

Tekelec EAGLE® 5

Element Management System (EMS) Interface User Guide

**910-5973-001 Revision A
October 2010**



Copyright 2010 Tekelec. All Rights Reserved. Printed in USA.

**Legal Information can be accessed from the Main Menu of the optical disc or on the
Tekelec Customer Support web site in the *Legal Information* folder of the *Product Support* tab.**

Table of Contents

Chapter 1: Introduction.....	11
Overview.....	12
Scope and Audience.....	12
Manual Organization.....	12
EAGLE EMS Documentation.....	12
Documentation Availability, Packaging, and Updates.....	13
Locate Product Documentation on the Customer Support Site.....	13
Customer Care Center.....	14
Customer Training.....	16
Chapter 2: EMS Overview.....	17
EAGLE EMS Overview.....	18
EAGLE EMS Architecture.....	18
EAGLE EMS Advantages.....	19
EAGLE EMS Interfaces.....	20
Baseline Hardware and Software for EAGLE EMS.....	22
Chapter 3: Command Manager Interface (CMI).....	23
Command Manager Interface Overview.....	24
Application Framework.....	24
Command Manager Interface Administration.....	24
Command Manager Interface EAGLE 5 Management Functions.....	25
Command Manager Interface Logging Functions.....	26
Using the Command Manager Interface.....	27
Logging In to CMI.....	27
Modifying an EMS User Association.....	29
Deleting an EMS User Association.....	32
Changing an EMS User Password.....	33
Creating a CMI Usergroup.....	35
Viewing a CMI Usergroup.....	39
Modifying a CMI Usergroup.....	40
Deleting a CMI Usergroup.....	45
Creating a CMI Command Class.....	46
Viewing a CMI Command Class.....	49

Modifying a CMI Command Class.....	51
Deleting a CMI Command Class.....	54
Sending a Command to One or More EAGLE 5 Systems Using Menus.....	56
Sending a Command to One or More EAGLE 5 Systems Without Using Menus.....	59
Creating a CMI Command Script.....	61
Viewing a CMI Command Script.....	67
Modifying a CMI Command Script.....	69
Deleting a CMI Command Script.....	76
Creating a CMI Command Script Category.....	77
Viewing a CMI Command Script Category.....	80
Modifying a CMI Command Script Category.....	81
Deleting a CMI Command Script Category	84
Executing a CMI Command Script.....	85
Scheduling a CMI Command Script.....	88
Viewing a CMI Command Script Execution Schedule.....	91
Viewing Current EMS User Activity Logs.....	92
Viewing EMS User Activity Log Files.....	94
Viewing Cron Logs.....	96
Viewing Logs.....	97
Command Manager Interface Pages.....	100
Command Manager Interface Login.....	100
EMS User Management.....	101
Modify EMS User Association.....	102
CMI Usergroup Management.....	104
Create CMI Usergroup.....	105
View CMI Usergroup.....	110
Modify CMI Usergroup.....	111
Change Password.....	115
Command Class Management.....	117
Create CMI Command Class.....	118
View Command Class.....	120
Modify CMI Command Class.....	122
Send Command.....	124
Script Management Page.....	128
Create Script.....	131
View Script.....	134
Modify Script.....	135
Execute Script.....	139
Schedule Cron.....	142
View Cron.....	144

View Cron Logs.....	146
View Logs.....	147
Current Logs.....	149
Log Files.....	151
Category Management.....	153
Create Category.....	154
View Category.....	156
Modify Category.....	157
CMI Functions.....	158
Available CMI Functions.....	158
Commands Not Supported in the Command Manager Interface.....	165
Un-Supported Commands.....	165
Chapter 4: Fault Management.....	167
Features.....	168
EAGLE 5 Communications.....	168
Monitor EAGLE 5 Alarms.....	169
View History of EAGLE 5 Alarms.....	169
Dynamic Graphics Represent Installed EAGLE 5 Systems.....	170
Command Cut-Through.....	170
Refresh Inventory.....	170
Redundant Network Paths.....	170
Operation of the Fault/Communication Agent.....	170
Viewing EAGLE 5 Alarms.....	170
EAGLE EMS Fault/Communication Agent Parameters.....	177
Connectivity Issues and Related Behavior.....	178
Generated Alarms.....	178
CheckConnect.....	179
Graphical Representation of the EAGLE 5 Product Family.....	180
Available Scene Templates.....	180
Scene Name: Tem_EAGLE_STP_1RACK.....	180
Scene Name: Tem_EAGLE_STP_2RACK.....	181
Scene Name: Tem_EAGLE_STP_3RACK.....	182
Scene Name: Tem_EAGLE_STP_6RACK.....	183
Scene Name: Tem_EAGLE_STP_SHELF.....	184
Sample EAGLE 5 Alarms.....	185
Card-Level Alarm.....	185
Port-Level Alarm.....	185
Frame-Level Alarm.....	186

Chapter 5: Inventory Monitoring Interface.....	187
Functional Description.....	188
Inventory Commands.....	188
Viewing Inventory Information.....	189
Stop Inventory.....	195
Inventory Reports.....	195
Example EAGLE 5_CardReport	195
Example EAGLE 5_OOSCardReport.....	196
Chapter 6: Link Utilization Interface.....	197
Overview.....	198
Link Data.....	198
Viewing Link Information.....	199
Modifying Link Capacity.....	201
Polling.....	203
Polling Scripts.....	203
Modifying Polling Script Execution Schedule.....	203
On Demand Polling.....	204
Viewing LUI Logs.....	206
Crystal Reports.....	207
Formulas.....	207
Reports.....	209
Link Capacity Reference Table.....	214
Chapter 7: Measurements Platform.....	216
EAGLE EMS Reporter Graphs and Charts.....	217
Scope.....	217
Operation.....	217
Generated Alarms.....	217
Chapter 8: OA&M Measurements.....	219
Equipment Tested.....	220
Features.....	220
EAGLE EMS Reporter Graphs and Charts.....	220
Output Files for Use with Metrica.....	220
Detailed EAGLE EMS Reporter Operation.....	220
Detailed Metrica Operation.....	221
Thresholding Capabilities.....	222

Alarm Formats.....	223
Chapter 9: Enhanced SNMP Northbound Interface (NBI).....	224
Overview.....	225
Enhanced SNMP Northbound Interface Functions.....	225
NMS SNMP Trap Management.....	226
Operating the Enhanced SNMP Northbound Interface.....	231
Starting SNMP Trap Forwarding.....	232
Checking the Status of The Enhanced SNMP Northbound Interface.....	232
Restarting SNMP Trap Forwarding.....	232
Invoking Alert Resynchronization.....	233
EAGLE 5 EMS NBI Error Codes.....	233
EAGLE 5 EMS NBI GUI Error Codes.....	234
EAGLE 5 EMS NBI Management Information Base (MIB) Definition.....	238
EAGLE 5 EMS NBI Common Objects Management Information Base (MIB) Definition.....	242
EAGLE EMS and SNMP NBI Operational Strategies and Limitations.....	246
Glossary.....	250

List of Figures

Figure 1: EAGLE EMS Architecture.....	19
Figure 2: Command Manager Interface Login Page.....	28
Figure 3: Command Manager Interface Welcome Page.....	29
Figure 4: EMS User Management Page.....	30
Figure 5: Modify EMS User Association Page.....	31
Figure 6: EMS User Management Page.....	32
Figure 7: Delete EMS User Association Confirmation.....	33
Figure 8: Change Password Page.....	34
Figure 9: CMI Usergroup Management Page.....	35
Figure 10: Create CMI Usergroup Page.....	36
Figure 11: CMI Usergroup Management Page.....	39
Figure 12: View CMI Usergroup Page.....	40
Figure 13: CMI Usergroup Management Page.....	41
Figure 14: Modify CMI Usergroup Page.....	42
Figure 15: CMI Usergroup Management Page.....	45
Figure 16: Delete CMI Usergroup Confirmation.....	46
Figure 17: Command Class Management Page.....	47
Figure 18: Create Command Class Page.....	48
Figure 19: Command Class Management Page.....	50
Figure 20: View CMI Command Class Page.....	51
Figure 21: Command Class Management Page.....	52
Figure 22: Modify CMI Command Class Page.....	53
Figure 23: Command Class Management Page.....	55
Figure 24: Delete CMI Command Class Confirmation Dialog.....	55
Figure 25: Send Command Page.....	57
Figure 26: Example Build Commands Pane Showing Parameters.....	58
Figure 27: Send Command Page.....	60
Figure 28: Type Commands Pane Example.....	61
Figure 29: Script Management Page.....	62
Figure 30: Create Script Page.....	63
Figure 31: Single Character Search for Parameter Values.....	65
Figure 32: Command Manager Interface API Functions.....	66
Figure 33: Script Management.....	68
Figure 34: View Script Page.....	69
Figure 35: Script Management Page.....	70
Figure 36: Modify Script Page.....	71
Figure 37: Example Build Commands Pane Showing Parameters.....	72

Figure 38: Command Manager Interface API Functions.....	74
Figure 39: Script Management Page.....	76
Figure 40: Delete CMI Command Script Confirmation.....	77
Figure 41: Category Management Page.....	78
Figure 42: Create Category Page.....	79
Figure 43: Command Script Category Management Page.....	80
Figure 44: View CMI Command Script Category Page.....	81
Figure 45: Category Management Page.....	82
Figure 46: Modify CMI Command Script Category Page.....	83
Figure 47: Category Management Page.....	84
Figure 48: Delete Category Dialog Box.....	85
Figure 49: Script Management Page.....	86
Figure 50: Execute Script Page.....	87
Figure 51: Schedule Cron Page.....	89
Figure 52: View Cron Page.....	92
Figure 53: Current Logs Page.....	93
Figure 54: Log Files Page.....	95
Figure 55: View Cron Logs Page.....	96
Figure 56: View Logs Page.....	97
Figure 57: View Logs Page - Log Selection.....	98
Figure 58: Example Inventory Log Display.....	99
Figure 59: CMI Login Page.....	100
Figure 60: EMS User Management Page.....	101
Figure 61: Modify EMS User Association Page.....	103
Figure 62: CMI Usergroup Management Page.....	104
Figure 63: Create CMI Usergroup Page.....	106
Figure 64: View CMI Usergroup Page.....	110
Figure 65: Modify CMI Usergroup Page.....	112
Figure 66: Change Password Page.....	116
Figure 67: Command Class Management Page.....	117
Figure 68: Create Command Class Page.....	119
Figure 69: View Command Class Page.....	121
Figure 70: Modify CMI Command Class Page.....	122
Figure 71: Send Command Page.....	125
Figure 72: Script Management Page.....	129
Figure 73: Create Script Page.....	131
Figure 74: View Script Page.....	135
Figure 75: Modify Script Page.....	136
Figure 76: Execute Script Page.....	140
Figure 77: Schedule Cron Page.....	142
Figure 78: View Cron Page.....	145

Figure 79: View Cron Logs Page.....	147
Figure 80: View Logs Page.....	148
Figure 81: Current Logs Page.....	150
Figure 82: Log Files Page.....	152
Figure 83: Category Management Page.....	153
Figure 84: Create Category Page.....	155
Figure 85: View Category Page	156
Figure 86: Modify Category Page.....	157
Figure 87: EMS Connectivity Using MMI Ports.....	168
Figure 88: EMS Connectivity Using IPSM Card.....	169
Figure 89: EAGLE EMS Graphical Example of a Managed Geography.....	171
Figure 90: EAGLE EMS Graphical Example of an EAGLE 5 System.....	172
Figure 91: EAGLE EMS Graphical Example of a Shelf.....	173
Figure 92: Event Viewer Page.....	174
Figure 93: Historical Event Viewer Page	175
Figure 94: Resync Alarms in Fault Management System.....	176
Figure 95: EAGLE EMS Fault/Communication Agent Parameters in ProBuilder.....	177
Figure 96: Single EAGLE 5 Frame Scene.....	181
Figure 97: Two EAGLE 5 Frame Scene.....	182
Figure 98: Three EAGLE 5 Frame Scene.....	183
Figure 99: Six EAGLE 5 Frame Scene.....	184
Figure 100: EAGLE 5 Shelf Scene.....	185
Figure 101: FMS EAGLE Shelf Page.....	190
Figure 102: Options Sub-menu.....	191
Figure 103: Inventory Data Page.....	192
Figure 104: Location Not Valid.....	193
Figure 105: Inventory File List.....	194
Figure 106: Inventory File Contents.....	194
Figure 109: Link Data Page.....	199
Figure 110: Link Data Information Page.....	200
Figure 111: Modify Link Capacity Window.....	202
Figure 112: On-Demand Polling Page.....	205
Figure 113: LUI Logs Page.....	206
Figure 114: Link Report With Erlang and Percent Utilization.....	211
Figure 115: Linkset Report With Erlang and Percent Utilization.....	212
Figure 116: Card Utilization Report.....	214
Figure 117: NMS List Page.....	227
Figure 118: Add A New NMS Menu.....	228
Figure 119: NMS Configuration Page.....	228

List of Tables

Table 1: Select CMI Functions Pane.....	107
Table 2: Select Command Classes Pane.....	108
Table 3: Select EAGLE(s) Pane.....	109
Table 4: Submit/Cancel Buttons.....	109
Table 5: Select CMI Functions Pane.....	113
Table 6: Select Command Classes Pane.....	114
Table 7: Select EAGLE(s) Pane.....	114
Table 8: Select EAGLE(s) Pane.....	126
Table 9: Build Commands Pane.....	127
Table 10: Build Commands Pane.....	133
Table 11: Build Commands Pane.....	138
Table 12: CMI Functions and Parameters.....	158
Table 13: Returned CMI Function Data	161
Table 14: Un-supported Commands.....	165
Table 15: UAM Severity and Color Associations.....	172
Table 16: EAGLE EMS Communication Alarms.....	178
Table 17: Inventory Commands.....	188
Table 18: Link Report Formulas.....	207
Table 19: Linkset Report Formulas.....	208
Table 20: Card Report Formulas.....	209
Table 21: Alarm Behavior.....	218
Table 22: EAGLE EMS Reporter Measurements.....	221
Table 23: Enhanced SNMP Northbound Interface Expected Load.....	226
Table 24: NBI Error Codes.....	234
Table 25: NBI GUI Error Codes.....	234
Table 26: Tekelec MIB Definition Table.....	240
Table 27: Tekelec MIB Definition Table.....	245
Table 28: EAGLE EMS SNMP Northbound Interface Alarm Behavior.....	247

Chapter 1

Introduction

Topics:

- *Overview.....12*
- *Scope and Audience.....12*
- *Manual Organization.....12*
- *EAGLE EMS Documentation.....12*
- *Documentation Availability, Packaging, and Updates.....13*
- *Locate Product Documentation on the Customer Support Site.....13*
- *Customer Care Center.....14*
- *Customer Training.....16*

This chapter describes the organization of this manual and provides other information about Tekelec product documentation and support.

Overview

This manual describes the EAGLE 5 Integrated Signaling System (EAGLE 5 ISS) Element Management System (EMS).

The EAGLE 5 ISS EMS (EAGLE EMS) consolidates real-time element management at a single point within the signaling network to provide a consistent approach for configuring and monitoring the Tekelec EAGLE 5 ISS in the network. The EAGLE EMS is an optional product in the Tekelec EAGLE 5 product family.

Scope and Audience

This manual is intended for Users and Administrators who configure and use the EAGLE EMS to configure and monitor a Tekelec EAGLE 5 ISS in a network.

Manual Organization

This document is organized into these sections:

- *Introduction* - Contains general information about manual organization, the scope of this manual, its targeted audience, how to handle hardware repairs and returns, and how to get technical assistance.
- *EMS Overview* - Provides an overview of the Tekelec's Element Management System.
- *Command Manager Interface (CMI)* - Provides an overview of the functions provided by the Command Manager Interface.
- *Fault Management* - Provides descriptions of the functions provided by the EAGLE EMS Fault/Communication Agent.
- *Inventory Monitoring Interface* - Provides information about the EAGLE EMS Inventory Monitoring Interface.
- *Link Utilization Interface* - Provides information about the EAGLE EMS Link Utilization Interface.
- *Measurements Platform* - Provides information about the EAGLE EMS Measurements Platform agent.
- *OA&M Measurements* - Provides information about the EAGLE EMS OA&M Measurements agent.
- *Enhanced SNMP Northbound Interface (NBI)* - Provides information about the EAGLE EMS Enhanced SNMP Northbound Interface..

EAGLE EMS Documentation

For information about the EAGLE EMS system, refer to the Harris Stratex NetBoss documentation or relevant Tekelec documents.

Documentation Availability, Packaging, and Updates

Tekelec provides documentation with each system and in accordance with contractual agreements. For General Availability (GA) releases, Tekelec publishes a complete EAGLE EMS documentation set. For Limited Availability (LA) releases, Tekelec may publish a documentation subset tailored to specific feature content or hardware requirements. Documentation Bulletins announce a new or updated release.

The Tekelec EAGLE EMS documentation set is released on an optical disc. This format allows for easy searches through all parts of the documentation set.

The electronic file of each manual is also available from the Tekelec Customer Support site (support.tekelec.com). This site allows for 24-hour access to the most up-to-date documentation, including the latest versions of Feature Notices.

Printed documentation is available for GA releases on request only and with a lead time of six weeks. The printed documentation set includes pocket guides for commands and alarms. Pocket guides may also be ordered separately. The Release Notice is available only on the Customer Support site.

Note: Customers may print a reasonable number of each manual for their own use.

Documentation is updated when significant changes are made that affect system operation. These and other changes are included in the documentation for the next scheduled release. Updates are made by re-issuing an electronic file to the customer support site. Customers with printed documentation should contact their Sales Representative for an addendum. Occasionally, changes are communicated first with a Documentation Bulletin to provide customers with an advanced notice of the issue until officially released in the documentation. Documentation Bulletins are posted on the Customer Support site and can be viewed per product and release.

Locate Product Documentation on the Customer Support Site

Access to Tekelec's Customer Support site is restricted to current Tekelec customers only. This section describes how to log into the Tekelec Customer Support site and locate a document. Viewing the document requires Adobe Acrobat Reader, which can be downloaded at www.adobe.com.

1. Log into the [Tekelec Customer Support](http://support.tekelec.com) site.

Note: If you have not registered for this new site, click the **Register Here** link. Have your customer number available. The response time for registration requests is 24 to 48 hours.

2. Click the **Product Support** tab.
3. Use the Search field to locate a document by its part number, release number, document name, or document type. The Search field accepts both full and partial entries.
4. Click a subject folder to browse through a list of related files.
5. To download a file to your location, right-click the file name and select **Save Target As**.

Customer Care Center

The Tekelec Customer Care Center is your initial point of contact for all product support needs. A representative takes your call or email, creates a Customer Service Request (CSR) and directs your requests to the Tekelec Technical Assistance Center (TAC). Each CSR includes an individual tracking number. Together with TAC Engineers, the representative will help you resolve your request.

The Customer Care Center is available 24 hours a day, 7 days a week, 365 days a year, and is linked to TAC Engineers around the globe.

Tekelec TAC Engineers are available to provide solutions to your technical questions and issues 7 days a week, 24 hours a day. After a CSR is issued, the TAC Engineer determines the classification of the trouble. If a critical problem exists, emergency procedures are initiated. If the problem is not critical, normal support procedures apply. A primary Technical Engineer is assigned to work on the CSR and provide a solution to the problem. The CSR is closed when the problem is resolved.

Tekelec Technical Assistance Centers are located around the globe in the following locations:

Tekelec - Global

Email (All Regions): support@tekelec.com

- **USA and Canada**

Phone:

1-888-FOR-TKLC or 1-888-367-8552 (toll-free, within continental USA and Canada)

1-919-460-2150 (outside continental USA and Canada)

TAC Regional Support Office Hours:

8:00 a.m. through 5:00 p.m. (GMT minus 5 hours), Monday through Friday, excluding holidays

- **Central and Latin America (CALA)**

Phone:

USA access code +1-800-658-5454, then 1-888-FOR-TKLC or 1-888-367-8552 (toll-free)

TAC Regional Support Office Hours (except Brazil):

10:00 a.m. through 7:00 p.m. (GMT minus 6 hours), Monday through Friday, excluding holidays

- **Argentina**

Phone:

0-800-555-5246 (toll-free)

- **Brazil**

Phone:

0-800-891-4341 (toll-free)

TAC Regional Support Office Hours:

8:30 a.m. through 6:30 p.m. (GMT minus 3 hours), Monday through Friday, excluding holidays

- **Chile**

Phone:

1230-020-555-5468

- **Colombia**

Phone:

01-800-912-0537

- **Dominican Republic**

Phone:

1-888-367-8552

- **Mexico**

Phone:

001-888-367-8552

- **Peru**

Phone:

0800-53-087

- **Puerto Rico**

Phone:

1-888-367-8552 (1-888-FOR-TKLC)

- **Venezuela**

Phone:

0800-176-6497

- **Europe, Middle East, and Africa**

Regional Office Hours:

8:30 a.m. through 5:00 p.m. (GMT), Monday through Friday, excluding holidays

- **Signaling**

Phone:

+44 1784 467 804 (within UK)

- **Software Solutions**

Phone:

+33 3 89 33 54 00

- **Asia**

- **India**

Phone:

+91 124 436 8552 or +91 124 436 8553

TAC Regional Support Office Hours:

10:00 a.m. through 7:00 p.m. (GMT plus 5 1/2 hours), Monday through Saturday, excluding holidays

- **Singapore**

Phone:

+65 6796 2288

TAC Regional Support Office Hours:

9:00 a.m. through 6:00 p.m. (GMT plus 8 hours), Monday through Friday, excluding holidays

Customer Training

Tekelec offers a variety of technical training courses designed to provide the knowledge and experience required to properly provision, administer, operate, and maintain the EAGLE EMS. To enroll in any of the courses or for schedule information, contact the Tekelec Training Center at +1-919-460-3064 or E-mail training@tekelec.com.

