fields of the applet will always take the width required to display the text values of their associated applet parameters. The remaining width of the applet is given to its VALUE field.

**LiveLabelApplet
Example #1**

The applet example in this section contains almost every applet parameter. Here is the HTML code for this example.

```
<APPLET codebase="/classes" archive="SAComm.jar"
code="com.schneiderautomation.factorycast.LiveLabelApplet"
width=300 height=30>
<PARAM name=LABEL value="Reactor 1 Temperature">
<PARAM name=UNITS value="F">
<PARAM name=ADDRESS value="40101">(ForPremium value="%MW100")
<PARAM name=DATATYPE value="UINT">
<PARAM name=FORMAT value="DEC">
<PARAM name=GAIN value="2.0">
<PARAM name=BIAS value="100.0">
<PARAM name=FOREGRND value="WHITE">
<PARAM name=BACKGRND value="BLACK">
<PARAM name=ERROR_COLOR value="RED">
<PARAM name=FONT_NAME value="SERIF">
<PARAM name=FONT_BOLD value="TRUE">
<PARAM name=FONT_ITALIC value="FALSE">
<PARAM name=FONT_SIZE value="10">
</APPLET>
```

**LiveLabelApplet
Example #2**

This is an example of a minimal applet, using default values for most parameters. Here is the HTML code for this example.

```
<APPLET codebase="/classes" archive="SAComm.jar"
code="com.schneiderautomation.factorycast.LiveLabelApplet"
width=300 height=30>
<PARAM name=LABEL value="Reactor 1 Pressure">
<PARAM name=UNITS value="PSI">
<PARAM name=ADDRESS value="PT_101">
</APPLET>
```

Inserting LiveTableApplet using HTML Code

Overview

`LiveTableApplet` is used to display dynamic, runtime PLC data on a Web page, and `LiveTableApplet` operates in a manner similar to `LiveLabelApplet`. However, there is a difference: `LiveTableApplet` can show multiple input values using a tabular format. Only a single input value can be shown with `LiveLabelApplet`.

LiveTableApplet

`LiveTableApplet` supports applet parameters for

- Setting the number of rows in its table (`N_ROWS`)
- Default settings for a row's properties
- Unique settings for each row's properties

The properties (default or unique) that can be set for a row of `LiveTableApplet` are the same properties that can be set for `LiveLabelApplet`. (The parameter names are the same as those for `LiveLabelApplet`, except that **Rx_** prefixes them, where **x** equals the applicable row number. A default setting is specified by not including the **Rx_** prefix.

**LiveTableApplet
Example**

This is an example of `LiveTableApplet` that has two rows and an overall width of 200. The common row properties set the width of the **Label** field to 100 and the width of the **Units** field to 40 (leaving a width of 60 for the **Value** field). Also, every row has a black background with white text of size-10 font. The **Label** text is centered; the **Value** text is right-aligned; and the **Units** text is left-aligned. The address, data type, and the text for the **Label** and **Units** fields are set individually for each of the two rows.

Here is the HTML code for this example.

```
<APPLET codebase="/classes" archive="SAComm.jar"
code="com.schneiderautomation.factorycast.LiveTableApplet"
width="200" height="40">
<PARAM name=N_ROWS value="2">
<PARAM name=LABEL_WIDTH value="100">
<PARAM name=UNITS_WIDTH value="40">
<PARAM name=BACKGRND value="BLACK">
<PARAM name=FOREGRND value="WHITE">
<PARAM name=FONT_SIZE value="10">
<PARAM name=LABEL_ALIGN value="CENTER">
<PARAM name=VALUE_ALIGN value="RIGHT">
<PARAM name=UNITS_ALIGN value="LEFT">
<PARAM name=R1_LABEL value="Reactor Pressure">
<PARAM name=R1_UNITS value="PSIG">
<PARAM name=R1_ADDRESS value="400101">
» (for Premium value="%MW101")
<PARAM name=R1_DATATYPE value="INT">
<PARAM name=R2_LABEL value="Reactor Temperature">
<PARAM name=R2_UNITS value="F">
<PARAM name=R2_ADDRESS value="400102">
» (for Premium value="%MW102")
<PARAM name=R2_DATATYPE value="INT">
</APPLET>
```

8.3 Using FactoryCast's Microsoft FrontPage Extension

Using FactoryCast's Microsoft FrontPage Extension

Overview

The Using Factory Cast's Java Applets section described how to add FactoryCast's Java applets to a HTML document using any text editor. This section describes using an extension for Microsoft's FrontPage application. The extension allows a user of FrontPage to easily insert FactoryCast applets to view real-time PLC data on a Web page.

What's in this Section?

This Section contains the following Maps:

Topic	Page
Installing FactoryCast's Microsoft FrontPage Extension	226
Inserting LiveBeanApplet Using FrontPage	232
Inserting LiveLabelApplet Using FrontPage	240
Inserting LiveTableApplet Using FrontPage	244

Installing FactoryCast's Microsoft FrontPage Extension

Overview

This section describes how to install/remove the FactoryCast Extension for Microsoft FrontPage 2000.

Installing FactoryCast

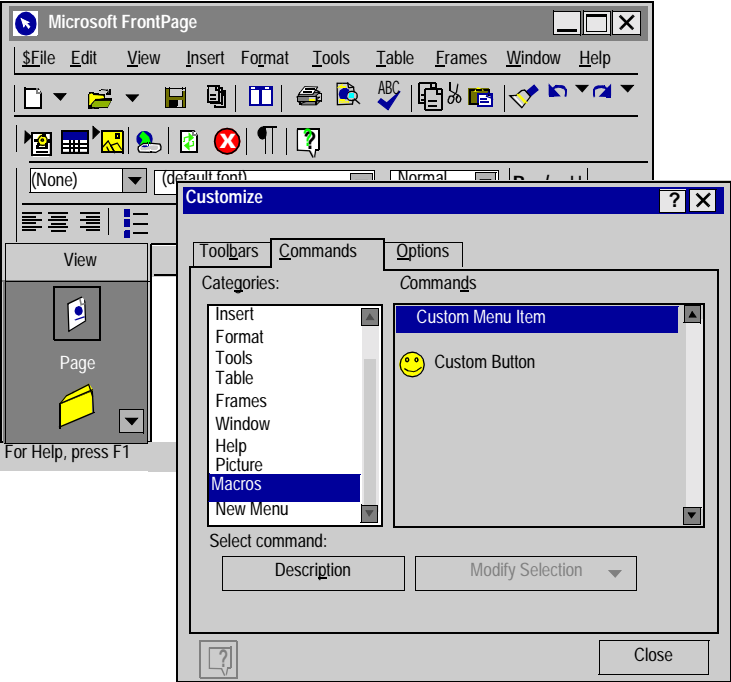
During the installation of FactoryCast, if FrontPage 2000 has been installed on the same PC, then the FactoryCast Extension for FrontPage 2000 is automatically installed as a FrontPage "Macro File." If this is the case, then proceed to the next section, which provides instructions for adding the Extension to FrontPage's menu. However, if FrontPage 2000 is installed after FactoryCast has been installed, then the Extension can be installed by either re-installing FactoryCast or manually copying the macro file to FrontPage's macro folder. For manual installation, after installing FrontPage 2000, the following will install the Extension:

- **For Windows 95/98:** Copy the file "Microsoft FrontPage.fpm" to the folder C:\WINDOWS\Application Data\Microsoft\FrontPage\Macros. (Create the final "Macros" folder, if it does not already exist.)
 - **For Windows NT/2000:** Copy the file "Microsoft FrontPage.fpm" to the folder %USERPROFILE%\Application Data\Microsoft\FrontPage\Macros. (Create the final 'Macros' folder, if it does not already exist.) The value of the USERPROFILE environment variable is usually C:\WINNT\Profiles\<username>. Its value can be determined by typing SET from a Command Prompt.
-