A complete list and schedule of open enrollment can be found at www.tekelec.com.

Chapter 2

EMS Overview

Topics:

- *EAGLE EMS Overview.....18*
- *EAGLE EMS Architecture.....18*
- *EAGLE EMS Advantages.....19*
- *EAGLE EMS Interfaces.....20*
- *Baseline Hardware and Software for EAGLE EMS.....22*

This chapter provides an overview of the Tekelec's Element Management System.

EAGLE EMS Overview

The EAGLE 5 ISS EMS (EAGLE EMS) consolidates real-time element management at a single point within the signaling network to provide a consistent approach for configuring and monitoring the Tekelec EAGLE 5 ISS in the network. The EAGLE EMS is an optional product in the Tekelec EAGLE 5 product family.

The EAGLE EMS includes integrated Graphical User Interfaces (GUIs) for operators to monitor and control any individual EAGLE 5 ISS and predict the overall operation of their signaling network more accurately and cost effectively, while controlling initial and ongoing costs.

Key features of the EAGLE EMS are:

- Fault Management
- Command Interface
- Performance Reporting Interface
 - one for OA&M-based Measurements and
 - one for Measurements Platform reports
- Inventory Monitoring Interface

The EAGLE EMS captures real-time events from a network of EAGLEs and provides interfaces to allow a full presentation of the EAGLE 5 ISS health, performance, configuration, and inventory. Additionally, the EAGLE EMS concentrates that information into northbound streams for passing on to a northbound Network Management System (NMS). The streams are one each for:

- Fault
- Performance
- Configuration

EAGLE EMS Architecture

A block diagram depicting the architecture of the EAGLE EMS is illustrated in [Figure 1: EAGLE EMS Architecture](#)

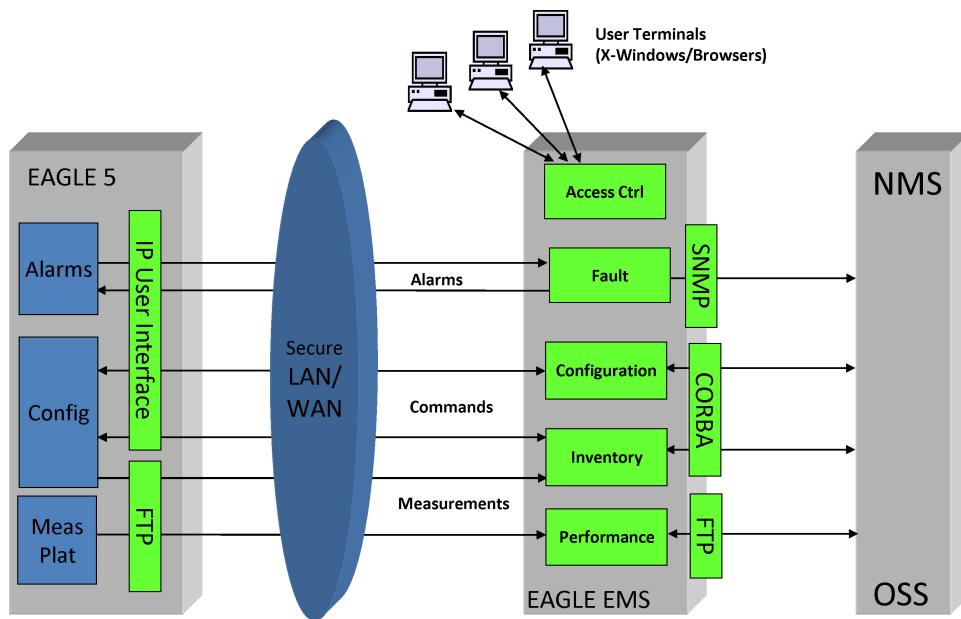


Figure 1: EAGLE EMS Architecture

EAGLE EMS Advantages

EAGLE EMS offers the following advantages:

- Reliable, centralized solution

The system uses industry-leading hardware and software including Sun™ servers, Solaris™ Operating System, and Oracle® database to ensure carrier-class reliability. From its central location in the signaling network, EAGLE EMS can manage multiple EAGLE 5 systems and provide fault management, command, and control from any workstation.

- Reduced operating costs

EAGLE EMS delivers real-time status of the nodes in the signaling network. Using this information, operators can proactively correct system outages and reduce downtime. The centralized management capabilities of EAGLE EMS allow operators to more efficiently allocate administration support staff.

- Scalable

The EAGLE EMS architecture supports centralized and distributed environments. Operators can manage the entire network from one location.

- Automated alarm system

Alarm events, isolation, and escalation are automated, allowing network operators to quickly isolate problems and provide rapid service restoration, often without dispatching technical personnel. The system can also be configured to automatically send emails, pages, or facsimiles to multiple destinations and individuals based on events.

- Customized event viewing

User-configurable windows, based on the customer's choice of filtering and viewing criteria, provide a flexible, efficient way to view and monitor alarms. Features include:

- Easy-to-use GUI-Point-and-click operation
- Scene drill-down capability
- Geographical or logical network views
- Color-coded alert severity

- Network mapping

EAGLE EMS supports multilevel hierarchical views. Using imported bitmaps of geographic maps or floor plans, along with customized graphics and resource placement, a layout can be created that closely matches the actual network.

- EAGLE EMS agents

EAGLE EMS allows direct communication with network equipment via Agents. EAGLE EMS Agents are programs that provide EAGLE EMS management access to EAGLE 5 systems in customer networks. EAGLE EMS Agents provide specific functions including performance reporting and inventory monitoring functions.

- EAGLE 5 command management and scripting

EAGLE EMS allows network management personnel to remotely control EAGLE 5 systems in their networks. Individual EAGLE 5 commands, as well as complex command scripts, can be created, managed, executed, and scheduled for execution on one or more remote EAGLE 5 systems from a central location. Access to these active management functions is controlled on a user by user basis. Different access levels can be provided to different users.

- Reporting and synchronizing alarms with a northbound Network Management System

EAGLE EMS provides a mechanism for forwarding alarms from EAGLE 5 systems and from the EAGLE EMS itself (including EAGLE EMS agents and interfaces) to a northbound Network Management System. Alarms are synchronized between the EAGLE EMS and Network Management System upon request from the Network Management System.

EAGLE EMS Interfaces

EAGLE EMS, with its intuitive graphical user interface (GUI), displays a view of the network down to the card level with event-filtering capabilities. When outages occur, EAGLE EMS provides fault isolation tools to quickly isolate the problem and enable service restoration. Direct access to the EAGLE 5 command line interface is provided and operators have the flexibility to remotely manage EAGLE 5 systems based on customer defined rules for common and repetitive actions.

The EAGLE EMS interfaces available include:

- **Command Manager Interface (CMI)**

The Command Manager Interface provides access to EAGLE 5 commands, parameters, and historical data. The following functions are provided by the Command Manager Interface:

- Administer access rights for CMI users according to User group
- Create (with assistance) and send commands to one or more EAGLE 5 systems
- Create, manage, and schedule for execution CMI command scripts

- Manage and review logs containing information about EAGLE EMS activities, including CMI command script execution, all CMI User activities, and all accesses to EAGLE 5 systems

- **Fault/Communication Agent**

The Fault/Communication Agent manages all required communication between EAGLE 5 systems and the EAGLE EMS system.

- Monitors alarms originating from EAGLE 5 systems
- Graphical displays are updated in real-time and depict the current status of EAGLE 5 components
- Users can view EAGLE 5 alarms
- Log EAGLE EMS activity
- Examine "debug" files containing information about the EAGLE EMS interpretation of EAGLE 5 data
- Store raw OA&M reports received from EAGLE 5 systems

- **Inventory Monitoring Interface**

Provides status of network element hardware and software with inventory data maintained in EMS Server database.

- Off-line via nightly scheduled retrieval
- On-line via real-time retrieval
- Presented via the GUI menu driven screens

- **Link Utilization Interface**

Collects and stores link capacity information about EAGLE 5 signaling links into the EAGLE EMS database. That capacity data is used by the EAGLE EMS to create more informative Measurement Reports about the link utilization on EAGLE 5 systems within the EAGLE EMS domain. Users can apply hypothetical link capacities to aid in network planning.

- **Measurements Platform Agent**

The EAGLE EMS Measurements Platform Agent parses measurement files received from the EAGLE 5 Measurements Platform. The files are sent via FTP or SFTP to the EAGLE EMS. The EAGLE EMS Measurements Platform Agent inputs the measurements data into the EMS database for use in creating reports.

- **OA&M Measurements Agent**

The EAGLE EMS OA&M Measurements Agent saves name/value pairs to the EAGLE EMS database. Four (4) Crystal Reports are available that report on the gathered EAGLE 5 performance data that is stored in the EAGLE EMS database. The EAGLE EMS OA&M Measurements Agent can produce output data in Metrica-compatible format.

- **Enhanced SNMP Northbound Interface**

The EAGLE EMS Enhanced SNMP Northbound Interface selectively forwards SNMP alert traps to up to 10 northbound Network Management Systems. Alerts can be synchronized between the EAGLE EMS and a Network Management System.

These interfaces have corresponding northbound interfaces (NBIs) for Fault (SNMP-based), and Performance and Configuration (FTP-based and CORBA-based, respectively).

Baseline Hardware and Software for EAGLE EMS

All EAGLE EMS hardware and software are delivered by Tekelec as a turnkey system. No additional hardware or software are required. EAGLE EMS defines tiers of hardware servers that are based on the number of concurrent EMS Users and the number of supported EAGLE 5 pairs in the customer's environment, as follows:

- Tier 1 Server:
 - Up to 2 pair of EAGLE 5 systems
 - Up to 5 concurrent EMS Users
- Tier 2 Server:
 - Up to 6 pair of EAGLE 5 systems
 - Up to 10 concurrent EMS Users
- Tier 3 Server:
 - Up to 10 pair of EAGLE 5 systems
 - Up to 10 concurrent EMS Users
- Tier 4 Application/Database Servers:
 - Up to 14 pair of EAGLE 5 systems
 - Up to 25 concurrent EMS Users

For networks that include more than 14 pair of EAGLE 5 systems, Tekelec will determine the appropriate server size, based on the total network configuration.

Chapter 3

Command Manager Interface (CMI)

Topics:

- *Command Manager Interface Overview.....24*
- *Application Framework.....24*
- *Command Manager Interface Administration...24*
- *Command Manager Interface EAGLE 5 Management Functions.....25*
- *Command Manager Interface Logging Functions.....26*
- *Using the Command Manager Interface.....27*
- *Command Manager Interface Pages.....100*
- *CMI Functions.....158*
- *Commands Not Supported in the Command Manager Interface.....165*

This chapter provides an overview of the functions provided by the Command Manager Interface and the user Interfaces that provide access to those functions.

Command Manager Interface Overview

This manual provides a description of the Command Manager Interface (CMI). The Command Manager Interface provides access to EAGLE 5 commands, parameters, and historical data.

The following functions are provided by the Command Manager Interface:

- Administer access rights for CMI users according to User group
- Send commands to one or more EAGLE 5 systems
- Create, manage, and schedule for execution CMI command scripts
- Manage and review logs containing information about EAGLE EMS activities, including CMI command script execution.

Application Framework

The Command Manager Interface requires that the Tekelec EAGLE EMS Fault/Communication Management Agent be installed and running.

This User's Guide assumes that the Command Manager Interface is installed and configured. The Command Manager Interface can be viewed using either of the following web browsers:

- Microsoft® Internet Explorer version ¹7.0 or later
- Mozilla Firefox® version 2.0 or later.

Command Manager Interface Administration

EMS Users must log in to the CMI with a user name and password in order to use the Command Manager Interface. All EMS Users are automatically registered in the Command Manager Interface, but in order to log in to the CMI and use it, they need a username and password. The username of the EMS User is applicable in the CMI also, and the password is generated by a CMI Administrator while associating the EMS User with a CMI Usergroup. One or more EMS Users can be designated as CMI Administrators. CMI Administrators manage access rights of individual EMS Users by assigning them to a CMI Usergroup. A CMI Administrator is defined to have access to all CMI functions AND EAGLE 5 commands supported by the Command Manager Interface and have authorization to access all EAGLE 5 systems connected to the EAGLE EMS. EMS Users who belong to the NetBoss Administrator group are automatically designated as CMI Administrators.

Note: EMS Users are created in NetBoss. See the *NetBoss Administration* manual for the procedure on how to create new EMS Users.

To accomplish this access control, the following functions are provided by the CMI:

- CMI Usergroups

¹ Microsoft is a registered trademark of the Microsoft Corporation.

² Firefox is a registered trademark of the Mozilla Foundation.

CMI Administrators define "Usergroups" that are associated with subsets of CMI functions, EAGLE 5 commands, and access to particular EAGLE 5 systems. CMI Administrators then associate each EMS User with a particular Usergroup, according to the roles and appropriate access rights for that EMS User. The Command Manager Interface ensures that EMS Users only use the commands and functions and have access only to the EAGLE 5 systems that are associated with their assigned Usergroup.

- **EAGLE 5 Command Access Control**

EMS Users are only permitted to use EAGLE 5 commands that they have been specifically authorized to use (as defined by their CMI Usergroup). CMI Administrators also define CMI command classes, which contain subsets of EAGLE 5 commands. These, in addition to the standard EAGLE 5 command classes, are associated with CMI Usergroups in order to control the EAGLE 5 commands to which EMS Users have access.

Before sending a command to an EAGLE 5 for execution or saving a command in a CMI command script, the Command Manager Interface ensures that the requesting EMS User is authorized to use that command.

- **CMI Function Access Control**

EMS Users are only permitted to use the CMI functions that they have been specifically authorized to use (according to CMI Usergroup). CMI functions include the following:

- Sending EAGLE 5 commands
- Creating and managing CMI command scripts
- Executing and scheduling CMI command script execution and viewing the results
- Viewing logs of CMI activities
- Performing CMI Administrator tasks

Note: The selection of an individual function for inclusion in a CMI Usergroup is completely independent from any other functions that have been selected.

- **EAGLE 5 System Access Control**

EMS Users are only permitted to access the EAGLE 5 systems (using EAGLE 5 commands) that they have been specifically authorized to access, according to CMI Usergroup.

Command Manager Interface EAGLE 5 Management Functions

Two mechanisms are provided by the Command Manager Interface to send commands to EAGLE 5 systems.

- **Send Command**

The **Send Command** function allows EMS Users to send a single EAGLE 5 command to one or more EAGLE 5 systems. EMS Users are offered the choice of directly entering the entire EAGLE 5 command or being guided through a set of menus to select the command and its parameters and parameter values.

- **Script Management**

EMS Users can create, modify, execute, delete, execute and schedule CMI command scripts for execution. Those CMI command scripts are written in Hypertext Preprocessor (PHP) using CMI

functions that allow access to and control of EAGLE 5 systems. With the exception of CMI Administrators, EMS Users can not access any other EMS User's CMI command scripts.

EAGLE 5 commands issued in CMI command scripts are validated to ensure that only the permitted commands are sent, and sent only to those EAGLE 5 systems to which the EMS User has been granted access according to CMI Usergroup association.

Individual EMS Users can define Categories in order to help organize their CMI command scripts.

Command Manager Interface Logging Functions

EMS Users have access to the following types of logs through the Command Manager Interface:

- User Activity Logs

Current Logs and **Log Files** allow CMI Administrators to monitor EMS User activity in the CMI as follows:

- **Current Logs:**

User activities of the last 24 hours are accessed in **Current Logs**. Each entry contains the following information about a specific EMS User activity within the CMI:

- Date and Time of activity
- Name of EMS User performing activity
- Activity Area of activity (e.g., login, run script, script management, administration)
- Type (indicates whether the activity affected an EAGLE 5 system or was contained within the Command Manager Interface)
- Description of the action

This information is presented in tabular form and the log can be sorted on the date/time, EMS User name, Activity area, or Type columns. The number of records to be displayed per page can be selected, ranging from 10 to 1000 records on each page.

- **Log Files:**

User activities older than those presented in **Current Logs** and newer than 15 days old, are accessed in **Log Files**. Two separate files are saved for each date:

- EAGLE Affecting Logs

These logs contain records of EMS User activities that affect EAGLE 5 systems, including sending commands and running scripts.

- User Action Logs

These logs contain records of EMS User activities within the Command Manager Interface that do not directly affect EAGLE 5 systems, such as logging in to the CMI, creating and executing CMI Command Scripts, and CMI administrative activities.

Each entry, in either type of log file, contains the following information about a specific EMS User activity within the CMI:

- Date and Time of activity
- Name of EMS User performing activity

- Activity Area of activity (e.g., login, run script, script management, administration)
- Description of the action

This information is presented as a flat file in chronological order of the activities.

After 15 days, **Log Files** are archived in the following directory:

```
$ANMDIR/sga/Elements/TklcEagleEMSCMI/www/logs/activity_logs/log_archives
```

- Inventory Commands logs

These logs contain records of on-demand "Update Inventory" processes performed via the EAGLE EMS Fault Management System or configured in the EAGLE EMS to run periodically and automatically.

- Download logs

These logs contain results of `rtrv-log` commands executed during the on-demand "Update Inventory" processes performed via the EAGLE EMS Fault Management System or configured in the EAGLE EMS to run periodically and automatically.

- SGA Port logs

These logs contain records of activity on individual SGA ports used by the EAGLE EMS.

- CMI command script execution logs

These logs contain information about the execution of scheduled CMI command scripts.

Using the Command Manager Interface

This chapter presents instructions on how to use the Command Manager Interface.

Logging In to CMI

Before performing this procedure, the Command Manager Interface must have been launched.

This procedure describes how to log in to the Command Manager Interface.

1. Enter the user name into the **Username** field on the Command Manager Interface Login page.

The Command Manager Interface Login page is shown in [Figure 2: Command Manager Interface Login Page](#).



Figure 2: Command Manager Interface Login Page

This page is described in [Command Manager Interface Login](#).

2. Enter the password into the **Password** field on the Command Manager Interface Login page.

The login password may be different from the NetBoss password and is set by a CMI Administrator. It is recommended that CMI Administrators maintain the same password as their NetBoss login passwords.

3. Click the **Sign In** button or press the Enter key on the keyboard.

If the user name and password entered in [Step 1](#) and [Step 2](#) are correct, the EMS User is authenticated and a Command Manager Interface Welcome page similar to the one shown in [Figure 3: Command Manager Interface Welcome Page](#) appears.

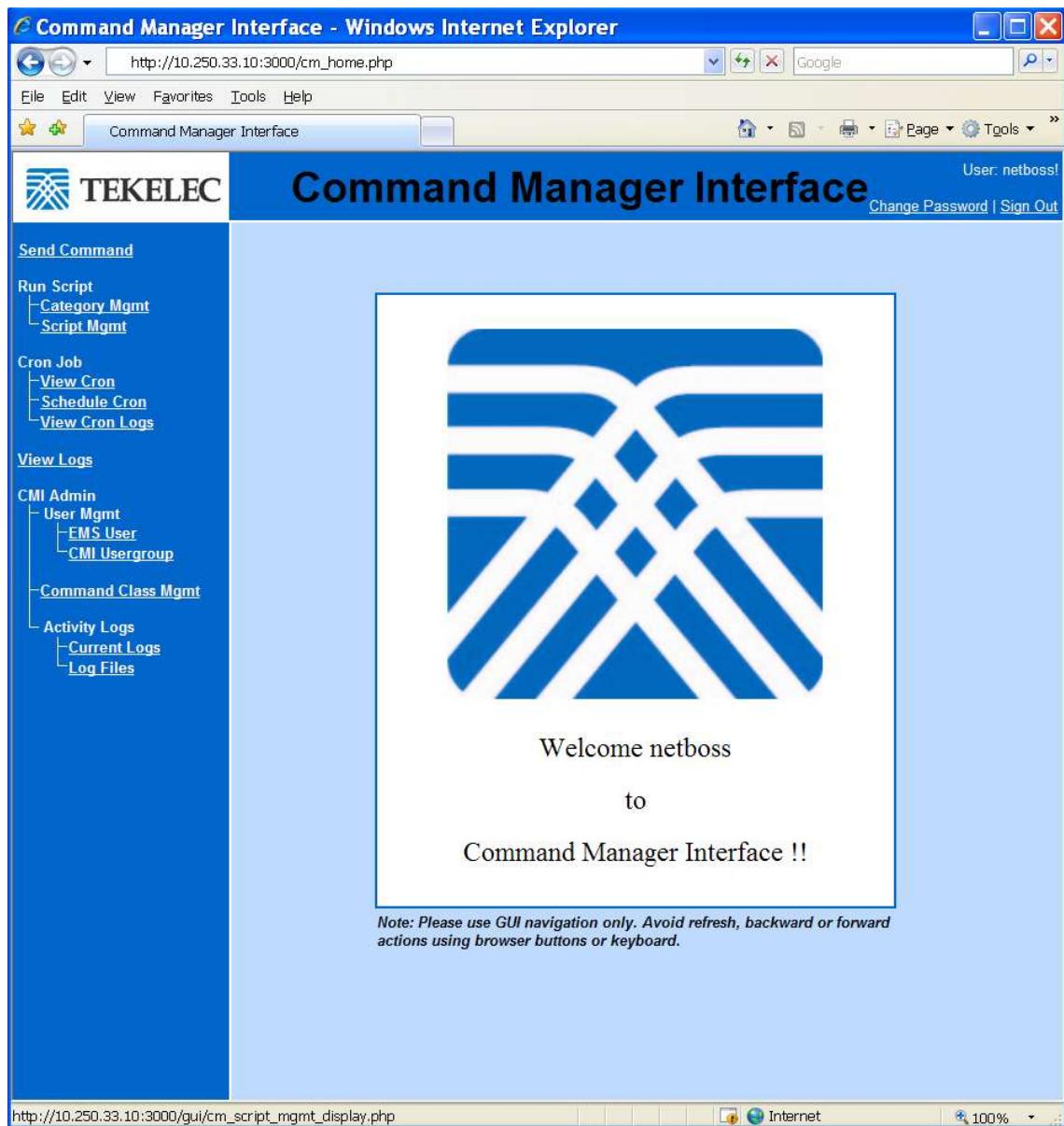


Figure 3: Command Manager Interface Welcome Page

If there is a problem with the user name or password, an error message appears.