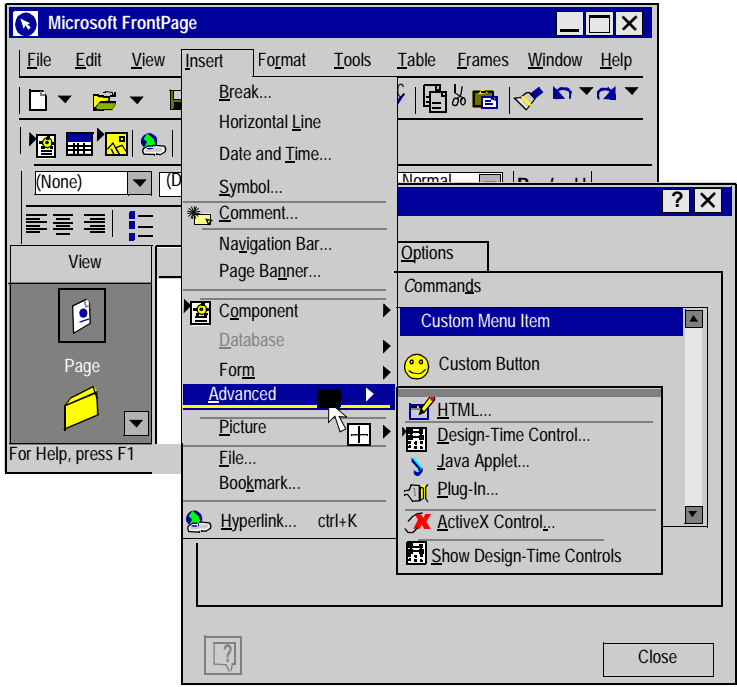
**Adding
FactoryCast
Extension**

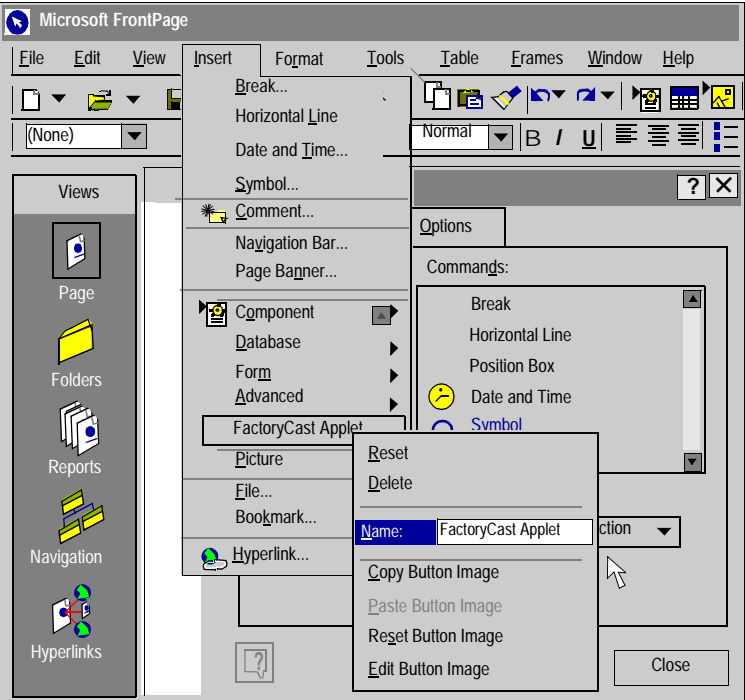
To add the FactoryCast Extension to the FrontPage **Insert** menu, do the following.

Step	Action
1	Start FrontPage 2000.
2	Click Customize on the Tools menu.
3	Click the Commands tab, and then select Macros from the Categories list.

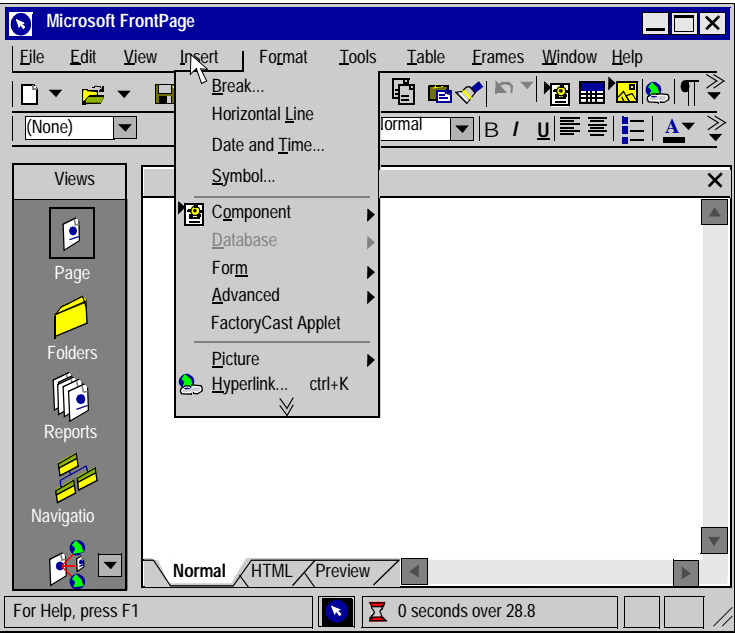


The screenshot shows the Microsoft FrontPage 2000 application window. The 'Customize' dialog box is open, with the 'Commands' tab selected. In the 'Categories' list on the left, 'Macros' is highlighted. The 'Commands' list on the right contains two items: 'Custom Menu Item' and 'Custom Button'. Below the lists, there are buttons for 'Description' and 'Modify Selection', and a 'Close' button at the bottom right.

Step	Action
4	<p>Drag and drop the entry Custom Menu Item from the Commands list to the Insert menu, beneath the Advanced command. (The Insert menu will automatically drop down when you drag over it.)</p> 

Step	Action
5	<p>Click Modify Selection, change the name to FactoryCast Applet, and then press ENTER key.</p>  <p>The screenshot shows the Microsoft FrontPage application window. The 'Insert' menu is open, and the 'Modify Selection' dialog box is displayed. The 'Name' field is set to 'FactoryCast Applet'. The 'Action' dropdown is set to 'Break'. The 'Commands' list includes Break, Horizontal Line, Position Box, Date and Time, and Symbol. The 'Reset' button is highlighted.</p>

Step	Action
6	<div>Click Modify Selection again, and then choose Assign Macro.</div> <div><div>Macro</div><div><div>Macro Name:</div><div>FactoryCast_Applet</div><div>FactoryCast_Applet</div></div><div><div>OK</div><div>Cancel</div></div><div><div>Macro In:</div><div>Microsoft FrontPage</div></div></div>
7	<div>Choose FactoryCast_Applet from the list, and then click OK.</div>

Step	Action
8	<p>Click Close.</p> <p>The FactoryCast Applet command is added to the Insert menu.</p>  <p>The screenshot shows the Microsoft FrontPage application window. The 'Insert' menu is open, displaying options: Break..., Horizontal Line, Date and Time..., Symbol..., Component, Database, Form, Advanced, FactoryCast Applet, Picture, and Hyperlink... (with a keyboard shortcut of ctrl+K). The 'FactoryCast Applet' option is highlighted. The left sidebar shows 'Views' with icons for Page, Folders, Reports, and Navigation. The bottom status bar indicates 'For Help, press F1' and a timer showing '0 seconds over 28.8'.</p>

**Removing
FactoryCast
Extension**

To remove the FactoryCast Extension from the FrontPage menu, do the following.

Step	Action
1	In FrontPage, click Customize on the Tools menu.
2	Click the Insert menu, and then select FactoryCast Applet .
3	Right click, and then select Delete from the popup menu.

Editing Applets

There are two ways to edit an applet that has been inserted into your Web page. First, you can double-click on the object and make changes via dialog boxes. Or you can switch to the HTML editor in FrontPage and do your editing in this environment. It is suggested you edit via the first approach unless you are comfortable programming in the HTML language used to build Web pages.

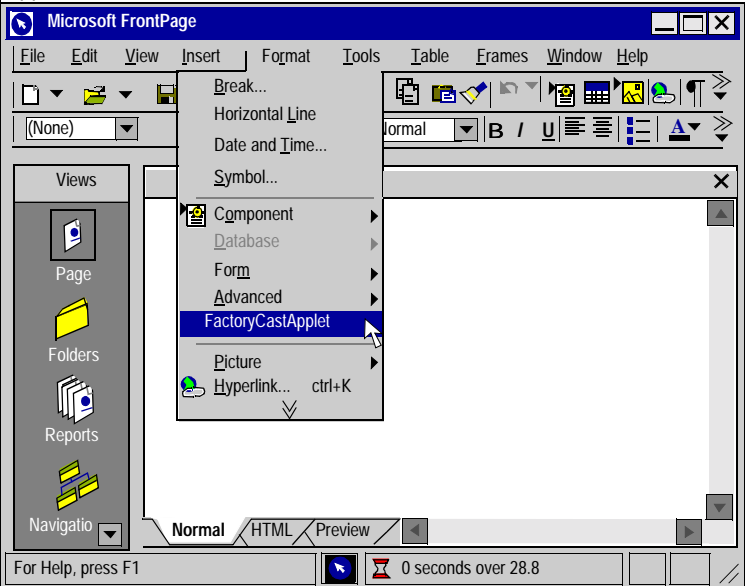
Inserting LiveBeanApplet Using FrontPage

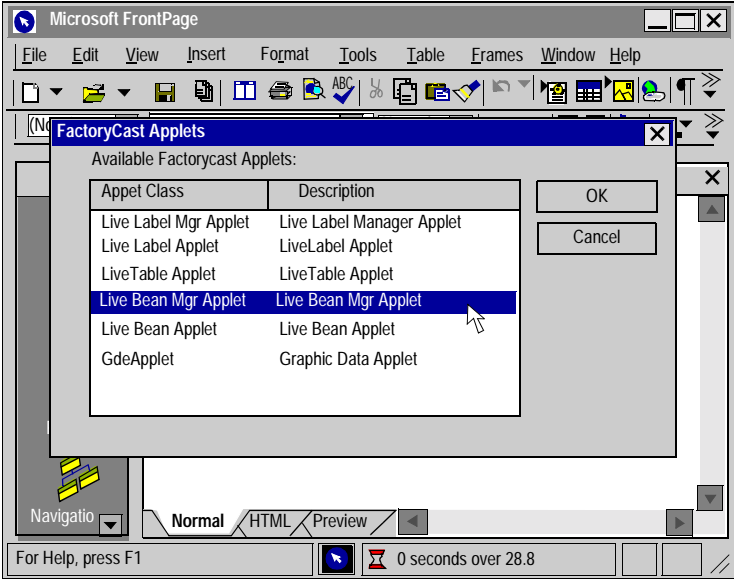
Overview

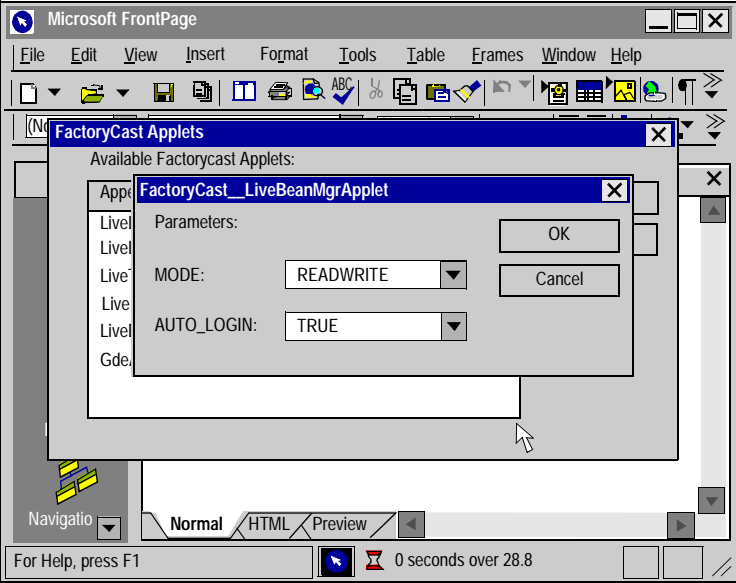
This section describes inserting `LiveBeanApplet` into a Web page. Before inserting, please read the following note and then follow steps one through sixteen below.

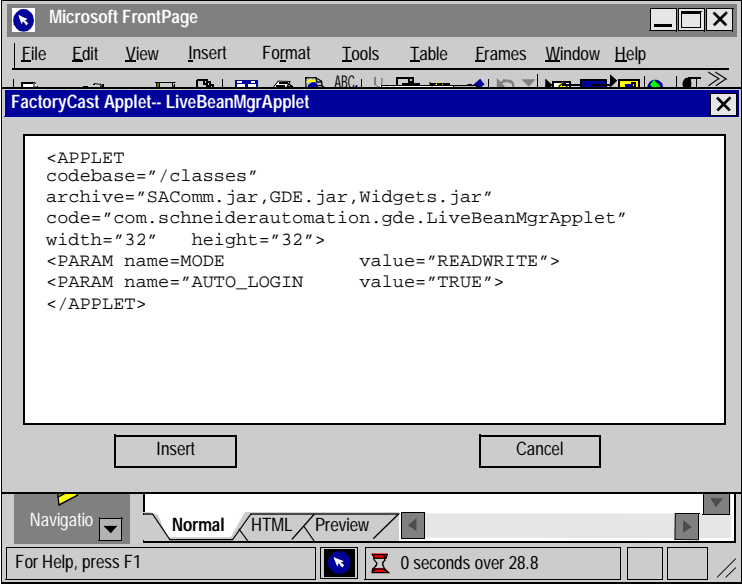
Inserting a LiveBeanApplet

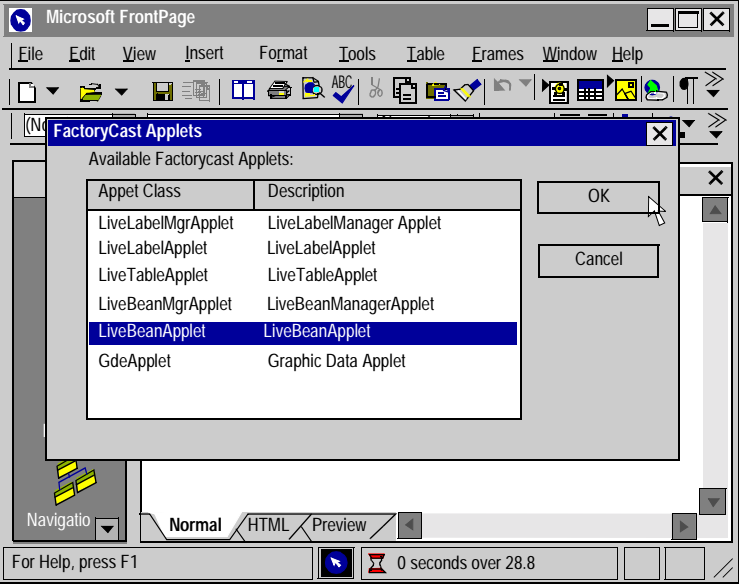
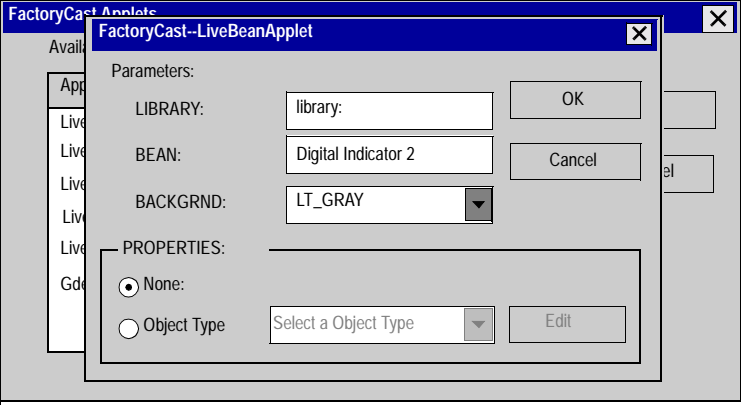
To insert a `LiveBeanApplet`, do the following.

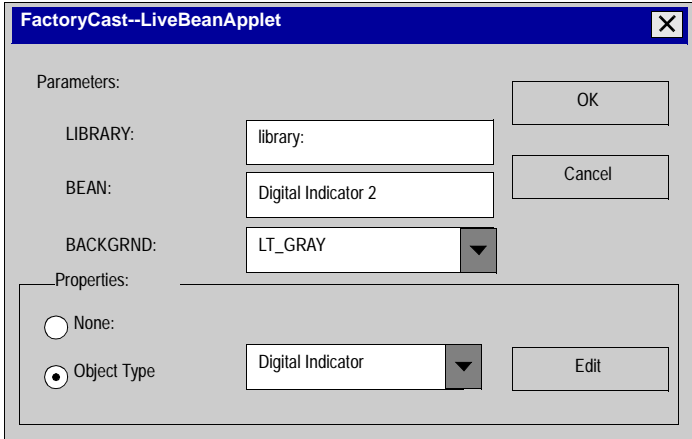
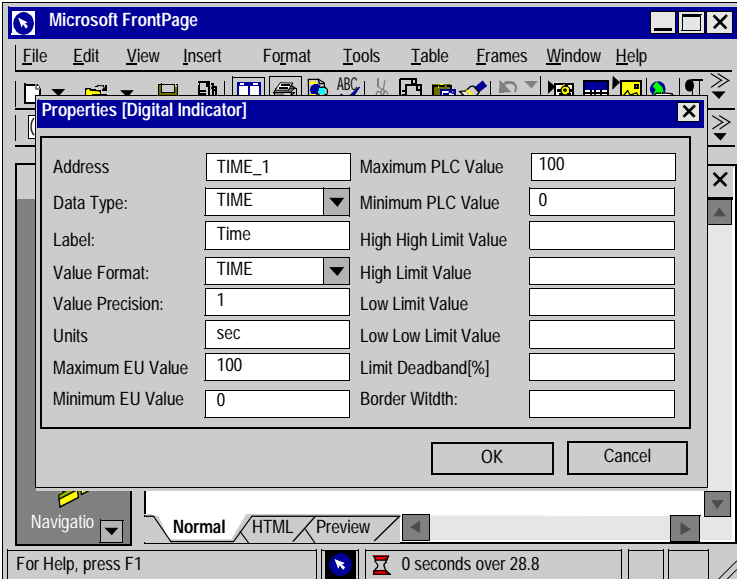
Step	Action
1	<div>In FrontPage, Select Insert FactoryCast Applet to view the FactoryCast applet selection window</div>  <p>The screenshot shows the Microsoft FrontPage application window. The 'Insert' menu is open, and the 'FactoryCastApplet' option is highlighted. The menu structure is as follows: Insert > Component > Database > Form > Advanced > FactoryCastApplet. Other options in the Insert menu include Break..., Horizontal Line, Date and Time..., Symbol..., Picture, and Hyperlink... (ctrl+K). The left sidebar shows 'Views' with 'Page' selected, and 'Folders', 'Reports', and 'Navigation' below it. The bottom status bar shows 'Normal', 'HTML', 'Preview', and a timer '0 seconds over 28.8'.</p>