4. If an error message appeared in *Step 3*, check to make sure the username and password are correct and repeat *Step 1* through *Step 3*.
5. If login was not successful after repeating the login attempt, contact a CMI Administrator.

Modifying an EMS User Association

Before using this procedure, a CMI Administrator must be logged in to the Command Manager Interface as described in [Logging In to CMI](#). Only CMI Administrators can modify the association between EMS Users and CMI Usergroups or change the passwords of EMS Users other than themselves.

This procedure explains how a CMI Administrator can establish or change the CMI Usergroup with which an EMS User is associated and how to change the login password associated with an EMS User.

1. Click the **EMS User** link in the main menu on the left side of the page.

A page similar to the one shown in *Figure 4: EMS User Management Page* appears.

EMS Users	CMI Usergroups	Actions	
netboss*	CMI Admin	Modify	Delete
ProdVer	ProdVer	Modify	Delete
root*	CMI Admin	Modify	Delete
Test	ProdVer	Modify	Delete
test1	UG2	Modify	Delete

* These users are Netboss Administrators.

Figure 4: EMS User Management Page

This page is described in *EMS User Management*.

Note: An EMS User belonging to the NetBoss Administrator group is automatically associated with the "CMI Admin" CMI Usergroup. Although their associations with the "CMI Admin" CMI Usergroup cannot be changed or deleted, the password for these EMS Users can be changed. EMS Users who are not NetBoss Administrators but are associated with the "CMI Admin" CMI Usergroup can have their association with the "CMI Admin" CMI Usergroup changed (as described in the following steps) or deleted (as described in *Deleting an EMS User Association*).

2. Click the **Modify** link in the same row as the name of the EMS User to which a new or different CMI Usergroup is to be associated.

A page similar to the one shown in *Figure 5: Modify EMS User Association Page* appears.

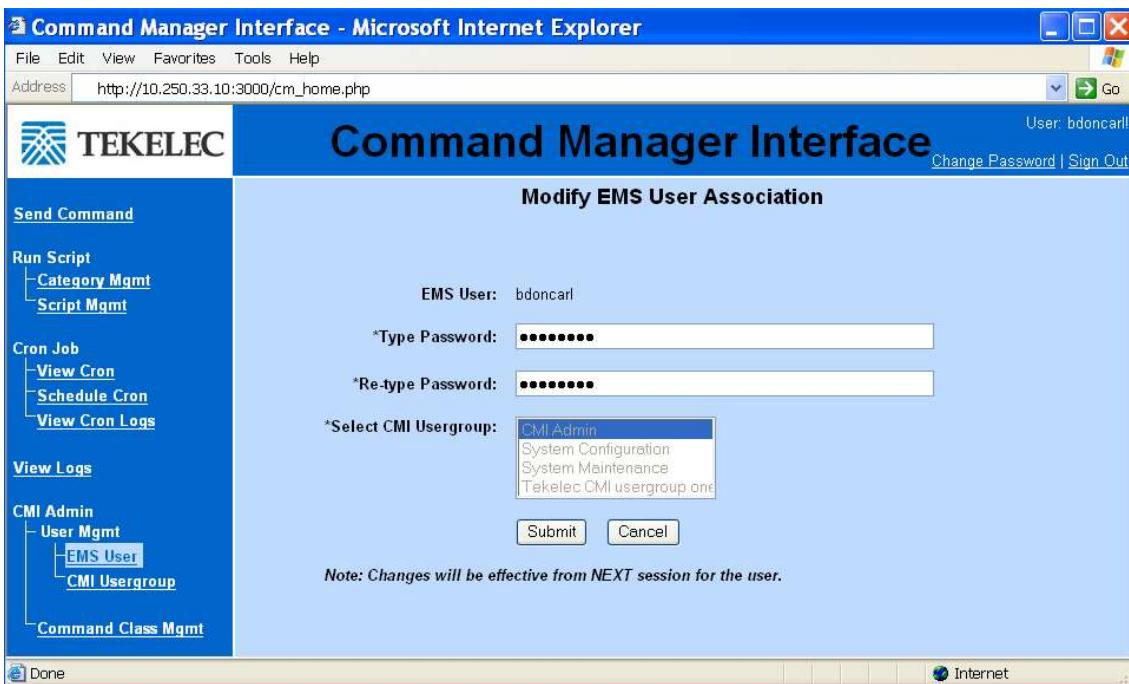


Figure 5: Modify EMS User Association Page

This page is described in [Modify EMS User Association](#).

3. If the login password is to be set or modified for the EMS User listed, enter the (same) new password in both the **Type Password** and **Re-type Password** fields.

If a password has already been set for this EMS User, the **Type Password** and **Retype Password** fields will be populated using "*" symbols for the password characters.

If changing the password, identical passwords must be entered in both fields. That password must meet the following constraints:

- The password must have at least 4 characters.
- Only alphanumeric characters (0-9, a-z, A-Z) are allowed.

4. Select one CMI Usergroup from the list presented in the **Select CMI Usergroup** box.

Note: A CMI Usergroup must be selected from the list even if it is not being changed from its previous value.

5. Click the **Submit** button.

If the password was not entered according to the rules listed in [Step 3](#), an error message describing the problem appears.

If another CMI Administrator has deleted the CMI Usergroup while [Step 1](#) through [Step 5](#) were being performed and the CMI Usergroup that was deleted was selected in [Step 4](#), an error message appears.

If no errors were reported, the requested modifications to EMS User associations were made, the EMS User Management page similar to [Figure 4: EMS User Management Page](#) appears again. Any new CMI Usergroup associations made in [Step 2](#) through [Step 5](#) are reflected in the table.

6. If errors were reported in *Step 5*, perform *Step 2* through *Step 5* again.

Deleting an EMS User Association

Before using this procedure, a CMI Administrator must be logged in to the Command Manager Interface as described in [Logging In to CMI](#). Only CMI Administrators can delete the association between EMS Users and CMI Usergroups.

This procedure explains how a CMI Administrator can delete the association of a CMI Usergroup with an EMS User.

1. Click the **EMS User** link in the main menu on the left side of the page.

A page similar to the one shown in [Figure 6: EMS User Management Page](#) appears.

EMS Users	CMI Usergroups	Actions	
netboss*	CMI Admin	Modify	Delete
ProdVer	ProdVer	Modify	Delete
root*	CMI Admin	Modify	Delete
Test	ProdVer	Modify	Delete
test1	UG2	Modify	Delete

* These users are Netboss Administrators.

Figure 6: EMS User Management Page

This page is described in [EMS User Management](#).

2. Click the **Delete** link in the same row as the EMS User for which a the CMI Usergroup association is to be deleted.

A confirmation dialog box similar to the one shown in [Figure 7: Delete EMS User Association Confirmation](#) appears.

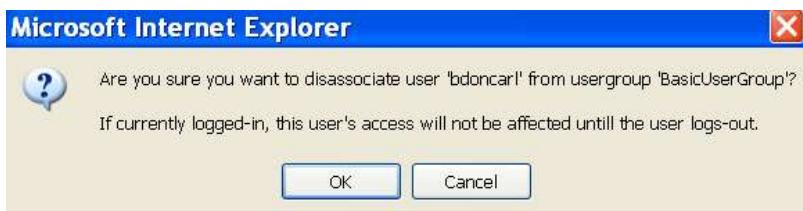


Figure 7: Delete EMS User Association Confirmation

3. Click the **OK** button to confirm the deletion of the association between the EMS User and the CMI Usergroup.

To cancel this operation, click the **Cancel** button and the EMS User Management Page similar to [Figure 6: EMS User Management Page](#) appears again.

If another CMI Administrator has deleted the association between the CMI Usergroup and the EMS User while [Step 2](#) through [Step 3](#) were being performed, an error message appears.

If no errors were reported, the EMS User association was deleted for this EMS User and the EMS User Management page appears again, showing a "--" in the **CMI Usergroup** column for this EMS User.

Changing an EMS User Password

Before using this procedure, an EMS User must be logged in to the Command Manager Interface as described in [Logging In to CMI](#). Only CMI Administrators can change the passwords of other EMS Users. That process is described in [Modifying an EMS User Association](#).

This procedure explains how an EMS User can change their own password.

1. Click the **Change Password** link in on the upper right side of the page.

A page similar to the one shown in [Figure 8: Change Password Page](#) appears.



Figure 8: Change Password Page

This page is described in [Change Password](#).

2. Enter your existing password in the **Old Password** field.

If you don't know your existing password, contact a CMI Administrator to reset the password.

3. Enter the new password in both the **New Password** and **Re-Type New Password** fields.

Note: The passwords entered into the **New Password** and **Re-Type New Password** fields must be identical. The new password must meet the following constraints:

- The new password must have at least 4 characters.
- Only alphanumeric characters (0-9, a-z, A-Z) are allowed.

4. Click the **Submit** button.

If the passwords were not entered according to the rules listed in [Step 2](#) and [Step 3](#), an error message appears.

If no errors were reported, the new password is stored and the following message will appear:

Your password has been changed successfully!

5. If errors were reported in [Step 4](#), perform [Step 2](#) and [Step 3](#) again, correcting for the reported error.

Creating a CMI Usergroup

Before performing this procedure, a CMI Administrator must be logged in to the Command Manager Interface, as described in [Logging In to CMI](#). Only CMI Administrators can create CMI Usergroups.

This procedure describes how a CMI Administrator can create a new CMI Usergroup and assign CMI functions, EAGLE 5 command classes, and CMI command classes to that new CMI Usergroup.

1. Click the **CMI Usergroup** link in the main menu on the left side of the page.

A page similar to the one shown in [Figure 9: CMI Usergroup Management Page](#) appears.

The screenshot shows the 'Command Manager Interface - Windows Internet Explorer' window. The title bar says 'Command Manager Interface - Windows Internet Explorer'. The address bar shows 'http://10.250.33.10:3000/cm_home.php'. The menu bar includes 'File', 'Edit', 'View', 'Favorites', 'Tools', and 'Help'. The toolbar includes standard browser icons. The main content area has a header 'Command Manager Interface' and 'User: netboss!' with links to 'Change Password' and 'Sign Out'. On the left, there's a sidebar with a 'TEKELEC' logo and a navigation tree:

- Send Command**
- Run Script**
 - Category Mgmt
 - Script Mgmt
- Cron Job**
 - View Cron
 - Schedule Cron
 - View Cron Logs
- View Logs**
- CMI Admin**
 - User Mgmt
 - EMS User**
 - CMI Usergroup**
- Command Class Mgmt**
- Activity Logs**
 - Current Logs**
 - Log Files

The main content area displays a table titled 'CMI Usergroups' with the following data:

CMI Usergroups	Actions		
CMI Admin	View	Modify	Delete
ProdVer	View	Modify	Delete
PVEMSGRP1	View	Modify	Delete
UG1	View	Modify	Delete
UG2	View	Modify	Delete

At the bottom right of the content area is a 'Create Usergroup' button.

Figure 9: CMI Usergroup Management Page

This page is described in [CMI Usergroup Management](#).

The table on this page lists all of the defined CMI Usergroups. The new CMI Usergroup being created in this procedure must have a name that is different from all of the other CMI Usergroup names in the table.

2. Click the **Create Usergroup** button.

A page similar to the one shown in [Figure 10: Create CMI Usergroup Page](#) appears.

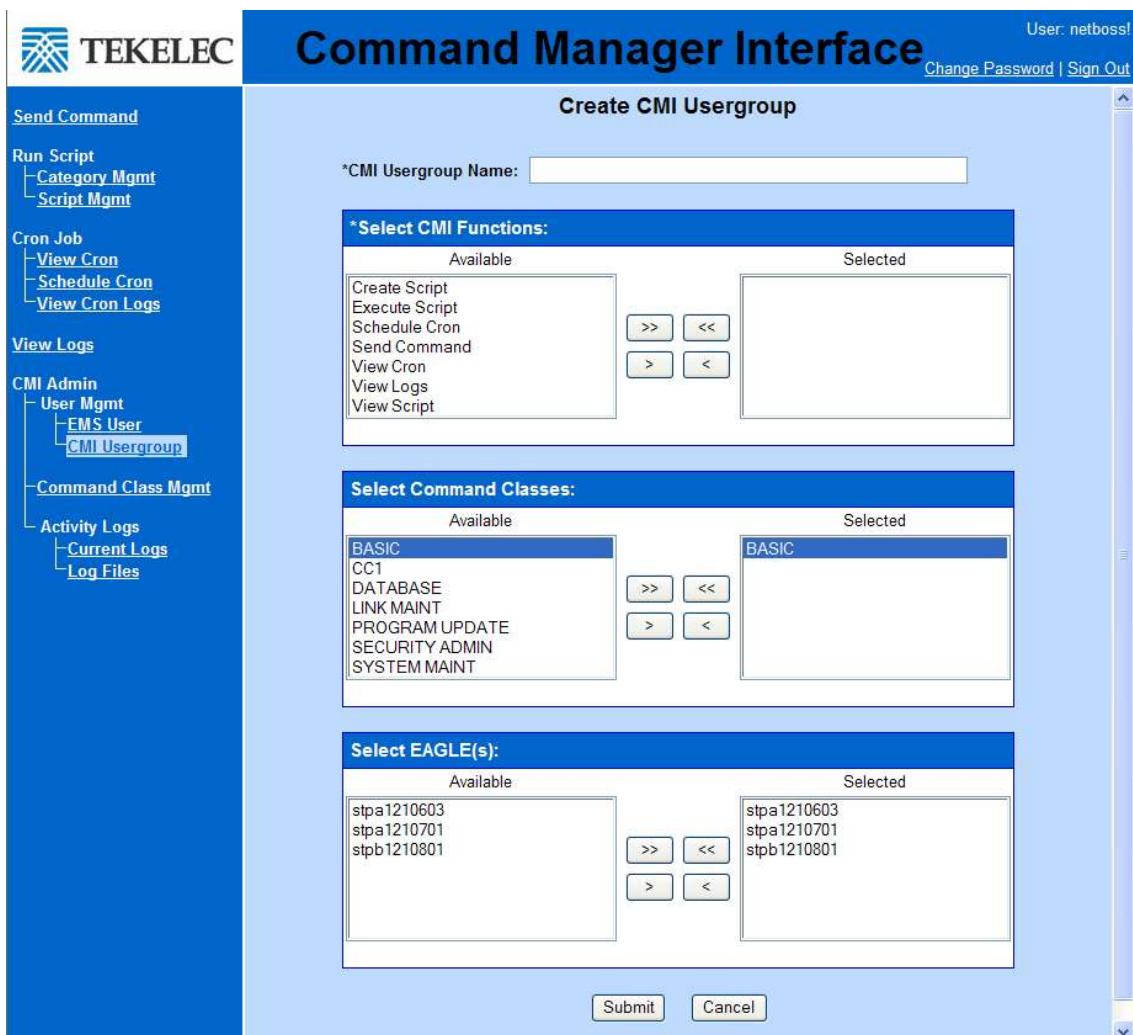


Figure 10: Create CMI Usergroup Page

This page is described in [Create CMI Usergroup](#).

3. Enter the name of the new CMI Usergroup to be created in the **CMI Usergroup Name** field. The new CMI Usergroup name must be unique within the Command Manager Interface. Existing CMI Usergroup names were listed in the page described after [Step 1](#) was performed. The new CMI Usergroup name must meet the following constraints:
 - The name must have at least 3 characters.
 - Only alphanumeric characters (0-9, a-z, A-Z) and spaces are allowed.
4. Select the CMI functions to be assigned to this new CMI Usergroup from the **Available** column of the **Select CMI Functions** pane.
 - a) If all of the CMI functions listed in the **Available** column of the **Select CMI Functions** pane are to be assigned to the new CMI Usergroup, click the **>>** button in that pane. All of the CMI functions will then also appear in the **Selected** column of the **Select CMI Functions** pane.

- b) If a subset of the CMI functions listed in the **Available** column of the **Select CMI Functions** pane are to be assigned to the new CMI Usergroup, highlight those CMI functions in the **Available** column of the **Select CMI Functions** pane and then click the **>** button in that pane. The selected CMI functions will then also appear in the **Selected** column of the **Select CMI Functions** pane.
- c) If a CMI Function is inadvertently selected in *Substep a* or *Substep b*, remove it by selecting it in the **Selected** field of the **Select CMI Functions** pane and click the **<** button in that pane.
- d) To remove all of the CMI functions from the **Selected** field, click the **<<** button in the **Select CMI Functions** pane.

Note: At least one CMI Function must be assigned to the new CMI Usergroup. A CMI Administrator can change this assignment at any time using the procedure described in [Modifying a CMI Usergroup](#).

Note: The assignment of any CMI function to a CMI Usergroup is completely independent from the assignment of any other CMI function to that CMI Usergroup. For example, if **Send Command** function is not assigned to a CMI Usergroup and the **Execute Script** function is associated with that CMI Usergroup, EMS Users associated with that CMI Usergroup can not use the Send Command function to send individual EAGLE 5 commands, but can still Execute CMI command scripts that may contain EAGLE 5 commands.

Note: The Create Script Function is also used to control the right to modify CMI command scripts. That is, if an EMS User is associated with a CMI Usergroup that allows that EMS User to create CMI command scripts, that EMS User can also modify CMI command scripts. If the EMS User is associated with a CMI Usergroup that prohibits that EMS User from creating CMI command scripts, that EMS User is also prohibited from modifying CMI command scripts.

5. Select any EAGLE 5 command classes and/or CMI command classes to be assigned to this new CMI Usergroup in the **Available** column of the **Select Command Classes** pane.

All of the EAGLE 5 command classes and CMI command classes that have been defined appear in the **Available** column of the **Select Command Classes** pane. The EAGLE 5 command classes correspond exactly with the default command classes of the same names defined for the EAGLE 5 release with which this release of the Command Manager Interface is associated.

Note: By default, the "BASIC" EAGLE 5 command class is selected for all new CMI Usergroups. This can be changed as described in the following sub-steps.

CMI command classes are defined according to the procedure described in [Creating a CMI Command Class](#).

- a) If all of the EAGLE 5 command classes and CMI command classes listed in the **Available** column of the **Select Command Classes** pane are to be assigned to the new CMI Usergroup, click the **>>** button in that pane.
All of the "Available" EAGLE 5 command classes and CMI command classes will also then appear in the **Selected** column of the **Select Command Classes** pane.
- b) If a subset of the EAGLE 5 command classes and CMI command classes listed in the **Available** column of the **Select Command Classes** pane are to be assigned to the new CMI Usergroup, highlight those command classes in the **Available** column and then click the **>** button in that pane.
All of the selected "Available" EAGLE 5 command classes and CMI command classes will then also appear in the **Selected** column of the **Select Command Classes** pane.
- c) If a EAGLE 5 command class or CMI command class is inadvertently selected in *Substep a* or *Substep b*, remove it by selecting it in the **Selected** column of the **Select Command Classes** pane and click the **<** button in that pane.

- d) To remove all of the EAGLE 5 command classes and CMI command classes from the **Selected** column, click the << button in the **Select Command Classes** pane.

Note: It is possible to create a CMI Usergroup that has no EAGLE 5 command classes or CMI command classes with which it is associated. A CMI Administrator can change these associations at any time as described in [Modifying a CMI Usergroup](#).

Note: CMI command scripts belonging to EMS Users that are associated with CMI Usergroups that allow access to all EAGLE 5 commands and all connected EAGLE 5 systems are not validated to ensure that the EMS User has access to the EAGLE 5 commands and EAGLE 5 systems, as defined in [Step 5](#) and [Step 6](#).

6. Select the EAGLE 5 systems to which EMS Users associated with this CMI Usergroup should have access from the **Available** column of the **Select EAGLE(s)** pane.

All of the EAGLE 5 systems that are connected to the EAGLE EMS system (using ProBuilder) appear in the **Available** column.

Note: By default, all of the EAGLE 5 system(s) to which the EAGLE EMS is connected appear in the Available column and are selected for all new CMI Usergroups. This can be changed as described in the following sub-steps.

- a) If all of the EAGLE 5 systems listed in the **Available** column of the **Select EAGLE(s)** pane are to be accessible by EMS Users associated with the CMI Usergroup being defined, click the >> button in that pane.
All of the "Available" EAGLE 5 systems will also then appear in the **Selected** column of the **Select EAGLE(s)** pane.
- b) If a subset of the EAGLE 5 systems listed in the **Available** column of the **Select EAGLE(s)** pane are to be assigned to the new CMI Usergroup, highlight those command classes in the **Available** column and then click the > button in that pane.
All of the selected "Available" EAGLE 5 systems will then also appear in the **Selected** column of the **Select EAGLE(s)** pane.
- c) If a EAGLE 5 system is inadvertently selected in [Substep a](#) or [Substep b](#), remove it by selecting it in the **Selected** column of the **Select EAGLE(s)** pane and click the < button in that pane.
- d) To remove all of the EAGLE 5 systems from the **Selected** column, click the << button in the **Select EAGLE(s)** pane.

Note: If no EAGLE 5 systems are selected, EMS Users associated with this CMI Usergroup will not be permitted to send commands or execute CMI command scripts that access EAGLE 5 systems. They will still be permitted to access CMI functions, as allowed by the selection of CMI functions in [Step 4](#).

Note: CMI command scripts belonging to EMS Users that are associated with CMI Usergroups that allow access to all EAGLE 5 commands and all connected EAGLE 5 systems are not validated to ensure that the EMS User has access to the EAGLE 5 commands and EAGLE 5 systems, as defined in [Step 5](#) and [Step 6](#).

7. Click the **Submit** button.

If the Usergroup name did not conform to the constraints described in [Step 3](#) or no CMI Function was selected in [Step 4](#), an error message appears.

If another CMI Administrator has deleted one of the selected CMI command classes while [Step 2](#) through [Step 7](#) were being performed, an error message appears.

If no errors were found with the information entered in *Step 3* through *Step 5*, a page similar to the one shown in *Figure 9: CMI Usergroup Management Page* appears again and the new CMI Usergroup is listed under the **CMI Usergroups** column.

8. If errors were reported in *Step 7*, perform *Step 3* through *Step 7* again, correcting the error that was reported.

Viewing a CMI Usergroup

Before performing this procedure, a CMI Administrator must be logged in to the Command Manager Interface, as described in *Logging In to CMI*. Only CMI Administrators can view CMI Usergroups.

This procedure describes how a CMI Administrator can view the CMI Functions, EAGLE 5 Command Classes, and CMI Command Classes with which a CMI Usergroup is associated.

1. Click the **CMI Usergroup** link in the main menu on the left side of the page.

A page similar to the one shown in *Figure 11: CMI Usergroup Management Page* appears.

CMI Usergroups	Actions		
CMI Admin	View	Modify	Delete
ProdVer	View	Modify	Delete
PVEMSGRP1	View	Modify	Delete
UG1	View	Modify	Delete
UG2	View	Modify	Delete

Figure 11: CMI Usergroup Management Page

This page is described in *CMI Usergroup Management*.

2. Click the **View** link on the same line as the name of the CMI Usergroup about which information is to be viewed.

A page similar to the one shown in *Figure 12: View CMI Usergroup Page* appears.

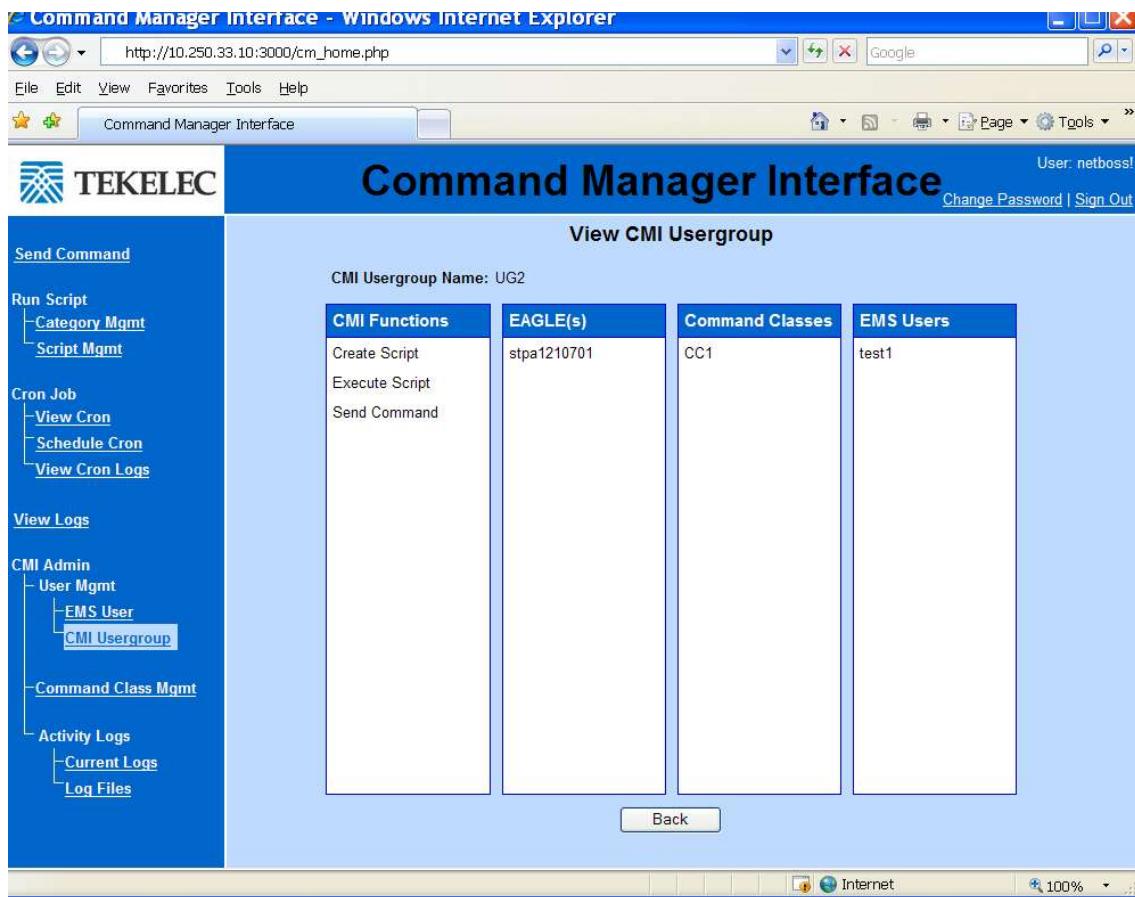


Figure 12: View CMI Usergroup Page

This page is described in [View CMI Usergroup](#)

- When you are done reviewing the CMI Usergroup associations, click the **Back** button and a page similar to [Figure 11: CMI Usergroup Management Page](#) appears again.

Modifying a CMI Usergroup

Before performing this procedure, a CMI Administrator must be logged in to the Command Manager Interface, as described in [Logging In to CMI](#). Only CMI Administrators can modify CMI Usergroup definitions.

This procedure describes how a CMI Administrator can change the CMI functions, EAGLE 5 command classes, and CMI command classes with which a CMI Usergroup is associated.

- Click the **CMI Usergroup** link in the main menu on the left side of the page.

A page similar to the one shown in [Figure 13: CMI Usergroup Management Page](#) appears.

The screenshot shows the 'Command Manager Interface - Windows Internet Explorer' window. The URL in the address bar is http://10.250.33.10:3000/cm_home.php. The title bar says 'Command Manager Interface'. The top right corner shows 'User: netboss!' with links for 'Change Password' and 'Sign Out'. The left sidebar has a 'TEKELEC' logo and a navigation menu with sections like 'Send Command', 'Run Script' (with 'Category Mgmt' and 'Script Mgmt' sub-links), 'Cron Job' (with 'View Cron', 'Schedule Cron', and 'View Cron Logs' sub-links), 'View Logs' (with 'CMI Admin' (containing 'User Mgmt' with 'EMS User' and 'CMI Usergroup' sub-links), 'Command Class Mgmt', and 'Activity Logs' (containing 'Current Logs' and 'Log Files' sub-links)), and 'CMI Admin' (which is bolded). The main content area is titled 'CMI Usergroup Management' and displays a table of CMI Usergroups:

CMI Usergroups	Actions		
CMI Admin	View	Modify	Delete
ProdVer	View	Modify	Delete
PVEMSGRP1	View	Modify	Delete
UG1	View	Modify	Delete
UG2	View	Modify	Delete

A 'Create Usergroup' button is located at the bottom of the table. The status bar at the bottom of the browser window shows the URL http://10.250.33.10:3000/gui/cm_usergroup_mgmt_display.php.

Figure 13: CMI Usergroup Management Page

This page is described in [CMI Usergroup Management](#).

Note: The "CMI Admin" CMI Usergroup has an inactive **Modify** link in its row because the CMI functions and command classes with which it is associated cannot be modified. The "CMI Admin" CMI Usergroup is, by definition, associated with all of the available CMI functions, EAGLE 5 command classes, and CMI command classes.

2. Click the **Modify** link in the same row the name of the CMI Usergroup for which the list of associated CMI functions and CMI command classes is to be changed.

A page similar to the one shown in [Figure 14: Modify CMI Usergroup Page](#) appears.

Modify CMI Usergroup

*CMI Usergroup Name: ProdVer

Select CMI Functions:

Available	Selected
Create Script	Create Script
Execute Script	Execute Script
Schedule Cron	Schedule Cron
Send Command	Send Command
View Cron	View Cron
View Logs	View Logs
View Script	View Script

Note: Changes will be effective from NEXT user session for all associated users.

Select Command Classes:

Available	Selected
BASIC	BASIC
CC1	
DATABASE	DATABASE
LINK MAINT	LINK MAINT
PROGRAM UPDATE	PROGRAM UPDATE
SECURITY ADMIN	
SYSTEM MAINT	

Note: Changes will be effective from CURRENT user session for all associated users.

Select EAGLE(s):

Available	Selected
stpa1210603	
stpa1210701	stpa1210701
stpb1210801	

Note: Changes will be effective from CURRENT user session for all associated users.

Submit **Cancel**

Figure 14: Modify CMI Usergroup Page

This page is described in [Modify CMI Usergroup](#).

The CMI Functions that are currently associated with this CMI Usergroup are listed in the **Selected** column of the **Select CMI Functions** field pane. The EAGLE 5 command classes and CMI Command classes currently associated with this CMI Usergroup are listed in the **Selected** column of the **Select Command Classes** pane. The EAGLE 5 systems currently associated with this CMI Usergroup are listed in the **Selected** column of the **Select EAGLE(s)** pane.

3. If additional CMI functions are to be assigned to this CMI Usergroup:
 - a) If all of the CMI functions listed in the **Available** column of the **Select CMI Functions** pane are to be assigned to the CMI Usergroup, click the **>>** button.
All of the "Available" CMI functions will then also appear in the **Selected** column of the **Select CMI Functions** pane.
 - b) If a subset of the CMI functions listed in the **Available** column of the **Select CMI Functions** field pane are to be assigned to the CMI Usergroup, highlight those CMI functions in the **Available** column and then click the **>** button.

All of the selected "Available" CMI functions will then also appear in the **Selected** column.

Selecting the CMI Admin Function will allow EMS Users associated with this CMI Usergroup to use all of the available CMI Functions and EAGLE 5 commands and to access all EAGLE 5 systems connected to the EAGLE EMS system (using ProBuilder).

Note: The assignment of any CMI function to a CMI Usergroup is completely independent from the assignment of any other CMI function to that CMI Usergroup. For example, if **Send Command** function is not assigned to a CMI Usergroup and the **Execute Script** function is associated with that CMI Usergroup, EMS Users associated with that CMI Usergroup can not use the Send Command function to send individual EAGLE 5 commands, but can still Execute CMI command scripts that may contain EAGLE 5 commands.

Note: The Create Script Function is also used to control the right to modify CMI command scripts. That is, if an EMS User is associated with a CMI Usergroup that allows that EMS User to create CMI command scripts, that EMS User can also modify CMI command scripts. If the EMS User is associated with a CMI Usergroup that prohibits that EMS User from creating CMI command scripts, that EMS User is also prohibited from modifying CMI command scripts.

4. If CMI functions are to be dis-associated from this CMI Usergroup:
 - a) If all of the CMI functions are to be dis-associated with this CMI Usergroup, click the << button in the **Select CMI Functions** pane.
All of the CMI functions will disappear from the **Selected** column of the **Select CMI Functions** pane.
 - b) If some CMI functions are to be dissociated from this CMI Usergroup, select the CMI functions to be dis-associated from the **Selected** column of the **Select CMI Functions** pane and click the < button in that pane.
The selected CMI functions will disappear from the **Selected** column of the **Select CMI Functions** pane.

Note: At least one CMI Function must eventually be assigned to the CMI Usergroup before performing [Step 9](#). CMI functions can be added by repeating [Step 3](#) of this procedure.

5. If additional EAGLE 5 command classes or CMI command classes are to be assigned to this CMI Usergroup, select the command classes to be added in the **Available** column of the **Select Command Classes** pane.
 - a) If all of the EAGLE 5 command classes or CMI command classes are to be associated with this CMI Usergroup, click the >> button in the **Select Command Classes** pane.
All of the command classes will appear in the **Selected** column of the **Select Command Classes** pane.
 - b) If some additional command classes are to be associated from this CMI Usergroup, select the command classes to be associated from the **Available** column of the **Select Command Classes** pane and click the > button in that pane.
The selected CMI functions will appear in the **Selected** column of the **Select Command Classes** pane.

Note: All of the EAGLE 5 command classes and CMI command classes that have been defined appear in the **Available** column in the **Select Command Classes** pane. The EAGLE 5 command classes correspond exactly with the default command classes of the same names defined for the EAGLE 5 release with which this Command Manager Interface is associated.

CMI command classes are defined according to the procedure described in [Creating a CMI Command Class](#).

Note: CMI command scripts belonging to EMS Users that are associated with CMI Usergroups that allow access to all EAGLE 5 commands and all connected EAGLE 5 systems are not validated to ensure that the EMS User has access to the EAGLE 5 commands and EAGLE 5 systems, as defined in [Step 5](#), [Step 6](#), [Step 7](#), and [Step 8](#).

6. If EAGLE 5 command classes or CMI command classes are to be dissociated from this CMI Usergroup:
 - a) If all of the EAGLE 5 command classes or CMI command classes are to be dis-associated with this CMI Usergroup, click the << button in the **Select Command Classes** pane.
All of the command classes will disappear from the **Selected** column of the **Select Command Classes** pane.
 - b) If some command classes are to be dis-associated from this CMI Usergroup, select the command classes to be dis-associated from the **Selected** column of the **Select Command Classes** pane and click the < button in that pane.
The selected CMI functions will disappear from the **Selected** column of the **Select Command Classes** pane.
7. If additional EAGLE 5 systems are to be associated with this CMI Usergroup:
 - a) If all of the EAGLE 5 systems listed in the **Available** column are to be associated with the CMI Usergroup, click the >> button.
All of the EAGLE 5 systems will then appear in the **Selected** column of the **Select EAGLE(s)** pane.
 - b) If a subset of the EAGLE 5 systems listed in the **Available** column are to be associated with the CMI Usergroup, highlight those EAGLE 5 systems in the **Available** column and then click the > button.
All of the selected "Available" EAGLE 5 systems will then also appear in the **Selected** column.
8. If EAGLE 5 systems are to be dis-associated with this CMI Usergroup:
 - a) If all of the EAGLE 5 systems listed in the **Selected** column are to be dis-associated with the CMI Usergroup, click the << button.
All of the EAGLE 5 systems will then disappear from the **Selected** column of the **Select EAGLE(s)** pane.
 - b) If a subset of the EAGLE 5 systems listed in the **Selected** column are to be dis-associated with the CMI Usergroup, highlight those EAGLE 5 systems in the **Selected** column and then click the < button.
Those EAGLE 5 systems will then disappear from the **Selected** column of the **Select EAGLE(s)** pane.
9. Click the **Submit** button.

Note: To abort the modification of the CMI Usergroup, click the **Cancel** button instead.

If no CMI Function remained in the **Selected** column of the Select CMI Functions after performing [Step 4](#) or if another CMI Administrator has deleted one of the selected CMI command classes while [Step 2](#) through [Step 9](#) were being performed, an error message appears.

If no errors were found with the information entered in [Step 2](#) through [Step 9](#), a page similar to that shown in [Figure 13: CMI Usergroup Management Page](#) appears again.

10. If errors were reported in *Step 9*, perform *Step 2* through *Step 9* again, correcting for the error reported.

Deleting a CMI Usergroup

Before performing this procedure, a CMI Administrator must be logged in to the Command Manager Interface, as described in *Logging In to CMI*. Only CMI Administrators can delete CMI Usergroups. Before a CMI Usergroup can be deleted, it must have no associated EMS Users.

This procedure describes how a CMI Administrator can delete a CMI Usergroup.

1. Click the **CMI Usergroup** link in the main menu on the left side of the page.

A page similar to the one shown in *Figure 15: CMI Usergroup Management Page* appears.

CMI Usergroups	Actions		
CMI Admin	View	Modify	Delete
ProdVer	View	Modify	Delete
PVEMSGRP1	View	Modify	Delete
UG1	View	Modify	Delete
UG2	View	Modify	Delete

Figure 15: CMI Usergroup Management Page

This page is described in *CMI Usergroup Management*.

2. Click the **Delete** link in the same row as the name of the CMI Usergroup that is to be deleted.

Note: The row containing the "CMI Admin" CMI Usergroup contains an inactive **Delete** link because this CMI Usergroup cannot be deleted from the Command Manager Interface.

A confirmation dialog box, similar to the one shown in *Figure 16: Delete CMI Usergroup Confirmation* appears.



Figure 16: Delete CMI Usergroup Confirmation

3. To cancel the deletion of the CMI Usergroup, click the **Cancel** button.

A page similar to the one shown in [Figure 15: CMI Usergroup Management Page](#) appears and the CMI Usergroup will not have been deleted.

4. Click the **OK** button to delete the CMI Usergroup.

If the CMI Usergroup being deleted has any associated EMS Users or if another CMI Administrator has deleted the CMI Usergroup while [Step 2](#) through [Step 4](#) were being performed, an error message appears.

If no errors were reported, the CMI Usergroup definition was removed from the Command Manager Interface. The CMI Usergroup Management Page appears again with the deleted CMI Usergroup being absent from the table. This procedure is finished.

5. If an error message indicating that the CMI Usergroup could not be removed because of associated EMS Users appeared after performing [Step 4](#), delete all of the associations between this CMI Usergroup and all EMS Users, as described in [Deleting an EMS User Association](#) and then repeat [Step 2](#) through [Step 4](#).

Creating a CMI Command Class

Before performing this procedure, a CMI Administrator must be logged in to the Command Manager Interface, as described in [Logging In to CMI](#). Only CMI Administrators can create CMI command classes.

This procedure describes how a CMI Administrator can create a new CMI command class and assign EAGLE 5 commands to that new CMI command class.

1. Click the **Command Class Mgmt** link in the main menu on the left side of the page.

A page similar to the one shown in [Figure 17: Command Class Management Page](#) appears.

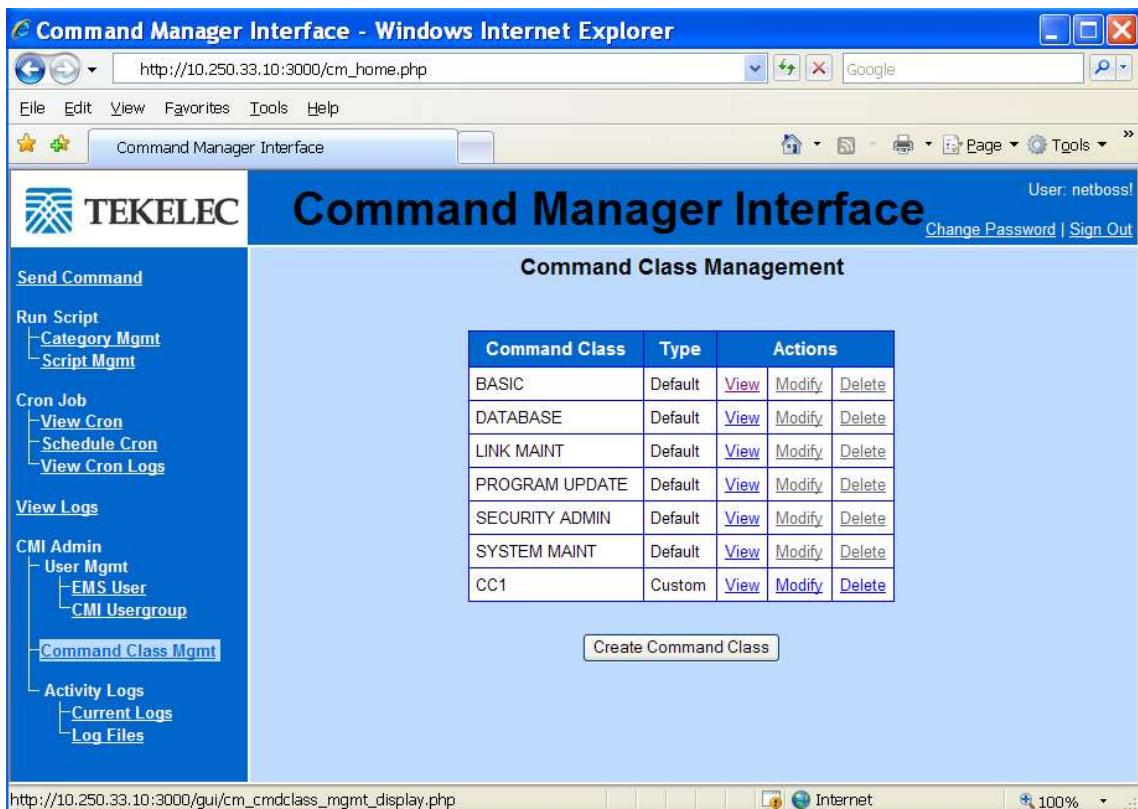


Figure 17: Command Class Management Page

This page is described in [Command Class Management](#).