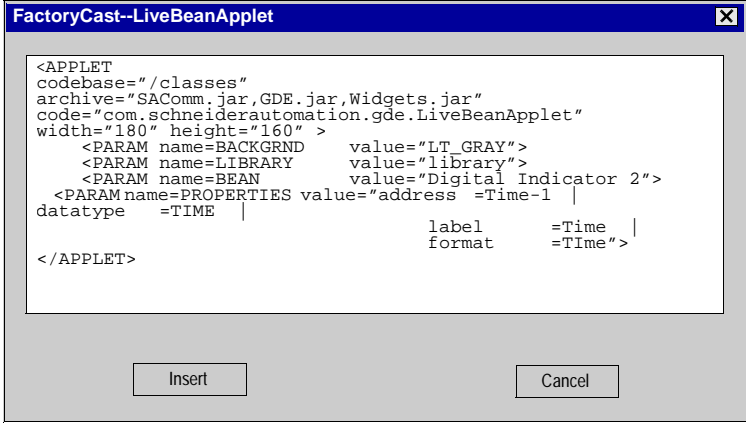
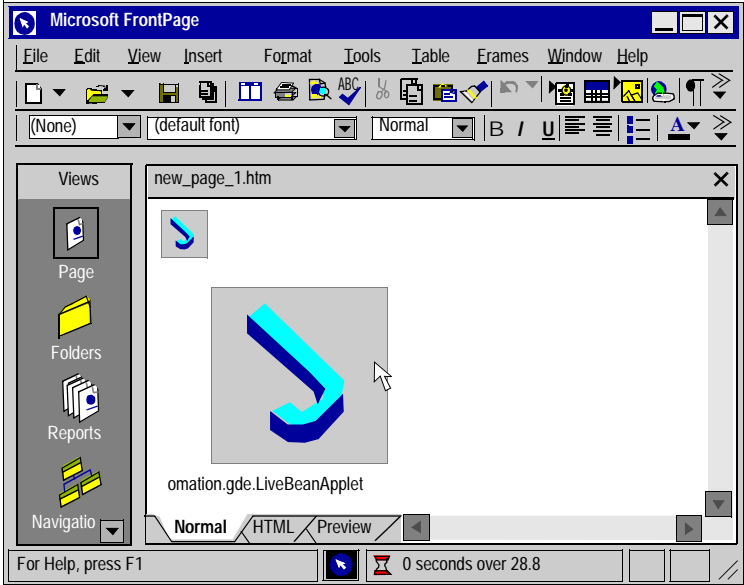
Step	Action														
2	<div><p>Select the applet LiveBeanMgrApplet and then click the OK button.</p><p>The screenshot shows the Microsoft FrontPage application window. A dialog box titled 'FactoryCast Applets' is open, displaying a list of available applets. The 'Live Bean Mgr Applet' is highlighted. The dialog box has 'OK' and 'Cancel' buttons. The background shows the FrontPage interface with a menu bar, toolbar, and a status bar at the bottom indicating '0 seconds over 28.8'.</p><table border="1"><thead><tr><th>Appet Class</th><th>Description</th></tr></thead><tbody><tr><td>Live Label Mgr Applet</td><td>Live Label Manager Applet</td></tr><tr><td>Live Label Applet</td><td>LiveLabel Applet</td></tr><tr><td>LiveTable Applet</td><td>LiveTable Applet</td></tr><tr><td>Live Bean Mgr Applet</td><td>Live Bean Mgr Applet</td></tr><tr><td>Live Bean Applet</td><td>Live Bean Applet</td></tr><tr><td>GdeApplet</td><td>Graphic Data Applet</td></tr></tbody></table></div> <p>Note: The LiveBeanMgrApplet is a special applet that is inserted one time only into your Web page.</p>	Appet Class	Description	Live Label Mgr Applet	Live Label Manager Applet	Live Label Applet	LiveLabel Applet	LiveTable Applet	LiveTable Applet	Live Bean Mgr Applet	Live Bean Mgr Applet	Live Bean Applet	Live Bean Applet	GdeApplet	Graphic Data Applet
Appet Class	Description														
Live Label Mgr Applet	Live Label Manager Applet														
Live Label Applet	LiveLabel Applet														
LiveTable Applet	LiveTable Applet														
Live Bean Mgr Applet	Live Bean Mgr Applet														
Live Bean Applet	Live Bean Applet														
GdeApplet	Graphic Data Applet														

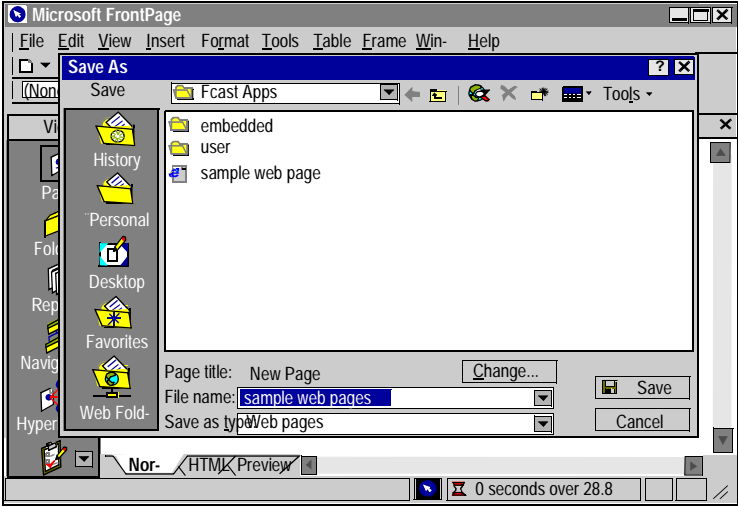
Step	Action
3	<p>Configure the Mode and Auto Login parameters and then click the OK button.</p> 

Step	Action
4	<p>A window will appear showing the Java code that will be inserted into your HTML document.</p>  <p>Select the Insert button to finish inserting this applet.</p> <p>Note: Though a gray box with a blue letter "J" will appear on your Web page during editing, this applet will only be visible on your loaded Web page if you configured the Mode parameter as ReadWrite (it will appear as a Key when viewed via your browser). Otherwise, if Mode is set as ReadOnly then the width and height of the applet will be set to zero and you will not see it in your browser. For more information on the Mode parameter and its functionality, see Using FactoryCast's Java Applets Using HTML Code, p. 210.</p>

Step	Action
5	<p>Select the LiveBeanApplet from the FactoryCast applet selection window and then click the OK button.</p>  <p>The screenshot shows the Microsoft FrontPage application window. A dialog box titled "FactoryCast Applets" is open, displaying a list of available applets. The "LiveBeanApplet" is selected in the list. The "OK" button is highlighted with a mouse cursor. The background shows the FrontPage interface with the "Normal" style selected and a status bar indicating "0 seconds over 28.8".</p>
6	<p>Enter the library name and the name of a particular bean in this library that you want to show. If none of the bean's properties, such as address, need to be customized, then click the OK button.</p>  <p>The screenshot shows the "FactoryCast-LiveBeanApplet" dialog box. It contains fields for "LIBRARY:" (with value "library:"), "BEAN:" (with value "Digital Indicator 2"), and "BACKGRND:" (with value "LT_GRAY"). Below these is a "PROPERTIES:" section with two radio buttons: "None:" (selected) and "Object Type". The "Object Type" radio button is accompanied by a dropdown menu labeled "Select a Object Type" and an "Edit" button. The "OK" and "Cancel" buttons are also visible.</p>

Step	Action
7	<p>Usually at a minimum the address property will need to be customized for your beans. Thus after entering the library name and bean name, select the object type from the Object Type box.</p>  <p>Click the Edit button when finished.</p>
8	<p>In the properties edit window, change only those parameters, such as address, that are unique to this bean. All other parameters will be set to that of the saved bean in your library. Click the OK button when finished.</p> 

Step	Action
9	<p>Click the OK button. A window will appear showing the Java code that will be inserted into your HTML document. Select the Insert button to finish inserting this bean.</p> 
10	<p>Continue to add instances of LiveBeanApplet to your Web page. Once you have inserted your last applet, click the Cancel button on the FactoryCast applet selection window to return to editing your Web page.</p> 

Step	Action
11	<div>Save the customized Web page.</div> <div></div>
12	Transfer the customized Web page to the NOE Web server.
13	Test the application.

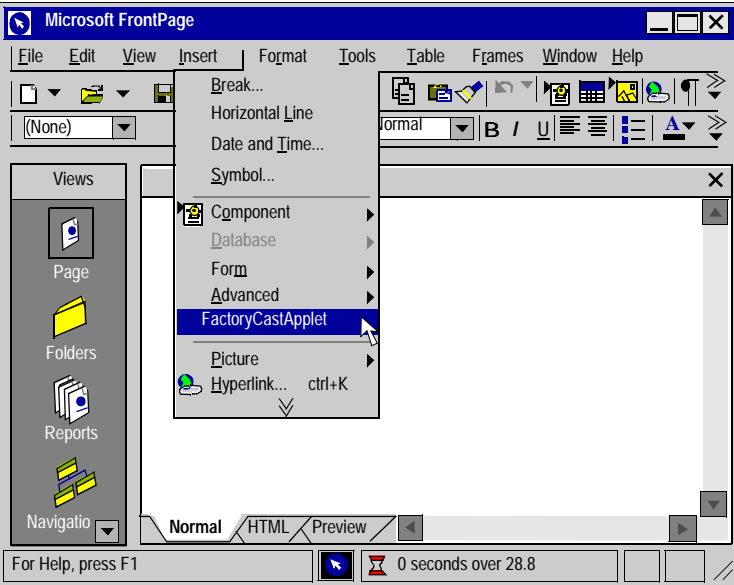
Inserting LiveLabelApplet Using FrontPage

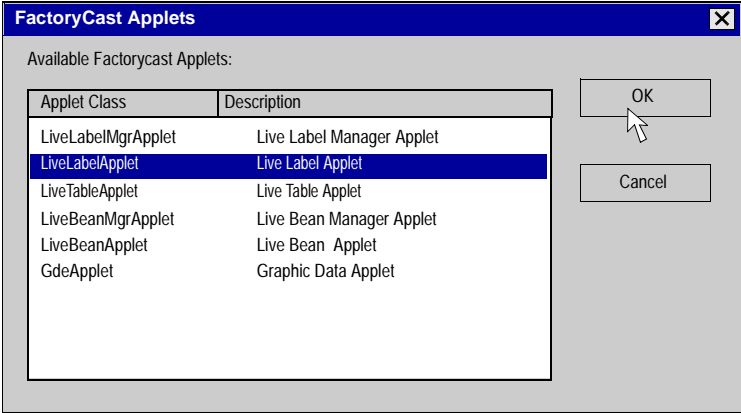
Overview

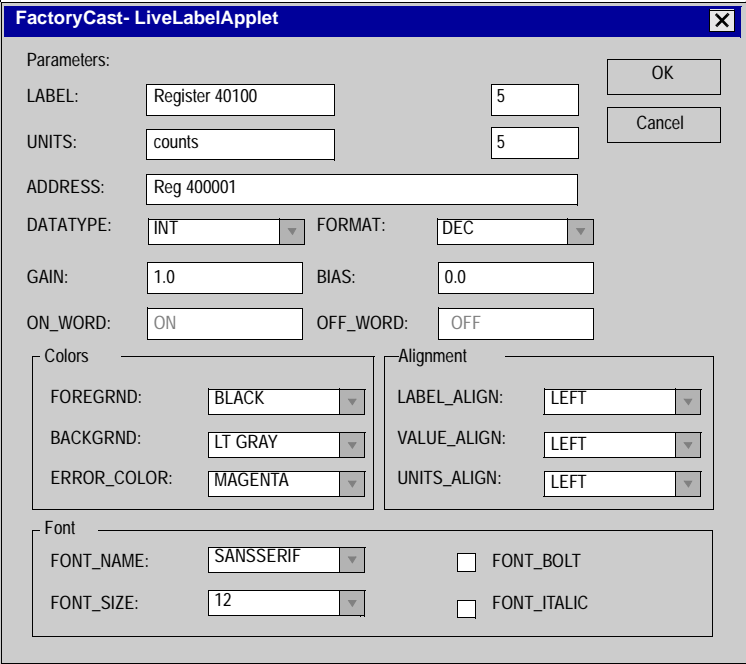
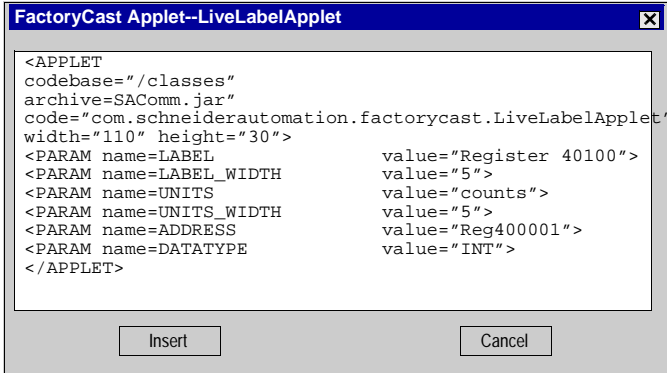
This section describes inserting LiveLabelApplet into a Web page.

Inserting LiveLabelApplet

To insert a LiveLabelApplet, do the following.

Step	Action
1	<div>Select Insert FactoryCast to view the FactoryCast applet selection window.</div>  A screenshot of the Microsoft FrontPage 2.0 application window. The 'Insert' menu is open, showing options like Break..., Horizontal Line, Date and Time..., Symbol..., Component, Database, Form, Advanced, FactoryCastApplet (highlighted), Picture, and Hyperlink... The 'Component' submenu is also visible, showing Database, Form, and Advanced. The status bar at the bottom indicates '0 seconds over 28.8'.

Step	Action
2	<p>Select the applet LiveLabelMgrApplet and then click the OK button.</p> <div></div> <p>Note: The LiveLabelMgrApplet is a special applet that is inserted one time only into your Web page. Though a gray box with a blue letter "J" will appear on your Web page during editing, this applet will not be visible when you view your Web page from the Web server module.</p>
3	<p>Select the applet LiveLabelApplet and then click the OK button. The Parameters edit window appears.</p>

Step	Action
4	<p>Fill in the parameters for the label and then click the OK button.</p>  <p>Note: For a description on each parameter, see Using FactoryCast's Java Applets Using HTML Code, p. 210.</p>
5	<p>A window will appear showing the Java code that will be inserted into your HTML document. Click the Insert button to finish inserting this applet.</p>  <pre> <APPLET codebase="/classes" archive=SAComm.jar" code="com.schneiderautomation.factorycast.LiveLabelApplet" width="110" height="30"> <PARAM name=LABEL value="Register 40100"> <PARAM name=LABEL_WIDTH value="5"> <PARAM name=UNITS value="counts"> <PARAM name=UNITS_WIDTH value="5"> <PARAM name=ADDRESS value="Reg400001"> <PARAM name=DATATYPE value="INT"> </APPLET> </pre>

Step	Action
6	Continue to add additional instances of <code>LiveLabelApplet</code> to your Web page. Once you have inserted your last applet, click the Cancel button on the FactoryCast applet selection window to return to editing your Web page.

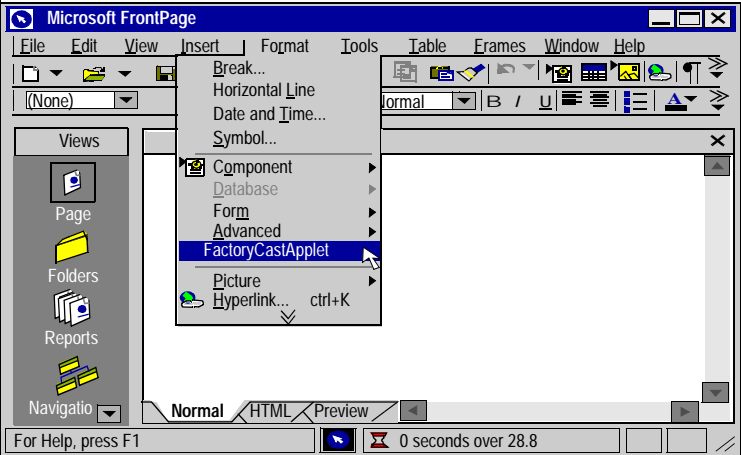
Inserting LiveTableApplet Using FrontPage

Overview

This section describes inserting LiveTableApplet into a Web page.

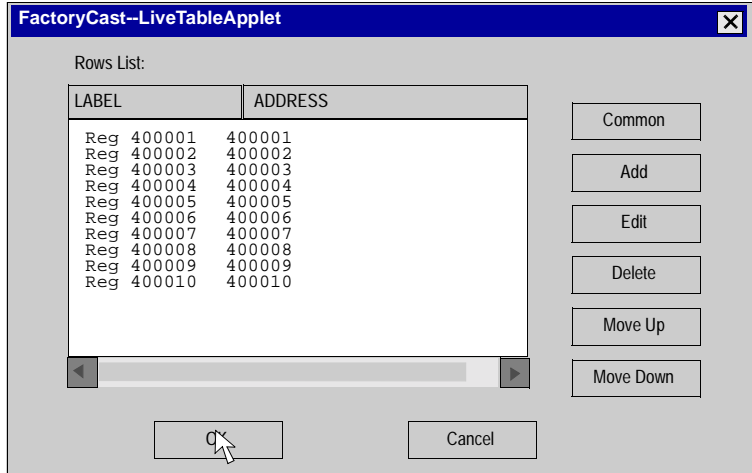
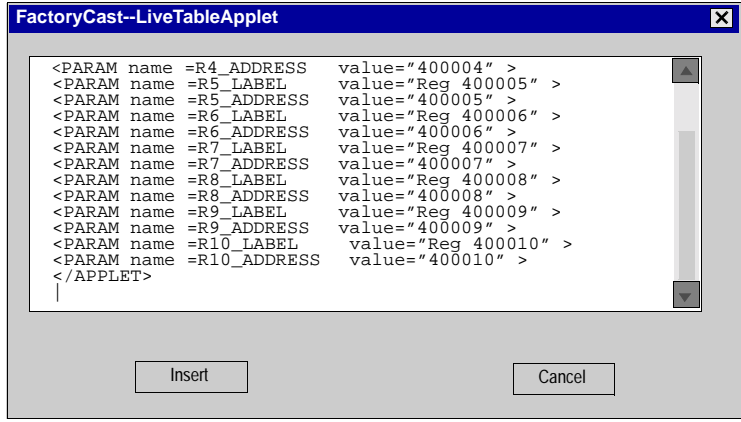
Inserting LiveTableApplet

To insert a LiveTableApplet, do the following.

Step	Action
1	Select Insert FactoryCast to view the FactoryCast applet selection window.  The screenshot shows the Microsoft FrontPage application window. The 'Insert' menu is open, and the 'FactoryCastApplet' option is highlighted. The 'Views' task pane on the left shows 'Page' selected. The status bar at the bottom indicates 'For Help, press F1' and a timer showing '0 seconds over 28.8'.
2	Select the applet LiveLabelMgrApplet and then click the OK button. Note: The LiveLabelMgrApplet is a special applet that is inserted one time only into your Web page.