The table on this page lists all of the command classes defined in the Command Manager Interface. The new CMI command class being created in this procedure must have a name that is different from all of the names in the **Command Class** column of the table.

2. Click the **Create Command Class** button.

A page similar to the one shown in [Figure 18: Create Command Class Page](#) appears.

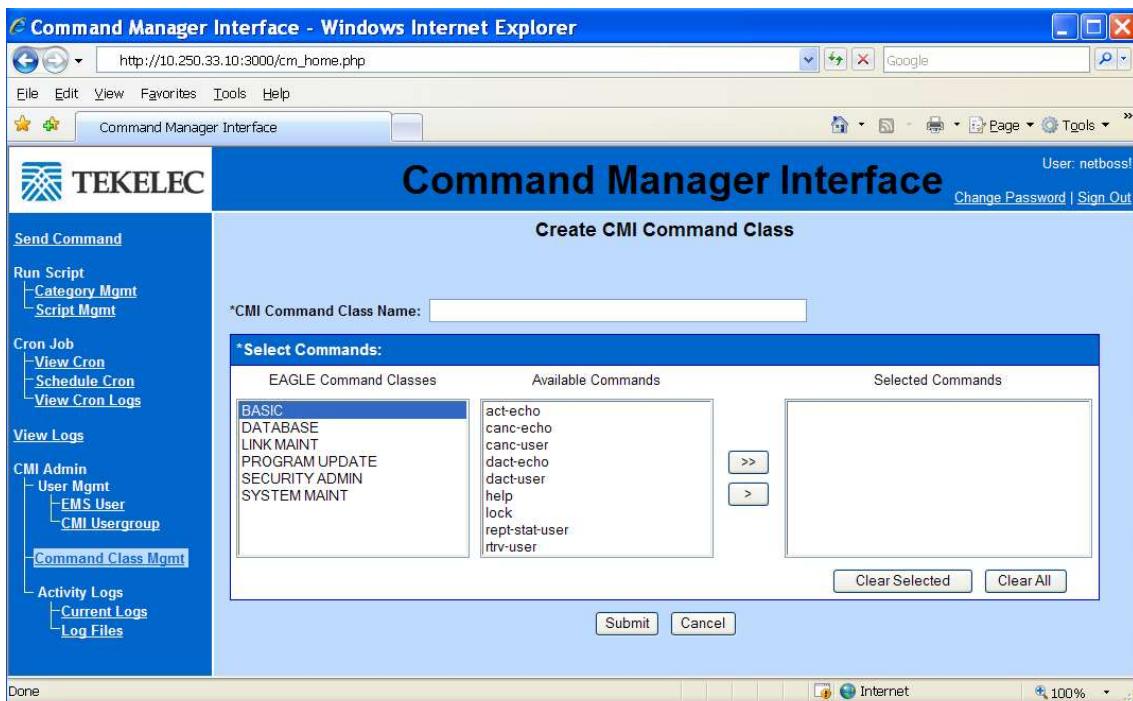


Figure 18: Create Command Class Page

This page is described in [Create CMI Command Class](#).

3. Enter the name of the new CMI Usergroup to be created in the **CMI Command Class Name** field. The new CMI command class name must be unique within the Command Manager Interface and must meet the following constraints:
 - The name must have at least 3 characters
 - Only alphanumeric characters (0-9, a-z, A-Z) and spaces are allowed.
4. In the **EAGLE Command Classes** column, select the EAGLE 5 command class that includes the EAGLE 5 command(s) to be assigned to this new CMI command class. The EAGLE 5 commands that are assigned to the selected EAGLE 5 command class will then be listed in the **Available Commands** column.
5. In the **Available Commands** column, select the EAGLE 5 commands to be assigned to this new CMI command class.
 - a) If all of the EAGLE 5 commands listed in the **Available Commands** column are to be assigned to the new CMI command class, click the **>>** button. All of the EAGLE 5 Commands listed in the **Available Commands** column will then also appear in the **Selected Commands** field.
 - b) If a subset of the EAGLE 5 commands listed in the **Available Commands** column are to be assigned to the new CMI command class, select those commands from the **Available Commands** column and click the **>** button. The EAGLE 5 Commands selected in the **Available Commands** column will then also appear in the **Selected Commands** column.

- c) If an EAGLE 5 Command was inadvertently selected in *Substep a* or *Substep b*, remove it by selecting it in the **Selected Commands** column and click the **Clear Selected** button. The commands selected for removal will disappear from the **Selected Commands** column.
 - d) To remove all EAGLE 5 Commands from the **Selected Commands** column, click the **Clear All** button.
All of the commands will disappear from the **Selected Commands** column.
6. Repeat *Step 5* until all desired EAGLE 5 commands have been assigned to this CMI command class. At least one EAGLE 5 command must be assigned to this CMI command class before proceeding to *Step 8*.
 7. If desired, to cancel the creation of this new CMI command class, click the **Cancel** button.
A page similar to the one shown in *Figure 17: Command Class Management Page* appears again.
 8. After all of the desired EAGLE 5 commands have been assigned to this CMI command class and appear in the **Selected Commands** column, click the **Submit** button.
If the CMI command class name supplied in *Step 3* does not conform to the constraints listed or if no EAGLE 5 command was assigned to this CMI command class, an error message appears.
If no error was found with the information entered in *Step 3* through *Step 6*, a page similar to the one shown in *Figure 17: Command Class Management Page* appears and the new CMI command class is listed in the **Command Class** column.
 9. If errors were reported in *Step 8*, perform *Step 3* through *Step 8* again, correcting the error that was reported in *Step 8*.

Viewing a CMI Command Class

Before performing this procedure, a CMI Administrator must be logged in to the Command Manager Interface, as described in *Logging In to CMI*. Only CMI Administrators can view CMI command classes.

This procedure describes how a CMI Administrator can view the CMI Usergroups and EAGLE 5 commands with which a CMI command class is associated.

1. Click the **Command Class Mgmt** link in the main menu on the left side of the page.

A page similar to the one shown in *Figure 19: Command Class Management Page* appears.

The screenshot shows a Windows Internet Explorer window titled "Command Manager Interface - Windows Internet Explorer". The URL in the address bar is http://10.250.33.10:3000/cm_home.php. The title bar of the browser says "Command Manager Interface". The main content area is titled "Command Manager Interface" and "User: netboss!". Below the title, there are links for "Change Password" and "Sign Out". On the left side, there is a navigation menu with the following items:

- [Send Command](#)
- [Run Script](#)
 - [Category Mgmt](#)
 - [Script Mgmt](#)
- [Cron Job](#)
 - [View Cron](#)
 - [Schedule Cron](#)
 - [View Cron Logs](#)
- [View Logs](#)
- [CMI Admin](#)
 - [User Mgmt](#)
 - [EMS User](#)
 - [CMI Usergroup](#)
 - [Command Class Mgmt](#)
- [Activity Logs](#)
 - [Current Logs](#)
 - [Log Files](#)

The main content area is titled "Command Class Management". It contains a table with the following data:

Command Class	Type	Actions		
BASIC	Default	View	Modify	Delete
DATABASE	Default	View	Modify	Delete
LINK MAINT	Default	View	Modify	Delete
PROGRAM UPDATE	Default	View	Modify	Delete
SECURITY ADMIN	Default	View	Modify	Delete
SYSTEM MAINT	Default	View	Modify	Delete
CC1	Custom	View	Modify	Delete

At the bottom right of the content area is a button labeled "Create Command Class".

Figure 19: Command Class Management Page

This page is described in [Command Class Management](#).

The table on this page lists all of the command classes defined in the Command Manager Interface, including the EAGLE 5 command classes defined for the EAGLE 5 release with which this Command Manager Interface is associated and the CMI command classes that were defined using the procedure described in [Creating a CMI Command Class](#).

2. Click the **View** link in the same row as the name of the CMI command class to be viewed.

A page similar to the one shown in [Figure 20: View CMI Command Class Page](#) appears.

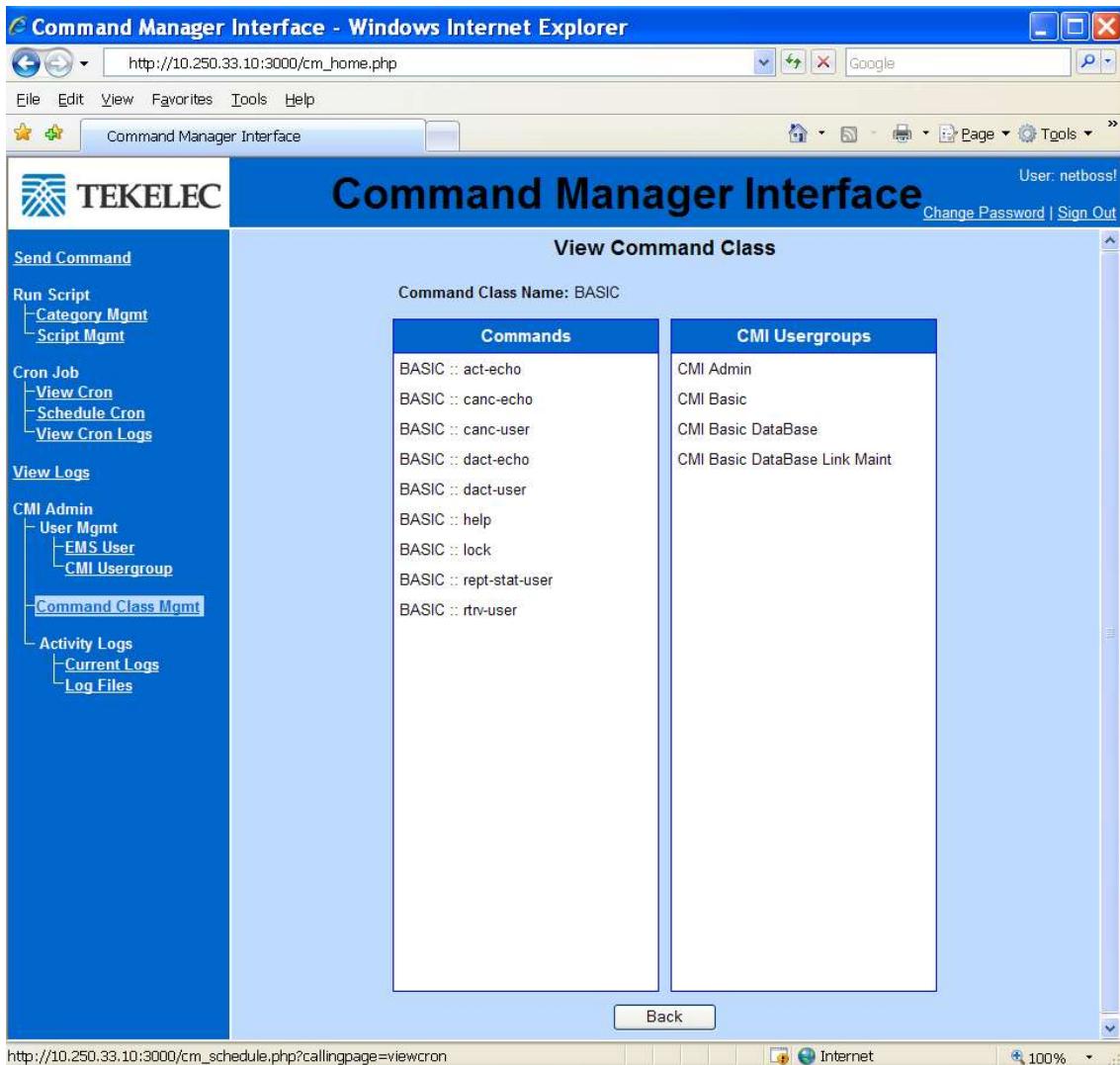


Figure 20: View CMI Command Class Page

This page is described in [View Command Class](#).

3. After viewing the command class details, click the **Back** button.

A page similar to the one shown in [Figure 19: Command Class Management Page](#) appears again.

Modifying a CMI Command Class

Before performing this procedure, a CMI Administrator must be logged in to the Command Manager Interface, as described in [Logging In to CMI](#). Only CMI Administrators can modify CMI command classes.

This procedure describes how a CMI Administrator can change the EAGLE 5 commands with which a CMI command class is associated.

1. Click the **Command Class Mgmt** link in the main menu on the left side of the page.

A page similar to the one shown in *Figure 21: Command Class Management Page* appears.

Command Class	Type	Actions		
BASIC	Default	View	Modify	Delete
DATABASE	Default	View	Modify	Delete
LINK MAINT	Default	View	Modify	Delete
PROGRAM UPDATE	Default	View	Modify	Delete
SECURITY ADMIN	Default	View	Modify	Delete
SYSTEM MAINT	Default	View	Modify	Delete
CC1	Custom	View	Modify	Delete

Figure 21: Command Class Management Page

This page is described in *Command Class Management*.

The table on this page lists all of the EAGLE 5 command classes and CMI command classes that are defined in this Command Manager Interface.

Note: The EAGLE 5 command classes are listed first and are pre-defined by the EAGLE 5 release with which this Command Manager Interface release is associated. The **Modify** links on the rows listing the EAGLE 5 command classes are inactive because these command classes cannot be changed.

2. Click the **Modify** link in the same row as the command class to be modified.

A page similar to the one shown in *Figure 22: Modify CMI Command Class Page* appears.

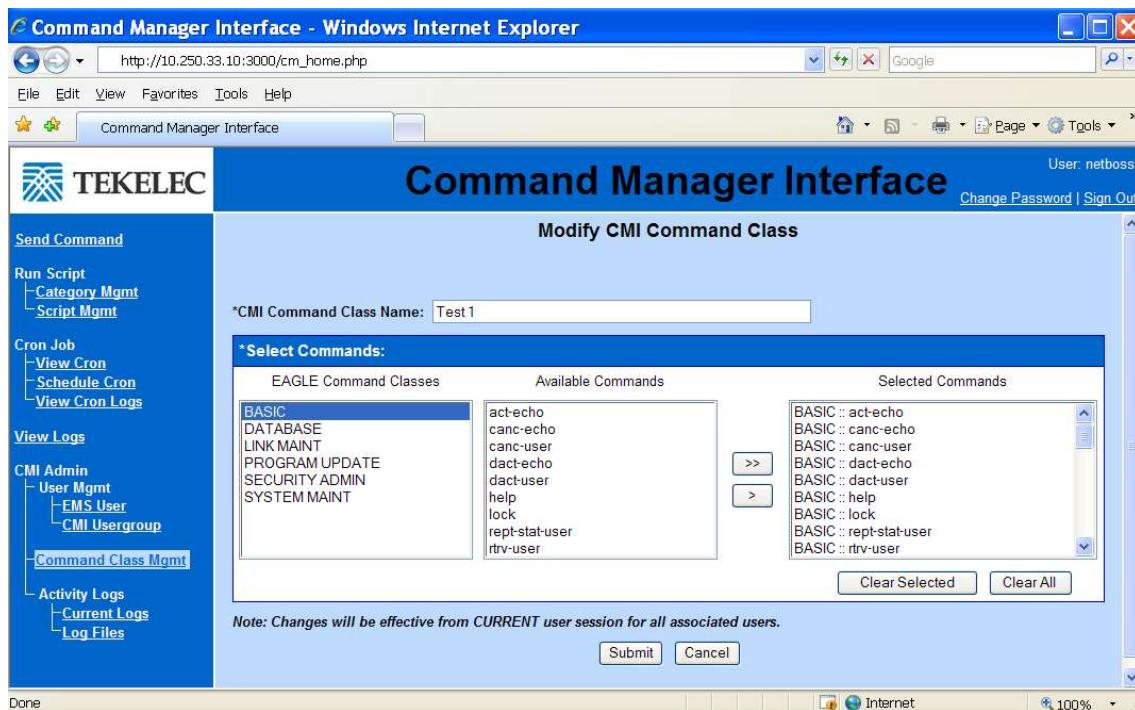


Figure 22: Modify CMI Command Class Page

This page is described in [Modify CMI Command Class](#).

The EAGLE 5 commands that are currently associated with this CMI command class are listed in the **Selected Commands** column.

3. If the CMI command class name is to be changed, enter the new name in the **CMI Command Class Name** field.

The new CMI command class name must be unique within the Command Manager Interface and must meet the following constraints:

- The name must have at least 3 characters
 - Only alphanumeric characters (0-9, a-z, A-Z) and spaces are allowed.
4. Add any additional EAGLE 5 commands to be associated with this CMI command class to the **Selected Commands** column.
 - a) Select the EAGLE 5 command class that includes the command to be added. The **Available Commands** column will be populated with a list of commands assigned to that EAGLE 5 command class.
 - b) If all of the commands listed in the **Available Commands** column are to be associated with this CMI command class, click the **>>** button. All of the commands listed in the **Available Commands** column will be added to the **Selected Commands** field.
 - c) If a subset of the commands listed in the **Available Commands** column are to be assigned to this CMI command class, select those commands from the **Available Commands** column and click the **>** button. The commands selected in the **Available Commands** column will be added to the **Selected Commands** column.

- d) If a command was inadvertently selected in *Substep b* or *Substep c*, it can be removed as directed in *Step 5*.
 - e) Repeat *Substep a* through *Substep e* until all EAGLE 5 commands to be associated with this CMI command class are listed in the **Selected Commands** column.
5. Remove any EAGLE 5 commands that are to be dissociated with this CMI command class.
 - a) Select any EAGLE 5 commands to be removed from the **Selected Commands** column and click the **Clear Selected** button.
The EAGLE 5 commands selected for removal will disappear from the **Selected Commands** column.
 - b) To remove all EAGLE 5 commands from the **Selected Commands** column, click the **Clear All** button.
All of the EAGLE 5 commands will disappear from the **Selected Commands** column.
 6. After all of the EAGLE ISS commands to be associated with this CMI command class and appear in the **Selected Commands** column, click the **Submit** button.
If the name entered in *Step 3* does not conform to the constraints listed or if all EAGLE 5 commands were dissociated with this CMI command class, an error message appears.
If no error was encountered, a page similar to the one shown in *Figure 21: Command Class Management Page* appears.
 7. If an error was reported in *Step 6*, perform *Step 3* through *Step 6*, correcting the reported error.

Deleting a CMI Command Class

Before using this procedure, a CMI Administrator must be logged in to the Command Manager Interface as described in *Logging In to CMI*. Only CMI Administrators can delete CMI command classes. Before deleting CMI command class, verify that it has no associated CMI Usergroups.

This procedure explains how a CMI Administrator can delete a CMI command class definition.

1. Click the **Command Class Mgmt** link in the main menu on the left side of the page.

A page similar to the one shown in *Figure 23: Command Class Management Page* appears.

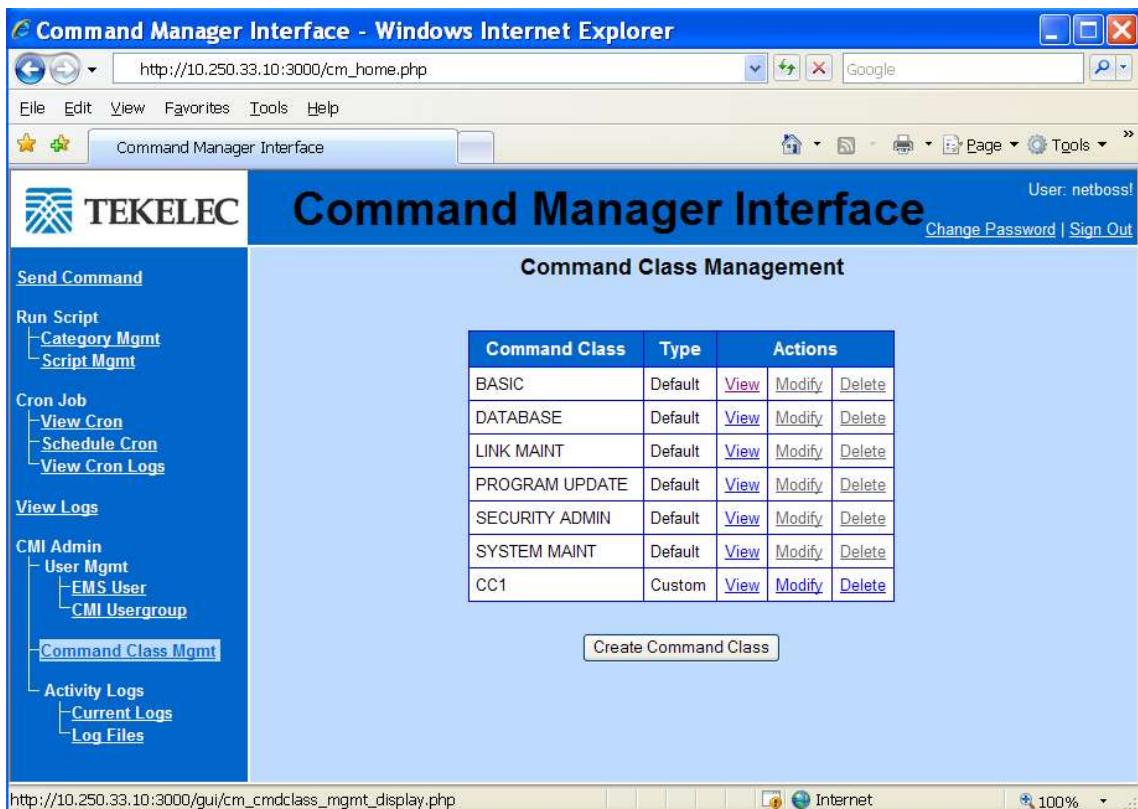


Figure 23: Command Class Management Page

This page is described in [Command Class Management](#).