Step	Action														
3	<p>Select the LiveTableApplet and then click the OK button.</p> <div><div>FactoryCast Applets</div><div>Available Factorycast Applets:</div><table><thead><tr><th>Applet Class</th><th>Description</th></tr></thead><tbody><tr><td>LiveLabelMgrApplet</td><td>Live Label Manager Applet</td></tr><tr><td>LiveLabelApplet</td><td>Live Label Applet</td></tr><tr><td>LiveTableApplet</td><td>Live Table Applet</td></tr><tr><td>LiveBeanMgrApplet</td><td>Live Bean Manager Applet</td></tr><tr><td>LiveBeanApplet</td><td>Live Bean Applet</td></tr><tr><td>GdeApplet</td><td>Graphic Data Applet</td></tr></tbody></table><div><div>OK</div><div>Cancel</div></div></div>	Applet Class	Description	LiveLabelMgrApplet	Live Label Manager Applet	LiveLabelApplet	Live Label Applet	LiveTableApplet	Live Table Applet	LiveBeanMgrApplet	Live Bean Manager Applet	LiveBeanApplet	Live Bean Applet	GdeApplet	Graphic Data Applet
Applet Class	Description														
LiveLabelMgrApplet	Live Label Manager Applet														
LiveLabelApplet	Live Label Applet														
LiveTableApplet	Live Table Applet														
LiveBeanMgrApplet	Live Bean Manager Applet														
LiveBeanApplet	Live Bean Applet														
GdeApplet	Graphic Data Applet														

Step	Action		
4	<div><p>Click the Common button to configure all the parameters that are common to all rows of the table.</p><div><div>FactoryCast--LiveTableApplet</div><div><div>Rows List:</div><table><thead><tr><th>LABEL</th><th>ADDRESS</th></tr></thead><tbody></tbody></table><div><div>Common</div><div>Add</div><div>Edit</div><div>Delete</div><div>Move Up</div><div>Move Down</div></div><div><div>OK</div><div>Cancel</div></div></div></div><p>This procedure speeds configuration by simultaneously entering many values that have the same parameter fields. You may still edit parameters for rows individually during the add process.</p><div><div>FactoryCast - - LiveTableApplet [Row]</div><div><div>Parameters</div><div>Row: 1</div><div><div>OK</div><div>Cancel</div></div></div><div><div>LABEL:</div><div>Test1</div></div><div><div>UNITS:</div><div></div></div><div><div>ADDRESS:</div><div>400001</div></div><div><div>DATATYPE:</div><div>UNDEFINED</div><div>FORMAT:</div><div>DEC</div></div><div><div>GAIN:</div><div>1.0</div><div>BIAS:</div><div>0.0</div></div><div><div>ON_WORD:</div><div>ON</div><div>OFF_WORD:</div><div>OFF</div></div><div><div>Colors</div><div><div>FOREGRND:</div><div>BLACK</div></div><div><div>BACKGRND:</div><div>LT GRAY</div></div><div><div>ERROR_COLOR:</div><div>MAGENTA</div></div></div><div><div>Alignment</div><div><div>LABEL_ALIGN:</div><div>LEFT</div></div><div><div>VALUE_ALIGN:</div><div>LEFT</div></div><div><div>UNITS_ALIGN:</div><div>LEFT</div></div></div><div><div>Font</div><div><div>FONT_NAME:</div><div>SANSERIF</div><div>FONT_BOLD:</div><div><input type="checkbox"/></div></div><div><div>FONT_SIZE:</div><div>12</div><div>FONT_ITALIC:</div><div><input type="checkbox"/></div></div></div></div></div>	LABEL	ADDRESS
LABEL	ADDRESS		

Step	Action
5	<p>Click the Add button to add a row to your table. The parameters edit dialog window appears. Configure parameters and then click the Add button when you are done.</p> 
6	<p>Continue to add rows using the Add button. You may also select a row and move it up or down the rows of your table using the Move Up and Move Down buttons. When you are finished adding and editing rows in your table, click the OK button from the Rows List window.</p>
7	<p>A window will appear showing the HTML code that will be inserted into your HTML document. Click the Insert button to finish inserting this applet.</p> 

Alarm Viewer

9

Alarm Viewer

Overview

The Alarm Viewer is a Java applet designed to monitor Premium PLCs. It is not currently supported by Quantum and Micro. It is a Client Runtime Function and will run in the JVM of internet client browser (Internet Explorer, Netscape Navigator, etc.).

References

Refer to the following manuals for a full explanation of the software.

Language	Manual	Part Number	Order Number
Spanish	Manual de instalación de las funciones de diagnóstico	TLX DS DIAG PL7 33S	W915905840701A02
German	Handbuch zur Inbetriebnahme der Diagnosefunktionen	TLX DS DIAG PL7 33G	W915905840201A02
French	Manuel de mise en œuvre des fonctions de diagnostic	TLX DS DIAG PL7 33F	W915905840101A02
English	Diagnostic Functions Setup Manual	TLX DS DIAG PL7 33E	W915905840301A02

Abbreviations

DFB: Derived Function Block

What's in this Chapter?

This Chapter contains the following Maps:

Topic	Page
Display	250
Operation and Management of Alarms	253
Limitations	254

Display

Overview

This section discusses setting and interpreting the display of the Alarm Viewer.

Setting Up

Select **Server | Alarm Viewer**.






Note: **Alarm Viewer** is a plug-in. You must download it before you can use it.

The display is composed of

- Button bar (in the work area)
 - List of alarms
 - Status frame
-

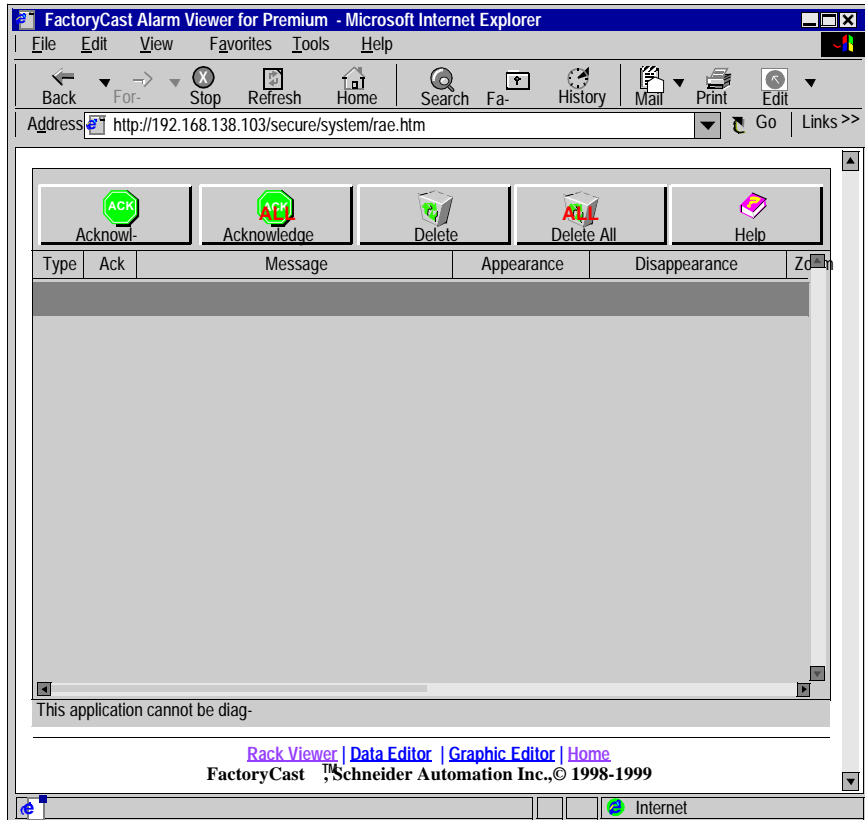
Button Bar

The button bar contains five buttons.

	This button is used to acknowledge a selected alarm in the list. A request is sent to the PLC (Diagnostic Buffer).
	This button is used to acknowledge all alarms in the list that can be acknowledged. A request for each alarm is sent to the PLC.
	This button is used to delete a selected alarm in the list. There is no request sent to the PLC. This command affects only the alarm list in Alarm Viewer.
	This button is used to delete all alarms in the list that can be deleted. There is no request sent to the PLC. This command affects only the alarm list in Alarm Viewer.
	This button displays a frame that contains help.

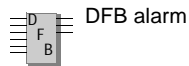
List of Alarms

Alarms in the list are displayed in historical order. The last alarm in runtime is added to the end of the list.



Each line displayed in the list corresponds to an alarm and contains the following information

Type: An icon that represents the alarm type. For each type of alarm there is a different icon.



DFB alarm



Grafcet alarm



System alarm



A-SI alarm

Ack: An icon that represents the acknowledgement status.



This alarm must be acknowledged by the user.



Alarm has been acknowledged.



Alarm doesn't need to be acknowledged.

Message: Alarm text.

Appearance: Date and time when alarm occurs.

Disappearance: Date and time when alarm disappears.

Zone or area number: Area or geographical zone from which the error comes (common area: 0).

Note: Consider the following.

- You can change the column width by using the mouse.
- The number of alarms that can be displayed in the list is limited to 1000. When this limit is reached, a warning message is displayed in the status frame. Alarm Viewer recognizes subsequent alarms, but doesn't display them. To see the next alarms, the user must purge the list of alarms displayed by Alarm Viewer.
- Alarm Viewer displays alarms from all zones. The zone contains values from 0 ... 15.

Note: An alarm that appears is displayed in red text and there is no **Disappearance**. An alarm that disappears is displayed in green text with **Disappearance**.

Status Frame

This frame is used to display the error, an information message, or throughput messages. For example a message such as, "Diagnostic Application is not configured in this application."

Operation and Management of Alarms

Browsing

Use the UP, DOWN, PAGEUP, or PAGEDOWN keys or the mouse to select the alarms in the list. Use the scroll bar if the list contains more alarms than can be displayed in the dialog.

Acknowledgment

To acknowledge an alarm that requires acknowledgment, select the alarm and use the appropriate toolbar button.

Several alarms can be acknowledged at one time by using the **Ack All** button.

<p>Note: An alarm can be acknowledged by another Alarm Viewer. In this case, Alarm Viewer is notified and the alarm is displayed as acknowledged.</p>
--

Deleting an Alarm from the List

- An alarm that requires acknowledgment or that has not disappeared cannot be deleted.
 - DELETE and DELETE ALL buttons can be used to delete only those alarms that have disappeared and have been acknowledged (if acknowledgment is required).
-

Limitations

Overview

For each alarm, there is additional information stocked in the diagnostic buffer. For example, many DFBs have outputs named STATUS (word) where the error cause is coded. Alarm Viewer doesn't use this information. It displays only basic information about alarms.