The table on this page lists all of the EAGLE 5 command classes and CMI command classes currently defined in the Command Manager Interface.

2. Click the **Delete** link in the same row as the name of the command class to be deleted.
- Note:** EAGLE 5 command classes cannot be removed. The **Delete** links in those rows are inactive.
- A confirmation dialog box, similar to the one shown in [Figure 24: Delete CMI Command Class Confirmation Dialog](#) appears:

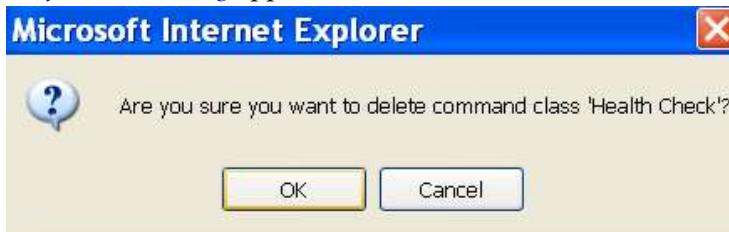


Figure 24: Delete CMI Command Class Confirmation Dialog

3. Click the **OK** button to delete the CMI command class.

If the CMI command class being deleted has any associated CMI Usergroups or if another CMI Administrator has deleted the CMI command class while [Step 2](#) through [Step 3](#) were being performed, an error message appears.

If no errors were reported, the CMI command class definition was removed from the Command Manager Interface. A page similar to [Figure 23: Command Class Management Page](#) appears again and the deleted CMI command class is absent from the table.

4. If an error message indicating that the CMI command class could not be removed because it has associated CMI Usergroup(s) was reported in [Step 3](#), delete all of the associations between this CMI command class and all CMI Usergroups as described in [Modifying a CMI Usergroup](#) and repeat [Step 2](#) and [Step 3](#).

Sending a Command to One or More EAGLE 5 Systems Using Menus

Before performing this procedure, you must be logged in to the Command Manager Interface, as described in [Logging In to CMI](#).

This procedure describes how to enter and send an EAGLE 5 command to one or more EAGLE 5 systems using drop-down selection menus to guide command and parameter specification.

1. Click the **Send Command** link in the main menu on the left side of the page.

A page similar to the one shown in [Figure 25: Send Command Page](#) appears.

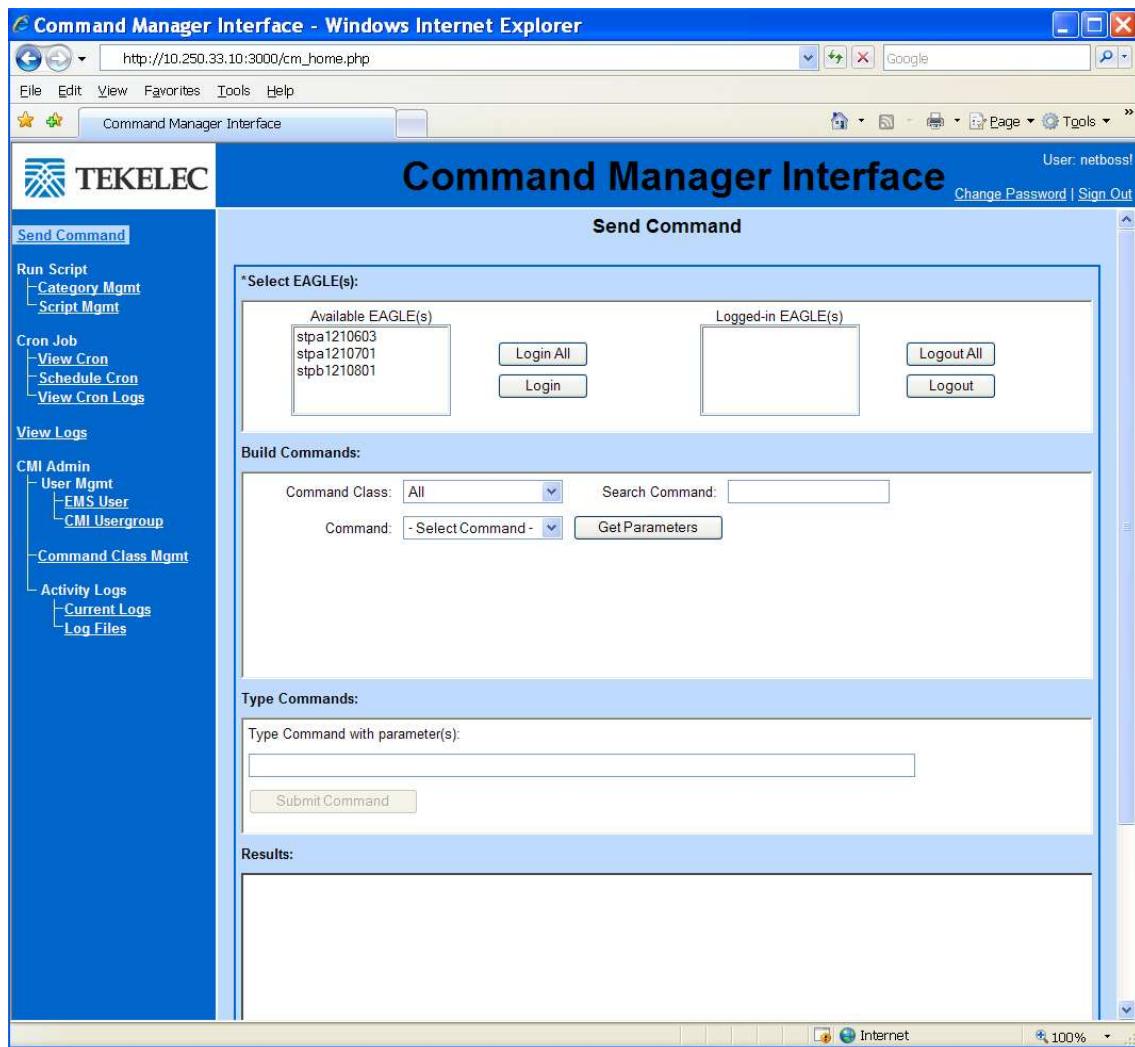


Figure 25: Send Command Page

This page is described in [Send Command](#).

2. Log into the EAGLE 5 system(s) that are to receive the command entered on this page as follows:
 - If all of the "Available" EAGLE 5 systems are to receive the command, click the **Login All** button.
 - If a subset of the "Available" EAGLE 5 systems are to receive the command, select those systems from the "Available EAGLE(s)" list and click the **Login** button. Multiple EAGLE 5 systems can be selected by sequentially clicking on each of their names while holding down the <Ctrl> key on your keyboard.

The **Results** pane contains the results of the login process(es). EAGLE 5 systems to which this EMS User is logged in appear in the **Logged-In EAGLE(s)** column.

Note: The EMS User remains logged in to these EAGLE 5 system(s) until the EMS User explicitly logs out or until the EMS User exits the Send Command Page by clicking on any link in the main menu on the left side of the page. To explicitly log out from one EAGLE 5 system, select the name of that system in the **Logged-In EAGLE(s)** column and click the **Logout** button. To explicitly log out from all of the EAGLE 5 systems, click the **Logout All** button.

3. From the **Logged-In EAGLE(s)** column, select the EAGLE 5 system(s) to which a command is to be sent.
4. Enter the EAGLE 5 command in the **Build Commands** Page as follows:
 - a) If the name of the EAGLE 5 command to be executed is known, begin typing the command name in the **Search Command** field in the **Build Commands** pane until the correct command name appears in the **Command** field and skip to *Substep c*.
 - b) From the drop-down list in the **Command Class** field in the Build Commands pane, select the EAGLE 5 command class that contains the command to be sent to the EAGLE 5 systems.

Selecting **All** will cause all of EAGLE 5 commands to which this EMS User has access appear in the drop-down list in the **Command** field. If a command class is selected, the commands to which this EMS User has access that also belong to the selected command class will be listed in the **Command** field.

Note: EMS Users who are not CMI Administrators may have rights to access only a subset of the defined EAGLE 5 commands. A CMI Administrator can modify these rights by using the procedure described in *Modifying an EMS User Association* to change the CMI Usergroup with which the EMS User is associated.

- c) Select the desired EAGLE 5 command from the drop-down list in the **Command** field.
- d) Either press the "enter" key or click the **Get Parameters** button.

The mandatory and optional parameters for the command selected in *Substep c* appear below the **Command** field as shown in the example in *Figure 26: Example Build Commands Pane Showing Parameters*.



Figure 26: Example Build Commands Pane Showing Parameters

Mandatory parameters must have values provided. The Command Manager Interface saves the parameter values for the previous 20 commands entered into the **Build Commands** pane during the current EMS User session. These commands could have been entered during the performance of any of the following procedures:

- this procedure
- *Creating a CMI Command Script*
- *Modifying a CMI Command Script*

Information about the selected command can be accessed by clicking the **Help Document** link. This information is derived from the *EAGLE 5 Commands Manual*.

Note: Depending on the configuration the EAGLE 5 system(s) being managed, some parameters may appear as optional, but in fact, be mandatory. This is because certain EAGLE 5 features require some parameters that others do not. A complete explanation of these dependencies can

be viewed by clicking on the **Help Document** link on the right side of the pane. The *EAGLE 5 ISS Commands Manual* is the definitive guide to EAGLE 5 command syntax and usage.

- e) For each mandatory parameter and any desired optional parameters, enter the value to be included with the EAGLE 5 command.

For parameters that have a pre-defined set of values, a drop-down list of those parameters is provided. Typing a single character narrows the parameter value choices to those that start with that character. Re-typing that character will move the selection through the list of values that start with that character.

- f) Click the **Submit Command** button in the **Build Commands** pane.

Note: The **Submit Command** button only appears after the parameters for the command selected are retrieved. If the command selection is changed in the **Command** field, the **Submit Command** button disappears until the the parameters of the new command are displayed.

It may be necessary to scroll down within the **Build Commands** pane to see the **Submit Command** button.

If no EAGLE 5 system was selected in *Step 2*, an error message appears above the **Results** pane.

If no errors were reported, the command is sent to the EAGLE 5 systems specified in *Step 2*. The results generated by each EAGLE 5 to which the command was sent appear in the **Results** pane at the bottom of the page. If multiple EAGLE 5 systems were specified in *Step 2*, the results from one EAGLE 5 are completely displayed, followed by the execution results for each of the other EAGLE 5 systems in turn.

- g) If errors were reported in *Substep f*, repeat this procedure, correcting for the errors reported.

Note: The **Build Commands** pane only lists the EAGLE 5 commands that you are authorized to use. To use other commands, contact a CMI Administrator to change the CMI Usergroup with which your EMS User ID is associated.

Sending a Command to One or More EAGLE 5 Systems Without Using Menus

Before performing this procedure, you must be logged in to the Command Manager Interface, as described in [Logging In to CMI](#).

This procedure describes how to enter an EAGLE 5 command and send that command to one or more EAGLE 5 system(s) without using drop-down selection menus.

1. Click the **Send Command** link in the main menu on the left side of the page.

A page similar to the one shown in [Figure 27: Send Command Page](#) appears.

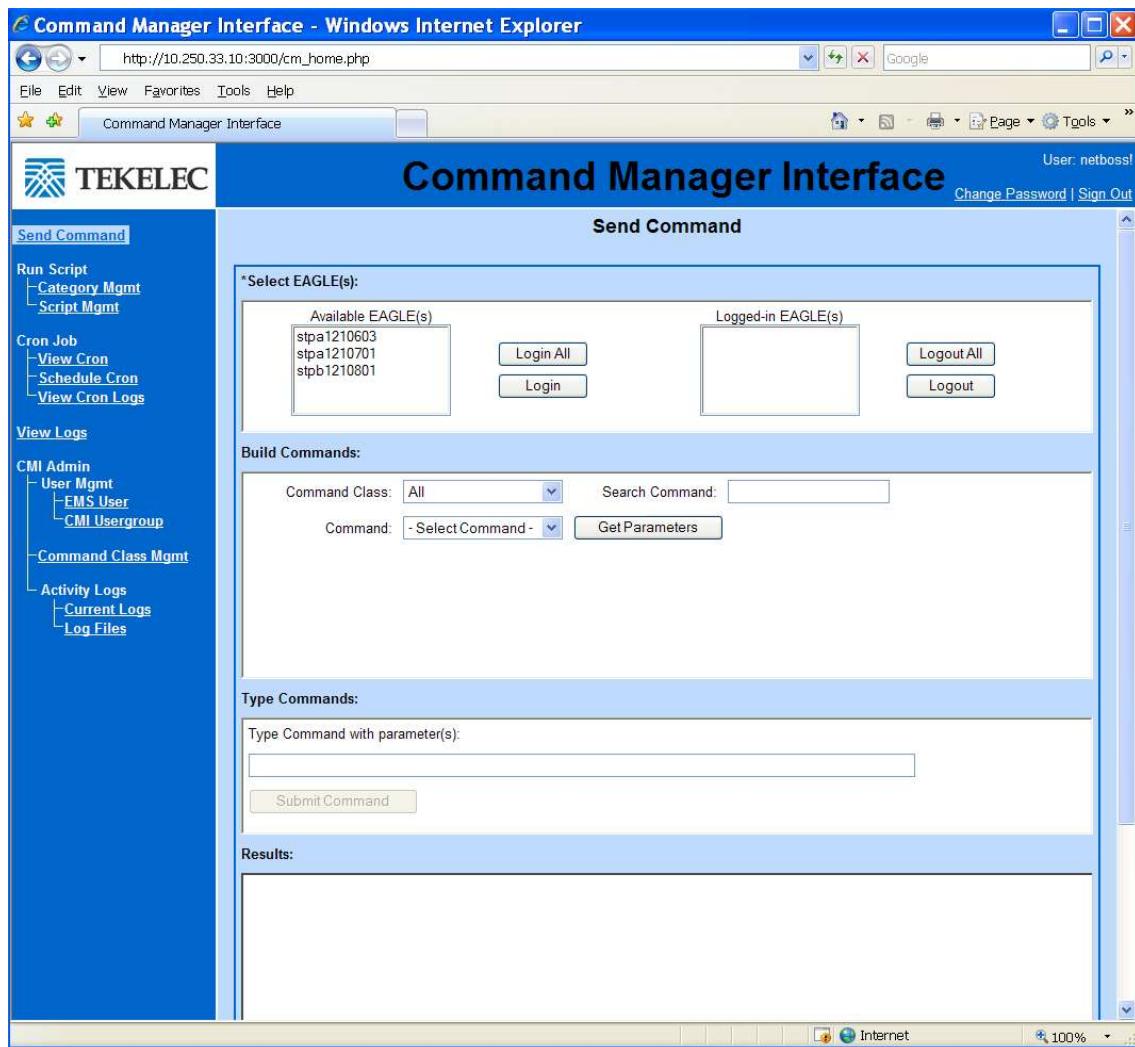


Figure 27: Send Command Page

This page is described in [Send Command](#).

2. Log into the EAGLE 5 system(s) that are to receive the command entered on this page as follows:
 - If all of the "Available" EAGLE 5 systems are to receive the command, click the **Login All** button.
 - If a subset of the "Available" EAGLE 5 systems are to receive the command, select those systems from the "Available EAGLE(s)" list and click the **Login** button. Multiple EAGLE 5 systems can be selected by sequentially clicking on each of their names while holding down the <Ctrl> key on your keyboard.

The **Results** pane will contain the results of the login process(es). EAGLE 5 system(s) to which this EMS User is logged in appear in the **Logged-In EAGLE(s)** column.

Note: The EMS User remains logged in to these EAGLE 5 system(s) until the EMS User explicitly logs out or until the EMS User exits the Send Command Page by clicking on any link in the main menu on the left side of the page. To explicitly log out of one EAGLE 5 system, select the name of that system in the **Logged-In EAGLE(s)** column and click the **Logout** button. To explicitly log out from all of the available EAGLE 5 system(s), click the **Logout All** button.

3. From the **Logged-In EAGLE(s)** column, select the EAGLE(s) to which a command is to be sent.
4. Enter a well-formed EAGLE 5 command in the **Type Commands with parameter(s)** field in the **Type Commands** pane.

All mandatory parameters must be entered. For more information about commands, see the *EAGLE 5 Commands Manual*. For menu-guided command creation, stop performing this procedure and perform [Sending a Command to One or More EAGLE 5 Systems Using Menus](#).

If the command being entered is one of the 20 most-recently-entered commands in the **Type Commands** pane during the current EMS User session, command suggestions appear below the box where the command is being edited and suggest the closest match(s) to the characters entered, as shown in [Figure 28: Type Commands Pane Example](#).



Figure 28: Type Commands Pane Example

If one of the previously submitted commands is selected from this drop-down list, modifications to the command can be made before submitting it for execution.

Note: The previous 20 commands recalled would have been entered in the **Type Commands** pane during the current EMS User session.

5. Click the **Submit Command** button in the **Type Commands** pane.

Note: The **Submit Command** button is greyed out (disabled) until text is entered in the **Type Command with parameter(s)** field (see [Step 4](#)).

If no EAGLE 5 system was selected in [Step 2](#), the command is not a valid EAGLE 5 command, or you are not authorized to use that command, an error message appears above the **Results** pane.

If no errors were reported, the command is sent to the EAGLE 5 system(s) specified in [Step 2](#). The results generated by the EAGLE 5 to which the command was sent appear in the **Results** pane at the bottom of the page. If multiple EAGLE 5 system(s) were specified in [Step 2](#), the results from one EAGLE 5 are completely displayed, followed by the execution results for each of the other EAGLE 5 systems in turn.

6. If errors were reported in [Step 5](#), repeat this procedure, correcting for the errors reported.

Note: If an error was reported indicating that you are not authorized to use this command, contact a CMI Administrator.

Creating a CMI Command Script

Before performing this procedure, you must be logged in to the Command Manager Interface, as described in [Logging In to CMI](#). You must have been granted the right to create scripts by a CMI Administrator, as described in [Modifying an EMS User Association](#). A CMI command script can only be modified by the EMS User that owns the script or by a CMI Administrator.

This procedure describes how to create a new CMI command script.

1. Click the **Script Mgmt** link under "Run Script" in the main menu on the left side of the page.

A page similar to the one shown in *Figure 29: Script Management Page* appears.

Script	Category	Actions				
cocoanut_interface.php Last Modified: 2009-06-04 15:27:04	Default	View	Modify	Execute	Schedule	Delete
cocoanut_interface_commands.php Last Modified: 2009-06-04 15:10:20	Default	View	Modify	Execute	Schedule	Delete
cocoanutinterface.php Last Modified: 2009-06-04 15:29:19	Default	View	Modify	Execute	Schedule	Delete
newtest.php Last Modified: 2009-03-16 12:18:45	Default	View	Modify	Execute	Schedule	Delete
test.php Last Modified: 2009-06-04 15:03:19	Default	View	Modify	Execute	Schedule	Delete
TEST.php Last Modified: 2009-03-30 00:21:02	Default	View	Modify	Execute	Schedule	Delete
test123.php Last Modified: 2009-06-22 04:44:04	Default	View	Modify	Execute	Schedule	Delete

Figure 29: Script Management Page

This page is described in detail in *Script Management Page*.

2. Select the category to which the new script should belong from the drop-down list in the **Select Category** field.

If "All" is selected, the CMI command script being created will belong to the "Default" script category.

If the category to which the new CMI command script should belong has not been defined, create it using the procedure defined in *Creating a CMI Command Script Category*.

The category to which a CMI command script belongs can be changed using the procedure described in *Modifying a CMI Command Script*.

3. Click the **Create Script** button.

A page similar to the one shown in *Figure 30: Create Script Page* appears.