Alarm Viewer Functionality

The Alarm Viewer works only under these conditions.

Product	Firmware Platform	Software Platform
TSX ETY 110 WS	Premium PLC TSX57/ PCX57/PMX57 V3.3	PL7 PRO PL-7 Junior V3.3
TSX ETY 5101	Premium PLC TSX57/ PCX57/PMX57 V3.3	PL7 PRO PL-7 Junior V3.3

Appendices



Appendices for FactoryCast User’s Guide

Overview There are two sets of appendices for the FactoryCast User's Guide. The first appendix is browser requirements, settings, and security considerations, and the second appendix is performance benchmarks.

What's in this Appendix? The Appendix contains the following Chapters:

Chapter	Chaptername	Page
A	Browser Requirements, Settings, and Security Considerations	257
B	Performance Benchmarks	265

Browser Requirements, Settings, and Security Considerations



Browser Requirements, Settings, and Security Considerations

Overview

In order to view the Java applets on FactoryCast Web sites, you must have the correct browser version. This appendix discusses that requirement and other browser considerations.

What's in this Chapter?

This Chapter contains the following Maps:

Topic	Page
Browser Version	258
Browser Settings	259
Browser Security Considerations	263

Browser Version

Overview

In order to view the Java applets in the FactoryCast Web pages, you must have a browser which supports the Java Development Kit (JDK) 1.1.6.

Which Browsers Qualify?

These browsers meet the requirements.

- Netscape Communicator 4.06 and higher
 - Internet Explorer 4.0 w/Service Pack 2 and higher
-

Which Browser Do I Have?

Your browser name and version are displayed at the bottom of the FactoryCast Home Page.

How Do I Upgrade?

Browser requirements are listed below.

Download Browser...	At Web Site...
Netscape Communicator 4.06 and higher Includes the browser, Netscape Navigator	http://www.netscape.com
Internet Explorer 4.0 w/Service Pack 2 and higher	http://www.microsoft.com

Browser Settings

Overview

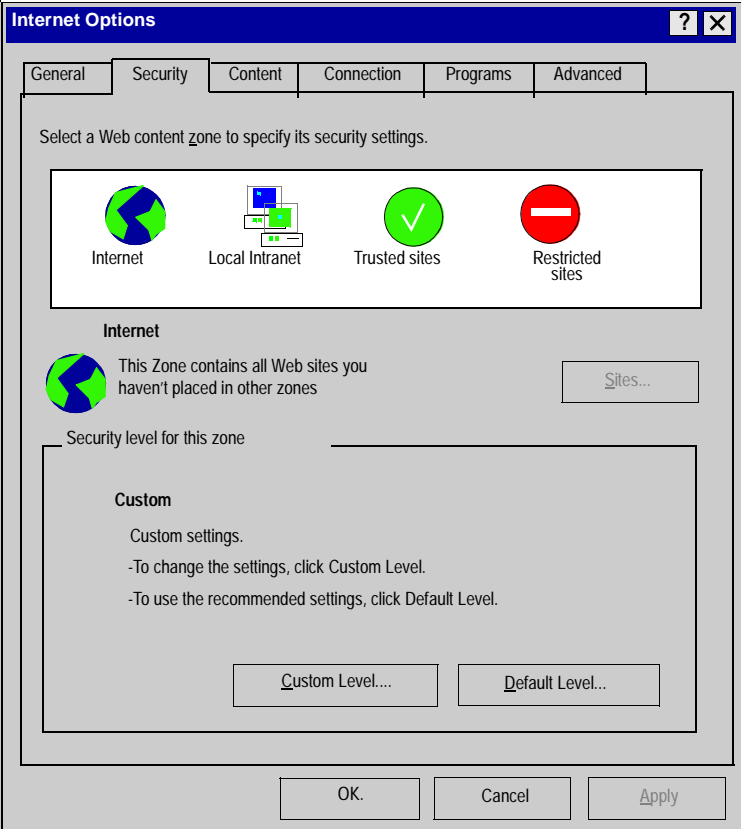
If you are using Microsoft Internet Explorer and you have trouble viewing Java applets, you can modify your browser security settings to improve your ability to view the applets.

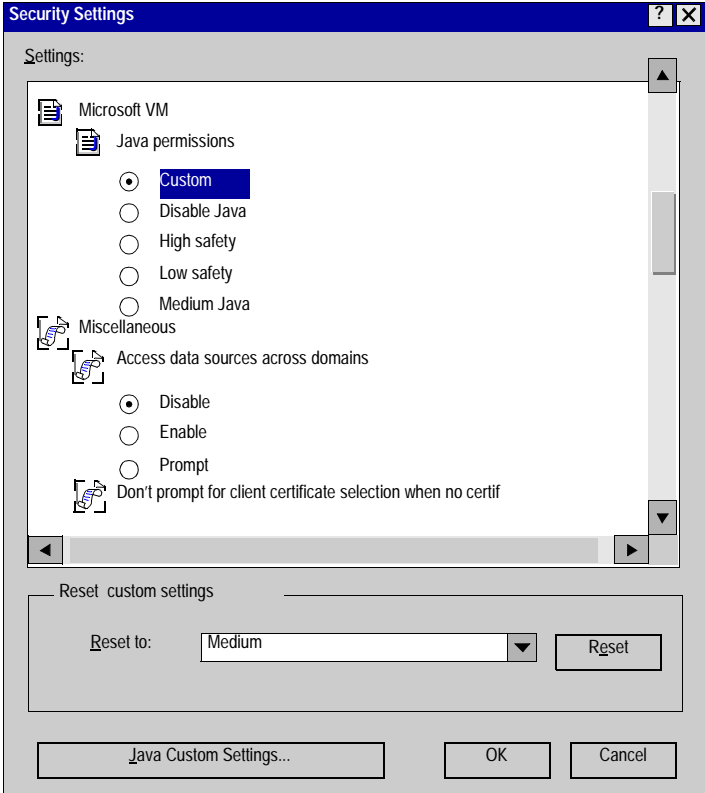
If you need to upgrade your browser, the Internet addresses for the two major browsers are listed below; upgrades should be free, and all that is required should be to download the latest version.

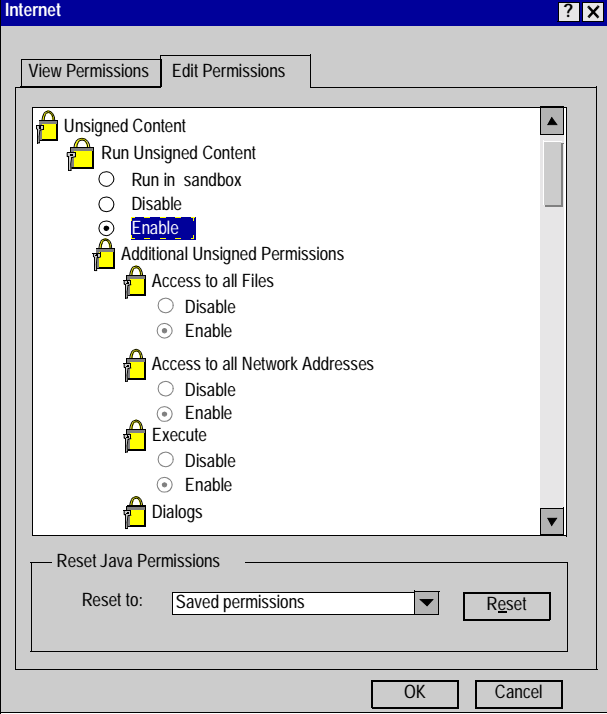
Netscape Communicator 4.06 and higher Includes the browser, Netscape Navigator	http://www.netscape.com
Internet Explorer 4.0 w/Service Pack 2 and higher	http://www.microsoft.com

Modifying Security Settings

Follow the steps in the table below to modify the security settings of the browser.

Step	Action
1	Open Internet Explorer.
2	Select Tools Internet Options from the menu bar. Result: The Internet Options window appears.
3	Select the Security tab. 
4	Select the Custom Level button in the Security Level settings section.

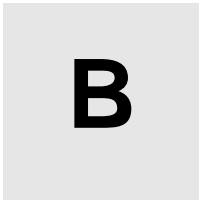
Step	Action
5	<p>Select the Settings button.</p> <p>Result: The Security Settings dialog appears.</p> 
6	<p>Scroll down until Microsoft VM is found under Java Permissions. Click the Custom radio button.</p> <p>Result: The Java Custom Settings button appears.</p>

Step	Action
7	<p>Select the Java Custom Settings button.</p> <p>Result: The Internet Zone dialog appears.</p> 
8	Select the Edit Permissions tab.
9	Under the Run Unsigned Content , select Enable .
10	Click OK .

Browser Security Considerations

Overview	Both Netscape Navigator and Internet Explorer remember a user name and password once entered for a Web site.
We Recommend	Close the browser after each session to prevent unauthorized people from using your passwords to gain read or write access to your site. If you are using Internet Explorer, you may also have to change your security settings using the custom settings option. Under the options for User Authentication, select "Prompt for user name and password."

Performance Benchmarks



Performance Benchmarks

Overview

This appendix contains performance benchmarks for

- The Micro Embedded Server
- The Premium Embedded Server
- The Quantum Embedded Server
- The FactoryCast Configurator

What's in this Chapter?

This Chapter contains the following Maps:

Topic	Page
Micro Performance Benchmarks	266
Premium Performance Benchmarks	267
Quantum Performance Benchmarks	270
FactoryCast Configurator Performance Benchmarks	271

Micro Performance Benchmarks

Overview

This section contains performance information for the TSX ETZ 510 Web Embedded Server compared with the TSX ETZ 510 Ethernet Module.

All the response time are in ms. The client and the server have the same cycle time.

Average time of 1 EF Read of 50 words

	Cyclic	period 20ms	period 50ms	period 100ms
TSX ETZ 510 Client 1 EF running	140	150	150	190
TSX ETZ 510 Client 1 EF running with Data Editor	190	200	220	290
TSX ETZ 510 Client 1 EF running with Sysdiag (Rack Viewer)	150	150	190	270
TSX ETZ 510 Client and Server 1 EF running with Sysdiag (Rack Viewer)	190	190	220	300

Average time of 3 EF Read of 50 words

	Cyclic	period 20ms	period 50ms	period 100ms
TSX ETZ 510 Client 1 EF running	300	300	300	300
TSX ETZ 510 Client 1 EF running with Data Editor	400	400	420	500
TSX ETZ 510 Client 1 EF running with Sysdiag (Rack Viewer)	340	350	360	530
TSX ETZ 510 Client and Server 1 EF running with Sysdiag (Rack Viewer)	530	500	510	610

Premium Performance Benchmarks

Overview

This section contains performance information for the TSX ETY 110 WS V2.2 Web Embedded Server compared with the TSX ETY 110 V2.2 Ethernet Module.

All the response time are in ms. The client and the server have the same cycle time.

Average time of 1 EF READ-VAR of 50 words

ETHWAY

	Cyclic	5	10	20	50
TSX ETY 110 V2.2	73	73	76	82	103
TSX ETY 110 WS installed	73	72	76	83	138
TSX ETY 110 WS running with data editor	73	73	75	83	127
TSX ETY 110 WS running with sysdiag on ETY client	86	88	91	98	149
TSX ETY 110 WS running with sysdiag on ETY client and server	93	98	99	99	148

TCP/IP

	Cyclic	5	10	20	50
TSX ETY 110 V2.2	74	75	77	84	102
TSX ETY 110 WS installed	74	73	77	84	106
TSX ETY 110 WS running with data editor	74	73	77	85	108
TSX ETY 110 WS running with sysdiag on ETY client	80	85	90	98	109
TSX ETY 110 WS running with sysdiag on ETY client and server	92	94	100	108	128

**Average time of 8
EF READ-VAR of
50 words****ETHWAY**

	Cyclic	10	50
TSX ETY 110 V2.2	221	229	247
TSX ETY 110 WS installed	223	229	247
TSX ETY 110 WS running with data editor	224	231	249
TSX ETY 110 WS running with sysdiag on ETY client	236	240	254
TSX ETY 110 WS running with sysdiag on ETY client and server	246	252	275

TCP/IP

	Cyclic	10	50
TSX ETY 110 V2.2	244	254	287
TSX ETY 110 WS installed	244	261	291
TSX ETY 110 WS running with data editor	245	259	293
TSX ETY 110 WS running with sysdiag on ETY client	262	270	309
TSX ETY 110 WS running with sysdiag on ETY client and server	304	307	337

**Throughput Time
of Bridge** ETHWAY

	Cyclic	10	20	50
TSX ETY 110 V2.2	55	56	55	26
TSX ETY 110 WS running	51	51	47	18
TSX ETY 110 WS running with Comm ETY Bridge	61	58	58	56
TSX ETY 110 WS running with Comm ETY client and server	62	63	62	23

TCP/IP

	Cyclic	10	20	50
TSX ETY 110 V2.2	57	57	60	31
TSX ETY 110 WS running	58	56	55	33
TSX ETY 110 WS running with Comm ETY Bridge	65	63	64	67
TSX ETY 110 WS running with Comm ETY client and server bridge	66	69	67	54

Quantum Performance Benchmarks

Overview These Quantum Web Embedded Server performance tests were run on Win95 on a Dell OptiPlex Gxi at 200 MHZ. The PLC was a Quantum 424.

Performance Data The following table contains the performance data for the Quantum Web Embedded Server.

Web Scanner w/MSTR Block	50 scans	100 scans	200 scans	500 scans
Web scanner loaded, 1 MSTR	48.2ms	33.4ms 134.3ms	34.3ms	34.3ms
Web scanner loaded, 2 MSTR	43.7ms 66.4ms	45.6ms	43.8ms	46.7ms
Web scanner loaded, 4 MSTR	72.35ms 86.19ms	73ms	74ms	74ms 90ms
Web scanner loaded, 4 MSTR, 1 browser	107.3ms	72.5ms	73ms	72ms
Web scanner loaded, 4 MSTR, 3 browsers	78.9ms 94.2ms	80.5ms	81.1ms	120ms
Web scanner loaded, 4 MSTR, 5 browsers	105ms	80.5ms	80ms	90ms
Web scanner loaded, 4 MSTR, 5 instances of Internet Explorer (no cache)	104.1ms 92.5ms	85.2ms	88.9ms	90ms
Web scanner loaded, 4 MSTR, 5 instances of Internet Explorer (cache on)	108ms 83.7ms	85.2ms	90ms	120ms 92.5ms

FactoryCast Configurator Performance Benchmarks

Overview

This section provides test results for downloading a namespace and for downloading a Web site.

Application Download

In this performance test, the **Download Namespace Only** option was chosen.

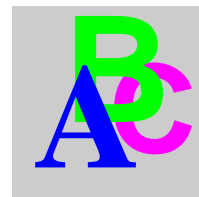
Trial	ETY Embedded Server 110 WS (min:sec)	NOE Embedded Server 211 10 (min:sec)	NOE Embedded Server 771 10 (min:sec)
1	0:20	0:05	0:03
2	0:20	0:18	0:04
3	0:20	0:11	0:03

Web Site Download

In this test, 10 HTML files of 2 K each were downloaded to the server.

Trial	ETY Embedded Server 110 WS (min:sec)	NOE Embedded Server 211 10 (min:sec)	NOE Embedded Server 771 10 (min:sec)
1	1:32	1:25	0:06
2	2:00	2:45	0:06
3	2:00	2:45	0:06

Index



Numerics

140 NOE 211 10, 15
140 NOE 251 10 (Fiber Optic), 15
140 NOE 771 10, 15

A

addresses
 deleting, 133
 direct, 133
 editing, 133
 IP, 118
Alarm Viewer display, 250
alarms
 operation and management of, 253
analog I/O diagnostics, 81
analog I/O status
 Micro, 101
applets
 Java, 215
 using, 215
AS-i diagnostics, 83

B

benchmarks, 265
browsers
 requirements, 257
 security, 257, 263
 setting, 257
 version, 31, 57, 91
 versions, 257

C

communication status
 Micro, 99
company logos, 119
configuration tool
 overview, 18
 system requirements, 20
configuration, new, 113
controller status
 Micro, 97
 Premium, 62
 Quantum, 36
counter status
 Micro, 103
custom Web pages
 protected, 31, 57, 91, 119, 209
 unprotected, 31, 57, 91, 209
 using Java applets, 215

D

Data Editor
 spreadsheets, 153
 symbols, 160
 templates, 158
 variables, 160
data templates, 158

default Web sites

- Micro, 91
- Premium, 57
- Quantum, 31
- read-only, 23
- setup, 113

defaults

- restore, 21

Diagnostic pages

- Ethernet module, 38

diagnostics

- Analog I/O, 81, 109
- AS-i, 83
- Digital I/O, 79, 108
- distributed I/O, 50
- FIP I/O module, 72
- option modules, 71, 105
- PCMCIA communication, 85
- remote I/O, 44
- standard module, 87

direct addresses, 161

- R(ead)/W(rite), 127
- read-only, 127
- write-enabled, 122, 127, 162

drops page

- distributed I/O, 51

E

Embedded server

- benchmarks
- Micro, 265

Embedded Servers, 17

- backing up files, 141
- benchmarks
- Premium, 265
- Quantum, 265
- checking status, 144
- initializing, 142
- module status, 43, 69
- reflashing, 142
- restoring files, 142

F

FIP I/O module diagnostics, 72

firewalls, 26

FTP, 17

H

home pages

- custom, 207
- Micro, 91
- Premium, 57
- Quantum, 31

HTTP, 17

I

IP addresses, 118

J

Java applets, 215

N

namespaces, 122, 126, 127

- saving, 139
- synchronizing, 134

P

passwords, 24, 26, 33, 59, 93, 115

PCMCIA communication diagnostics, 85

performance benchmarks, 265

R

Rack Viewer, 106

register values

- valid for Micro, 127
- valid for Premium, 127
- valid for Quantum, 127
- remote I/O diagnostics, 44
- restore defaults, 21

S

- security, 126, 263
 - conflicts, 131
 - saving files, 140
- standard module diagnostics, 87
- symbols
 - accessing, 126
 - definition, 14
 - importing, 123
 - inserting, 160
 - modifying, 115, 152, 162
 - read only, 120
 - setting, 120, 126
 - setting access, 126
 - viewing, 152
 - write enabled, 120
- system requirements, 20

T

- TSX ETY 110 WS v. 2.2, 15
- TSX ETZ 510, 16

V

- variables
 - accessing, 126
 - definition, 14
 - importing, 123
 - inserting, 160
 - modifying, 115, 152, 162
 - read only, 120
 - setting, 120, 126
 - setting access, 126
 - viewing, 152
 - write enabled, 120