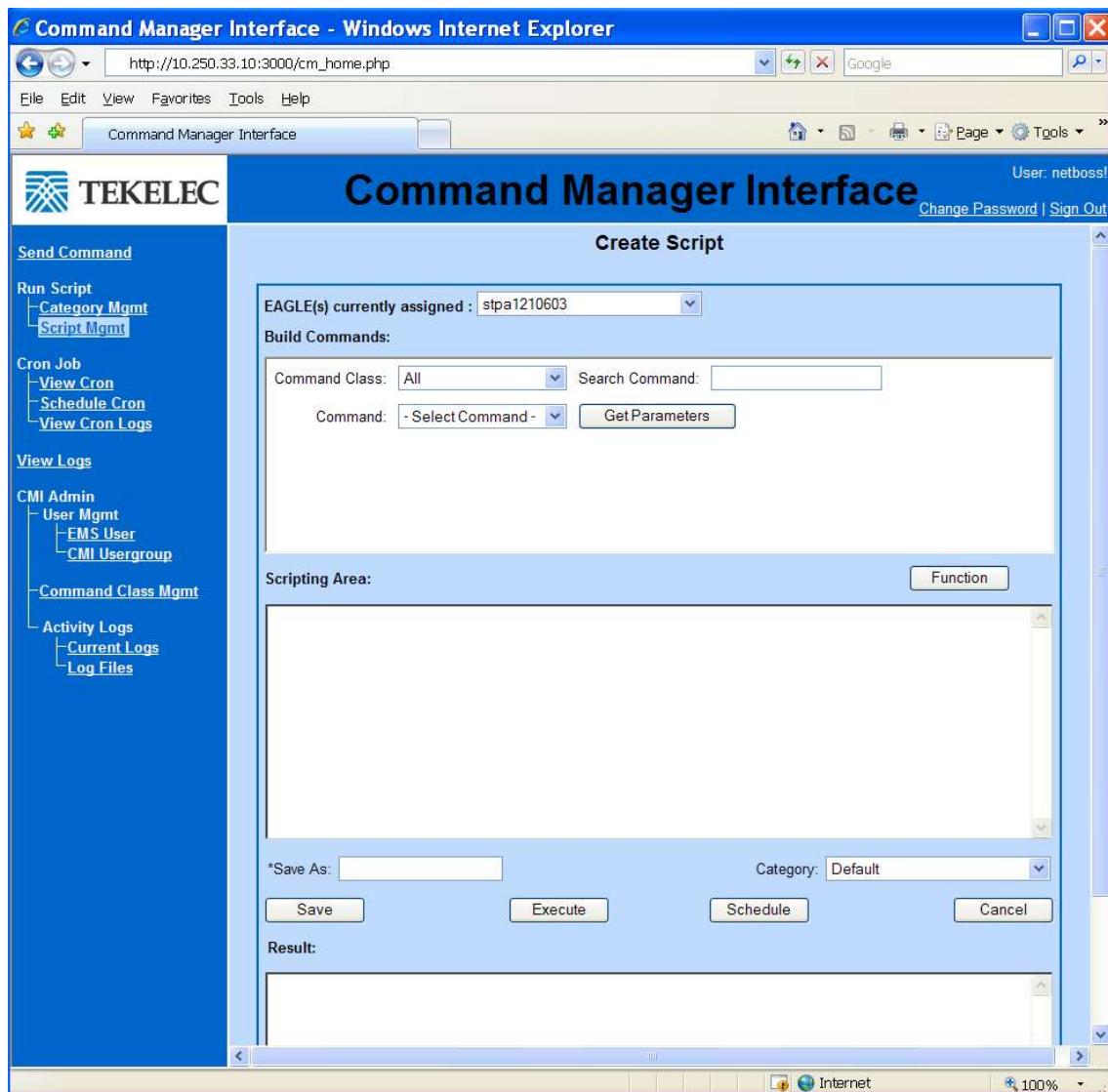


Figure 30: Create Script Page

This page is described in detail in [Create Script](#).

The category selected in [Step 2](#) is pre-populated in the **Category** box. This designation can be changed by selecting a different category from the drop-down list (see [Step 10](#)) or later using the procedure described in [Modifying a CMI Command Script](#).

Note: If the **Create Script** button is inactive, contact a CMI Administrator to have your EMS User ID associated with a CMI Usergroup that allows scripts to be created.

4. If you do not wish to use drop-down lists to compose and enter EAGLE 5 commands or API Functions, enter and edit the CMI command script directly in the **Scripting Area** pane and skip to [Step 10](#).
5. Position the cursor in the location in the **Scripting Area** pane where the next EAGLE 5 command or API function should be added.

Note: *Step 4* through *Step 6* will be repeated for each command added to the new CMI command script.

6. If an EAGLE 5 command is to be entered in the CMI command script at the position chosen in *Step 5*, enter the desired command as follows:

- a) Confirm that the EAGLE 5 system that is to be accessed using this command is present in the drop-down list labeled **EAGLE(s) currently assigned**.

Note: If you do not have permission to access any EAGLE 5 systems, "None" is displayed.

If the EAGLE 5 system that you are attempting to access does not appear in this list, contact a CMI Administrator.

- b) If the name of the EAGLE 5 command to be executed is known, begin typing the command name in the **Search Command** field in the **Build Commands** pane until the correct command name appears in the **Command** field and skip to *Substep e*.
- c) From the drop-down list in the **Command Class** field in the Build Commands pane, select the EAGLE 5 command class or CMI command class that contains the command to be sent to the EAGLE 5 system(s).

Selecting **All** will cause all EAGLE 5 commands to which this EMS User has access to appear in the drop-down list in the **Command** field.

The EAGLE 5 commands to which you have access will appear in the drop-down list in the **Command** field.

Note: EMS Users who are not CMI Administrators may have rights to access only a subset of the defined EAGLE 5 commands. A CMI Administrator can modify these rights using the procedure described in *Modifying an EMS User Association*.

- d) Select the desired EAGLE 5 command from the drop-down list in the **Command** field.
- e) Either press the "enter" key or click the **Get Parameters** button.

The mandatory and optional parameters for the command selected in *Substep d* appear below the **Command** field.

The Command Manager Interface saves the parameter values for the last 20 commands entered in the **Build Commands** pane during the current EMS User session. These commands could have been entered during the performance of any of the following procedures:

- this procedure
- *Modifying a CMI Command Script*
- *Sending a Command to One or More EAGLE 5 Systems Using Menus*

A link to the information about the selected command is provided by clicking the **Help Document** link. The *EAGLE 5 ISS Commands Manual* is the definitive guide to EAGLE 5 command syntax and usage.

Note: Depending on the configuration the EAGLE 5 system(s) being managed, some parameters may appear as optional, but in fact, be mandatory. This is because certain EAGLE 5 features require some parameters that others do not. A complete explanation of these dependencies can be viewed by clicking on the **Help Document** link on the right side of the pane.

- f) For each mandatory parameter and any desired optional parameters, enter the value to be included with the EAGLE 5 command in the field adjacent to the parameter name.

For parameters that have a pre-defined set of values, a drop-down list of those parameters is provided. Typing a single character narrows the parameter value choices to those that start with

that character. Re-typing that character will move the selections through the list of values that start with that character as illustrated in [Figure 31: Single Character Search for Parameter Values](#).



Figure 31: Single Character Search for Parameter Values

Note: Variables cannot be substituted for EAGLE 5 command names or CLLI parameters. Literal strings, explicitly specifying the EAGLE 5 command or CLLI name, must be used instead. This restriction does not apply to CMI command scripts created by a CMI administrator or by an EMS User that has access to all EAGLE 5 commands and is authorized to access all EAGLE 5 systems to which the EAGLE EMS is connected.

- Click the **Submit Command** button in the **Build Commands** pane.

Note: The **Submit Command** button only appears after the parameters for the command selected are retrieved. If the command selection is changed in the **Command** field, this button disappears until the parameters for the new command are retrieved.

It may be necessary to scroll down within the **Build Commands** pane to see the **Submit Command** button.

The EAGLE 5 command entered will be inserted inside a "send_command" statement in the position that the cursor was positioned in the **Scripting Area** pane in [Step 5](#)

Note: For EAGLE 5 command *parameter values* that contain single or double quotation marks, an escape character (\) must be inserted before those quotation marks. For example, if the following EAGLE 5 command is entered using the **Build Commands** pane

```
chg-prefix:feature="Prepaid IDP Query Relay":prefixnum=3:prefix=0
```

then the following line is inserted into the **Scripting Area** pane:

```
send_command("chg-prefix:feature="Prepaid IDP Query  
Relay":prefixnum=3:prefix=0");
```

You must manually modify that line in the CMI command script by inserting the escape character before each quotation mark in the feature parameter value as shown below:

```
send_command("chg-prefix:feature=\"Prepaid IDP Query  
Relay\" :prefixnum=3:prefix=0");
```

- If an API function other than "send command" (which was addressed in [Step 6](#)) is to be entered in the CMI command script, enter the desired API Function as follows:
 - Click the **Function** button below the **Build Commands** pane.

A page similar to that shown in [Figure 32: Command Manager Interface API Functions](#) appears.

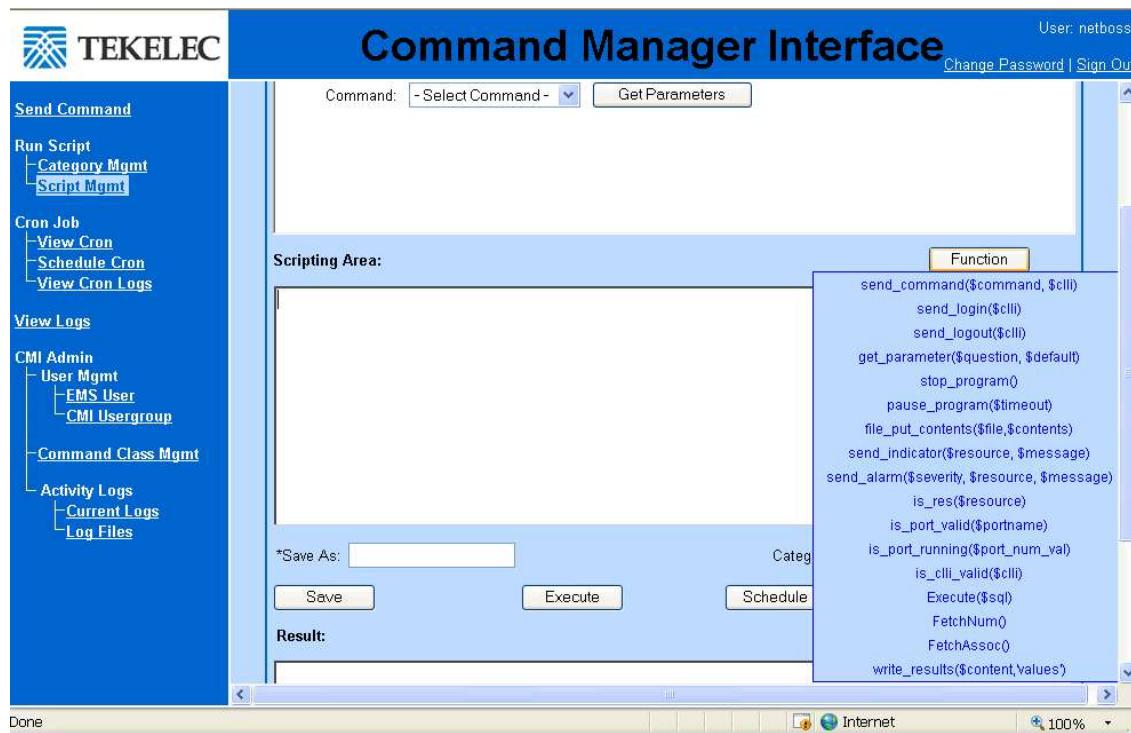


Figure 32: Command Manager Interface API Functions

All of the available API functions are listed in the menu.

- Select the desired API function by clicking on the name of the function. The API function will be inserted where the cursor was positioned in the **Scripting Area** pane in *Step 5*.
- If more EAGLE 5 commands or Command Manager Interface API functions are to be added to the script, repeat *Step 5* through *Step 8*.
- If necessary, edit the commands directly in the **Scripting Area** pane.

Note: Variables cannot be substituted for EAGLE 5 command names or CLLI parameters. Literal strings, explicitly specifying the EAGLE 5 command or CLLI name, must be used instead. This restriction does not apply to CMI command scripts created by a CMI administrator or by an EMS User that has access to all EAGLE 5 commands and is authorized to access all EAGLE 5 systems to which the EAGLE EMS is connected.

- Enter the name for this new CMI command script in the **Save As** field.

The name given to this new CMI command script must be unique within the category shown in the **Category** field and must meet the following constraints:

- The CMI command script name must be at least three characters long
- Only alphanumeric characters (0-9, a-z, A-Z), underscore (_), hyphen (-), and period (.) are allowed in the CMI command script name.
- The CMI command script name must begin with an alpha character (a-z, A-Z).

- If desired, assign this script to a different category by selecting the new category from the drop-down list in the **Category** field.

12. If the CMI command script entered in [Step 4](#) through [Step 10](#) is no longer desired, click the **Cancel** button.

The "Script Management" page, as exemplified in [Figure 29: Script Management Page](#), appears again.

13. Once the CMI command script is complete, click the **Save** button.

If the name does not meet the requirements described in [Step 10](#), an error message appears and the CMI command script is not saved.

If an error in the script is discovered by the CMI, the command script is not saved and an error message appears above the **Result** pane. Error messages may report the following situations:

- EAGLE 5 commands were directed toward EAGLE 5 systems to which you do not have access (see **EAGLE(s) currently assigned** field at the top of the page).
- EAGLE 5 commands were entered into the CMI command script in [Step 4](#) that were not associated with the command classes assigned to your CMI Usergroup.
- Upon validation, the Command Manager Interface detected the use of a variable substitution for an EAGLE 5 command name or CLLI name.

Note: This validation is not performed for scripts created by a CMI Administrator or an EMS User that has access to all EAGLE 5 command classes and is authorized to access all EAGLE 5 systems to which the EAGLE EMS is connected.

If PHP syntax errors were encountered in the CMI command script, the script is saved and the errors displayed.

If no errors were encountered, the CMI command script will be added to the list of available command scripts for this EMS User and the Create Script page will continue to be displayed.

14. If errors with the CMI command script name were reported in [Step 13](#), enter a valid name and repeat [Step 13](#).
15. If authorization errors were reported in [Step 13](#), contact a CMI Administrator.
16. To execute this CMI command script, click the **Execute** button and proceed as described in [Executing a CMI Command Script](#).
17. To schedule the future or recurring execution this CMI command script, click the **Schedule** button and proceed as described in [Scheduling a CMI Command Script](#).

Viewing a CMI Command Script

Before performing this procedure, you must be logged in to the Command Manager Interface, as described in [Logging In to CMI](#). You must have been granted the right to view scripts by a CMI Administrator, as described in [Modifying an EMS User Association](#). A CMI command script can only be viewed by the EMS User that owns the script or by a CMI Administrator.

This procedure describes how to view an existing CMI command script.

1. Click the **Script Mgmt** link under "Run Script" in the main menu on the left side of the page.

A page similar to the one shown in [Figure 33: Script Management](#) appears.

Script	Category	Actions				
cocoanut_interface.php Last Modified: 2009-06-04 15:27:04	Default	View	Modify	Execute	Schedule	Delete
cocoanut_interface_commands.php Last Modified: 2009-06-04 15:10:20	Default	View	Modify	Execute	Schedule	Delete
cocoanutinterface.php Last Modified: 2009-06-04 15:29:19	Default	View	Modify	Execute	Schedule	Delete
newtest.php Last Modified: 2009-06-18 12:18:45	Default	View	Modify	Execute	Schedule	Delete
test.php Last Modified: 2009-06-04 15:03:19	Default	View	Modify	Execute	Schedule	Delete
TEST.php Last Modified: 2009-03-30 00:21:02	Default	View	Modify	Execute	Schedule	Delete
test123.php Last Modified: 2009-06-22 04:44:04	Default	View	Modify	Execute	Schedule	Delete

Figure 33: Script Management

This page is described in detail in [Script Management Page](#).

Note: The CMI command script cannot be edited from this page. To edit a CMI command script, perform the procedure described in [Modifying a CMI Command Script](#).

2. If this procedure is being performed by a CMI Administrator, select the EMS User that owns the CMI command script(s) to be viewed from the drop-down list in the "Select Owner" field.
EMS Users that are not CMI Administrators will not see a drop-down list after "Select Owner". Only CMI Administrators can see CMI command scripts created by other EMS Users.
The list of CMI command scripts will be updated to reflect the selection of the EMS User selected in this step.
3. Select the category of the script(s) to be viewed from the drop-down list in the **Select Category** field.
If "All" is selected, all of the CMI command scripts belonging to the EMS User selected in [Step 2](#), are listed. Otherwise, the CMI command scripts associated with the selected category and belonging to the EMS User selected in [Step 2](#) are listed.
4. Click the **View Script** link that is on the same line as the name of the script to be viewed.
A page similar to the one shown in [Figure 34: View Script Page](#) appears.

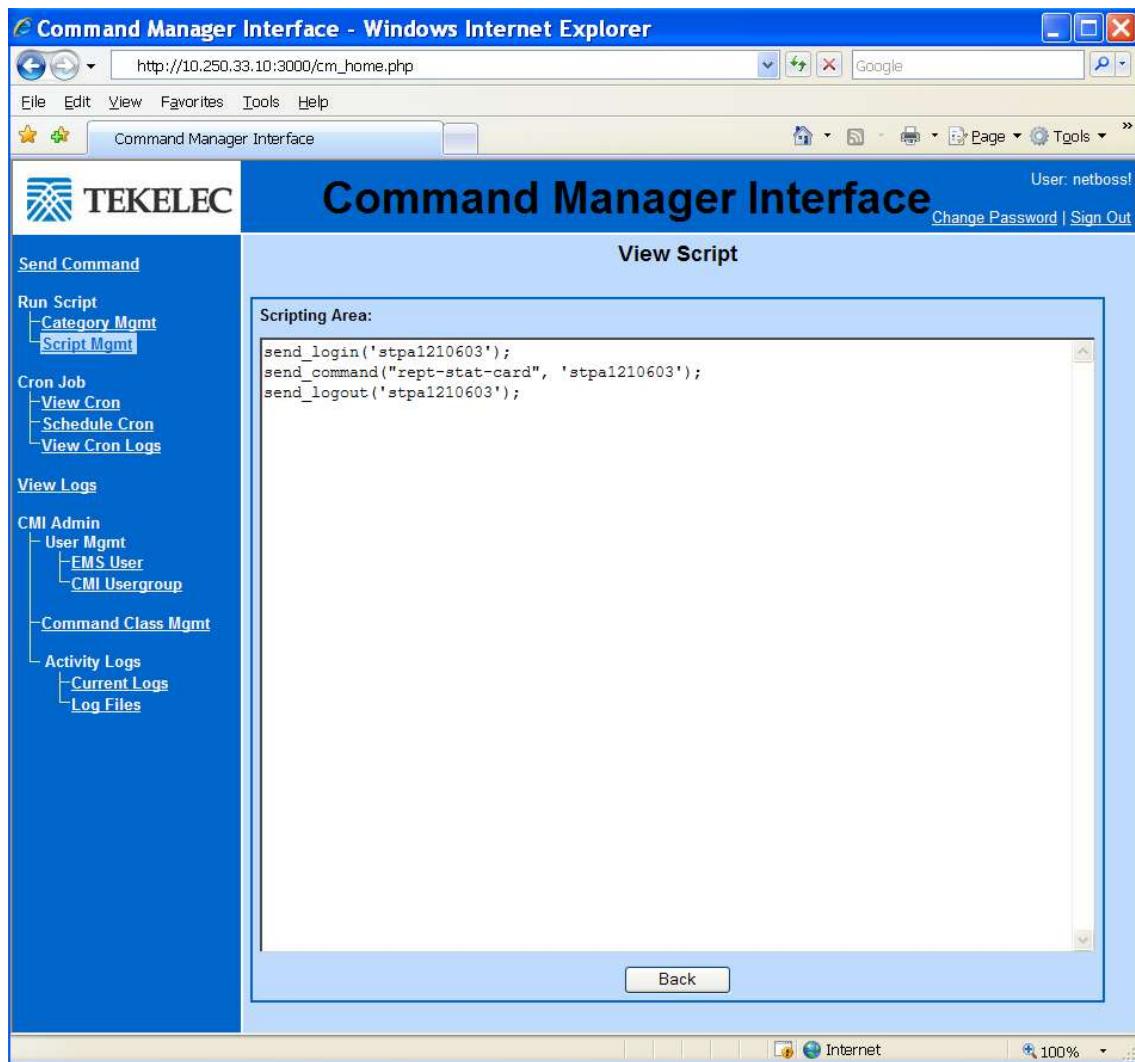


Figure 34: View Script Page

The CMI command script appears in the **Scripting Area** pane.

Note: The CMI command script cannot be edited from the "View Script" page.

5. After viewing the CMI command script, click the **Back** button. A page similar to the one shown in [Figure 33: Script Management](#) appears.

Modifying a CMI Command Script

Before performing this procedure, you must be logged in to the Command Manager Interface, as described in [Logging In to CMI](#). You must have been granted the right to modify scripts by a CMI Administrator, as described in [Modifying an EMS User Association](#). A CMI command script can only be modified by the EMS User that owns the script or by a CMI Administrator.

This procedure is used to edit an existing CMI command script. CMI command scripts are created using the procedure described in [Creating a CMI Command Script](#).

- Click the **Script Mgmt** link under "Run Script" in the main menu on the left side of the page.

A page similar to the one shown in *Figure 35: Script Management Page* appears.

Script	Category	Actions				
cocoanut_interface.php Last Modified: 2009-06-04 15:27:04	Default	View	Modify	Execute	Schedule	Delete
cocoanut_interface_commands.php Last Modified: 2009-06-04 15:10:20	Default	View	Modify	Execute	Schedule	Delete
cocoanutinterface.php Last Modified: 2009-06-04 15:29:19	Default	View	Modify	Execute	Schedule	Delete
newtest.php Last Modified: 2009-03-16 12:18:45	Default	View	Modify	Execute	Schedule	Delete
test.php Last Modified: 2009-06-04 15:03:19	Default	View	Modify	Execute	Schedule	Delete
TEST.php Last Modified: 2009-03-30 00:21:02	Default	View	Modify	Execute	Schedule	Delete
test123.php Last Modified: 2009-06-22 04:44:04	Default	View	Modify	Execute	Schedule	Delete

Figure 35: Script Management Page

This page is described in detail in *Script Management Page*.

- Click the **Modify** link on the same row as the name of the CMI command script to be edited. A page similar to that which appears in *Figure 36: Modify Script Page* appears.

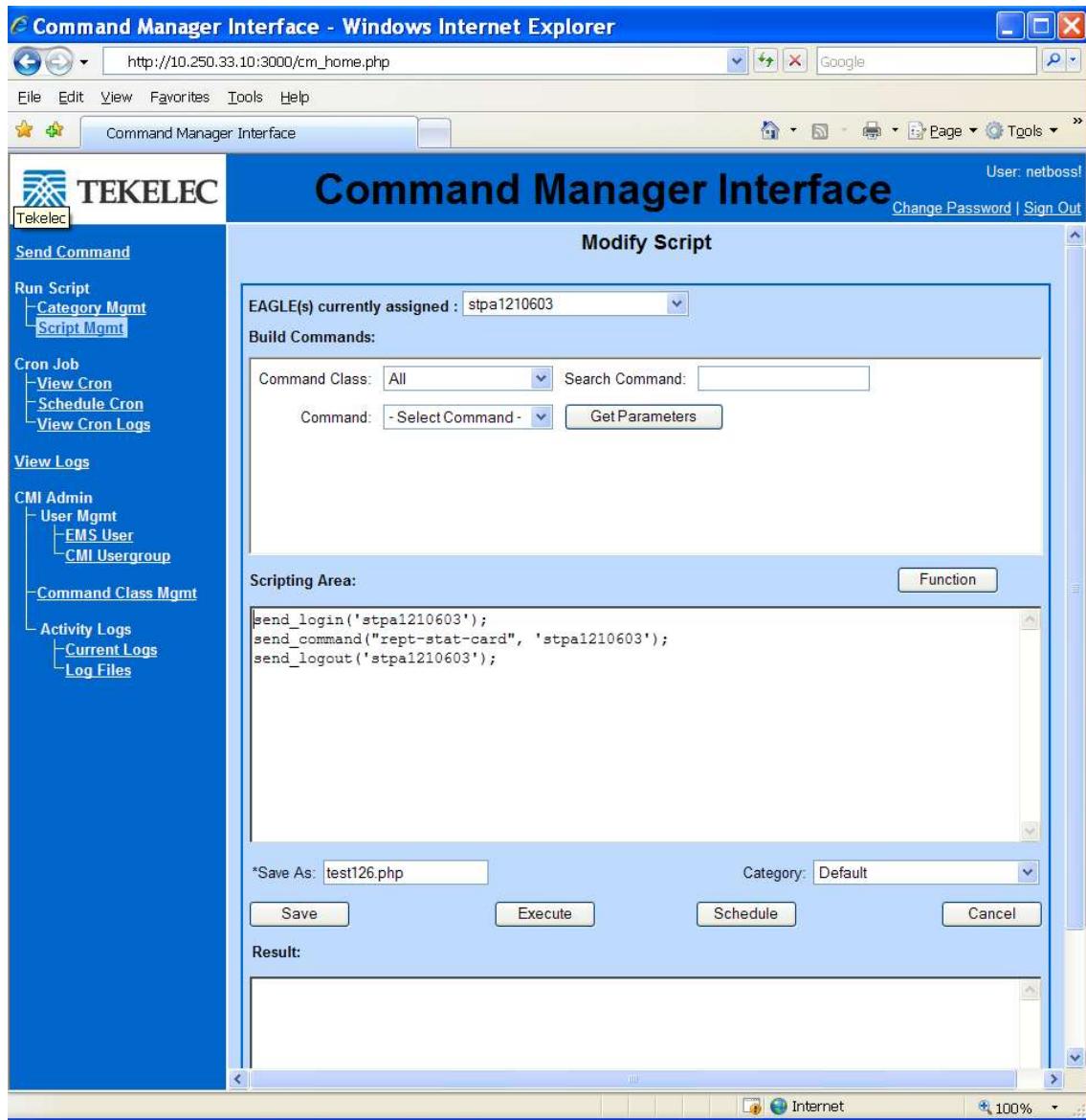


Figure 36: Modify Script Page

This page is described in detail in [Modify Script](#). The CMI command script selected for modification is shown in the **Scripting Area** pane.

3. If the CMI command script category is to be changed, select the new category from the drop-down list in the **Category** field and click the **Save** button.
A copy of this script is made and assigned to the new CMI command script category. A page similar to [Figure 35: Script Management Page](#) appears. If "All" is selected from the **Select Category** drop-down list, both the new and old CMI command scripts will be listed. To delete the copy of this script from its original category, see [Deleting a CMI Command Script](#).
4. If the content of the CMI command script is to be edited, perform [Step 5](#) through [Step 9](#). Otherwise, skip to [Step 11](#).

5. If you do not wish to use drop-down lists to compose EAGLE 5 commands or enter API Functions, edit the CMI command script directly in the **Scripting Area** pane and then skip to [Step 11](#).
6. Position the cursor in the location in the **Scripting Area** pane where the next EAGLE 5 command or API function should be added.

Note: If using the menu-driven approach and not editing the CMI command script directly in the **Scripting Area** pane, [Step 6](#) through [Step 8](#) will be repeated for each command added to the new CMI command script.

7. If an EAGLE 5 command is to be entered in the CMI command script at the position chosen in [Step 6](#), enter the desired command as follows:

- a) Confirm that the EAGLE 5 system that is to be accessed using this command is present in the drop-down list labeled **EAGLE(s) currently assigned**.

Note: If you do not have permission to access any EAGLE 5 systems, "None" is displayed.

If the EAGLE 5 system that you are attempting to access does not appear in this list, contact a CMI Administrator.

- b) If the name of the EAGLE 5 command to be executed is known, begin typing the command name in the **Search Command** field in the **Build Commands** pane until the correct command name appears in the **Command** field and skip to [Substep e](#).
- c) From the drop-down list in the **Command Class** field in the Build Commands pane, select the EAGLE 5 command class or CMI command class that contains the command to be sent to the EAGLE 5 systems.

Selecting **All** will cause all EAGLE 5 commands to which this EMS User has access to appear in the drop-down list in the **Command** field.

The EAGLE 5 commands to which this EMS User has access will appear in the drop-down **Command** field.

Note: EMS Users who are not CMI Administrators may have rights to access only a subset of the defined EAGLE 5 commands. A CMI Administrator can modify these rights using the procedure described in [Modifying an EMS User Association](#)

- d) Select the desired EAGLE 5 command from the drop-down list in the **Command** field.
- e) Either press the "enter" key or click the **Get Parameters** button.

A page similar to the one shown in [Figure 37: Example Build Commands Pane Showing Parameters](#) appears.



Figure 37: Example Build Commands Pane Showing Parameters

The parameters that are defined for the selected EAGLE 5 command are listed below the command name. The Command Manager Interface saves the parameter values for the last 20 commands entered in the **Build Commands** pane during the performance of any of the following procedures:

- this procedure
- *Creating a CMI Command Script*
- *Sending a Command to One or More EAGLE 5 Systems Using Menus*

Information about the selected command can be accessed by clicking the **Help Document** link. The *EAGLE 5 ISS Commands Manual* is the definitive guide to EAGLE 5 command syntax and usage.

Note: Depending on the configuration the EAGLE 5 system(s) being managed, some parameters may appear as optional, but in fact, be mandatory. This is because certain EAGLE 5 features require some parameters that others do not. A complete explanation of these dependencies can be viewed by clicking on the **Help Document** link on the right side of the pane.

- f) For each mandatory parameter and any desired optional parameters, enter the value to be included with the EAGLE 5 command.

For parameters that have a pre-defined set of values, a drop-down list of those parameters is provided. Typing a single character narrows the parameter value choices to those that start with that character. Re-typing that character will move the selections through the list of values that start with that character.

Note: For EAGLE 5 command *parameter values* that contain single or double quotation marks, an escape character (\) must be inserted before those quotation marks. For example, if the following EAGLE 5 command is entered using the **Build Commands** pane

```
chg-prefix:feature="Prepaid IDP Query Relay":prefixnum=3:prefix=0
```

then the following line is inserted into the **Scripting Area** pane:

```
send_command("chg-prefix:feature="Prepaid IDP Query  
Relay":prefixnum=3:prefix=0");
```

You must manually modify that line in the CMI command script by inserting the escape character before each quotation mark in the feature parameter value as shown below:

```
send_command("chg-prefix:feature=\\"Prepaid IDP Query  
Relay\\":prefixnum=3:prefix=0");
```

Note: Variables cannot be substituted for EAGLE 5 command names or CLLI parameters. Literal strings, explicitly specifying the EAGLE 5 command or CLLI name, must be used instead. This restriction does not apply to CMI command scripts created by a CMI administrator or by an EMS User that has access to all EAGLE 5 commands and is authorized to access all EAGLE 5 systems to which the EAGLE EMS is connected.

- g) Click the **Submit Command** button in the **Build Commands** pane.

Note: The **Submit Command** button only appears after the parameters for the command selected are retrieved. If the command selection is changed in the **Command** field, this button disappears until the parameters for the new command are retrieved.

It may be necessary to scroll down within the **Build Commands** pane to see the **Submit Command** button.

The EAGLE 5 command entered is inserted where the cursor was positioned in the **Scripting Area** pane in *Step 6*.

8. If an API function is to be entered in the CMI command script, enter the desired API Function as follows:

- a) Click the **Function** button below the **Build Commands** pane.

A page similar to that shown in *Figure 38: Command Manager Interface API Functions* appears.

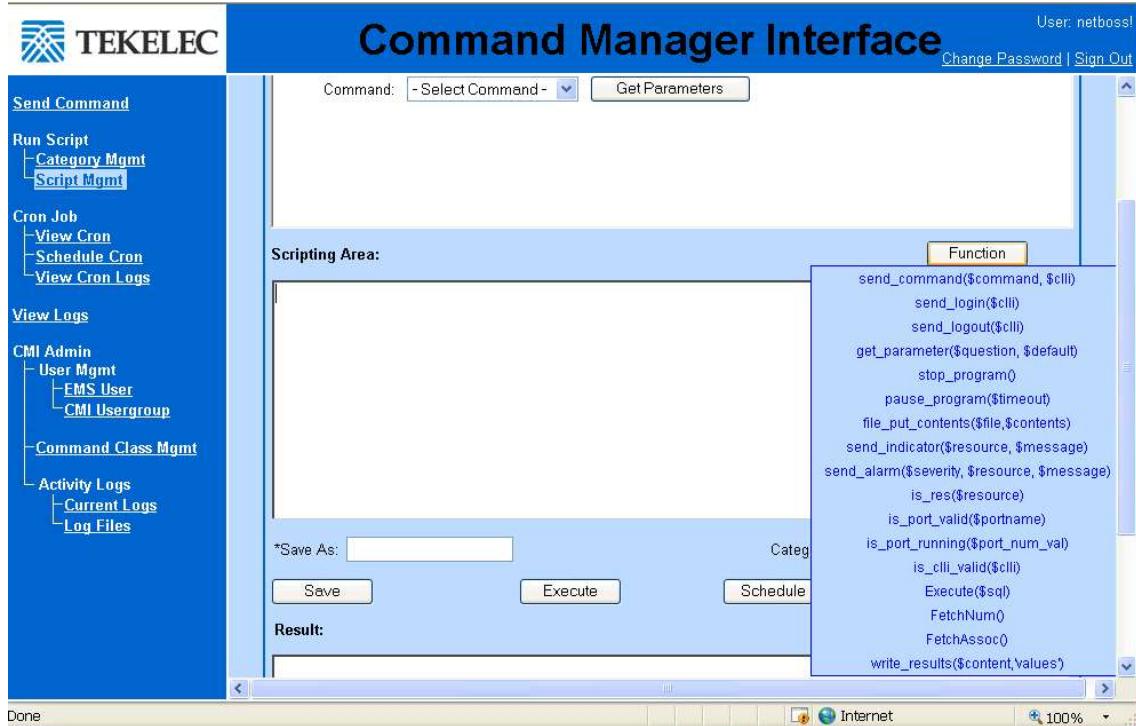


Figure 38: Command Manager Interface API Functions

All of the available API functions are listed in the menu.

- b) Select the desired API function by clicking on the name of the function.

The API function will be inserted where the cursor was positioned in the **Scripting Area** pane in *Step 6*.

9. Edit the commands in the **Scripting Area** pane as necessary.

Note: Variables cannot be substituted for EAGLE 5 command names or CLLI parameters. Literal strings, explicitly specifying the EAGLE 5 command or CLLI name, must be used instead. This restriction does not apply to CMI command scripts created by a CMI administrator or by an EMS User that has access to all EAGLE 5 commands and is authorized to access all EAGLE 5 systems to which the EAGLE EMS is connected.

10. If more EAGLE 5 commands or Command Manager Interface API functions are to be added to the script, repeat *Step 6*. through *Step 9*.

11. If the changes made to the CMI command script in *Step 3* through *Step 10* are no longer desired, click the **Cancel** button.

The "Script Management" page similar to the one shown in [Figure 35: Script Management Page](#) appears.

12. If desired, copy this script to a different category by selecting the new category from the drop-down list in the **Category** field.

Note: Changing the category to which a CMI command script is assigned causes the creation of two copies of the script: one in each category. To remove one of the copies, perform the procedure described in [Deleting a CMI Command Script](#).

13. If desired, change the name of this CMI command script by entering a new name in the **Save As** field.

The name given to this new CMI command script must be unique within the category shown in the **Category** field and must meet the following constraints:

- The CMI command script name must be at least three characters long
- Only alphanumeric characters (0-9, a-z, A-Z), underscore (_), hyphen (-), and period (.) are allowed in the CMI command script name.
- The CMI command script name must begin with an alpha character (a-z, A-Z).

Note: Changing the name of a CMI command script using this procedure results in a new copy of the script. The old script is not automatically deleted.

14. Once the CMI command script is completely updated, click the **Save** button.

If an error in the script is discovered by the CMI, the command script is not saved and an error message appears above the **Result** pane. Error messages may report the following situations:

- EAGLE 5 commands were directed toward EAGLE 5 systems to which you do not have access (see **EAGLE(s) currently assigned** field at the top of the page).
- EAGLE 5 commands were entered into the CMI command script in [Step 5](#) that were not associated with the command classes assigned to your CMI Usergroup.
- Upon validation, the Command Manager Interface detected the use of a variable substitution for an EAGLE 5 command name or CLLI name.

Note: This validation is not performed for scripts created by a CMI Administrator or an EMS User that has access to all EAGLE 5 command classes and is authorized to access all EAGLE 5 systems to which the EAGLE EMS is connected.

If PHP syntax errors were encountered in the CMI command script, the script is saved and the errors displayed.

If there were no errors, the CMI command script will be saved, over-writing the previous version of the script. The Modify Script page will continue to be displayed.

15. If authorization errors were reported in [Step 14](#), contact a CMI Administrator.
16. If errors with the CMI command script name were reported in [Step 14](#), enter a valid name and repeat [Step 14](#).
17. To execute this CMI command script, click the **Execute** field and proceed as described in [Executing a CMI Command Script](#).
18. To schedule the future or recurring execution this CMI command script, click the **Schedule** button and proceed as described in [Scheduling a CMI Command Script](#) as desired.

Deleting a CMI Command Script

Before performing this procedure, you must be logged in to the Command Manager Interface, as described in [Logging In to CMI](#). You must have been granted the right to delete scripts by a CMI Administrator, as described in [Modifying an EMS User Association](#). A CMI command script can only be deleted by the EMS User that owns the script or by a CMI Administrator.

This procedure is used to delete an existing Command Manager Interface script.

1. Click the **Script Mgmt** link under "Run Script" in the main menu on the left side of the page.

A page similar to the one shown in [Figure 39: Script Management Page](#) appears.

Script	Category	Actions				
cocoanut_interface.php Last Modified: 2009-06-04 15:27:04	Default	View	Modify	Execute	Schedule	Delete
cocoanut_interface_commands.php Last Modified: 2009-06-04 15:10:20	Default	View	Modify	Execute	Schedule	Delete
cocoanutinterface.php Last Modified: 2009-06-04 15:29:19	Default	View	Modify	Execute	Schedule	Delete
newtest.php Last Modified: 2009-03-18 12:18:45	Default	View	Modify	Execute	Schedule	Delete
test.php Last Modified: 2009-06-04 15:03:19	Default	View	Modify	Execute	Schedule	Delete
TEST.php Last Modified: 2009-03-30 00:21:02	Default	View	Modify	Execute	Schedule	Delete
test123.php Last Modified: 2009-06-22 04:44:04	Default	View	Modify	Execute	Schedule	Delete

Figure 39: Script Management Page

This page is described in detail in [Script Management Page](#).

2. Click the **Delete** link on the same row as the name of the CMI command script to be deleted. A confirmation dialog box similar to the one shown in [Figure 40: Delete CMI Command Script Confirmation](#) appears.



Figure 40: Delete CMI Command Script Confirmation

3. To cancel the deletion of the CMI command script, click the **Cancel** button.
A page similar to the one shown in [Figure 39: Script Management Page](#) appears and the CMI command script has not been deleted.
4. To confirm the deletion of the CMI command script, click the **OK** button.

If a CMI Administrator has deleted this CMI command script while [Step 2](#) through [Step 4](#) were being performed, an error message appears.

The CMI command script will be removed from the list of CMI command scripts and a page similar to the one shown in [Figure 39: Script Management Page](#) will appear. The deleted CMI command script name will no longer exist in the list of scripts on that page.

Creating a CMI Command Script Category

Before performing this procedure, an EMS User must be logged in to the Command Manager Interface, as described in [Logging In to CMI](#).

This procedure describes how to create a new CMI Command Script Category. CMI command scripts are assigned to CMI command script Categories when they are created or modified, as described in [Creating a CMI Command Script](#) and [Modifying a CMI Command Script](#). CMI command script categories are defined by individual EMS Users to help organize their collections of CMI command scripts.

1. Click the **Category Mgmt** under "Run Script" in the main menu on the left side of the page.

A page similar to the one shown in [Figure 41: Category Management Page](#) appears.

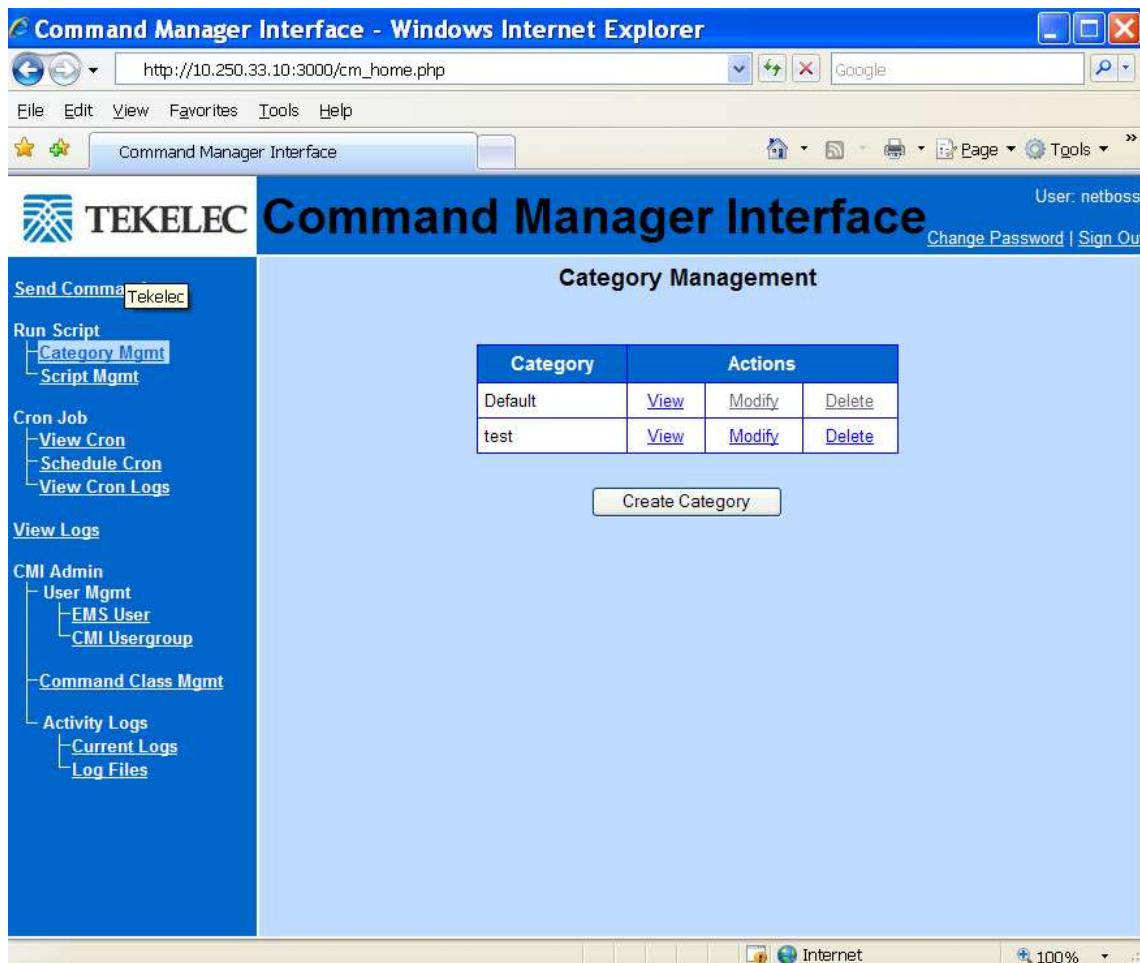


Figure 41: Category Management Page

This page is described in detail in [Category Management](#).

The new CMI command script category being created using this procedure must be given a name that is different from all of the names in the **Category** column of the table.

2. Click the **Create Category** button under the table.

A page similar to the one shown in [Figure 42: Create Category Page](#) appears.

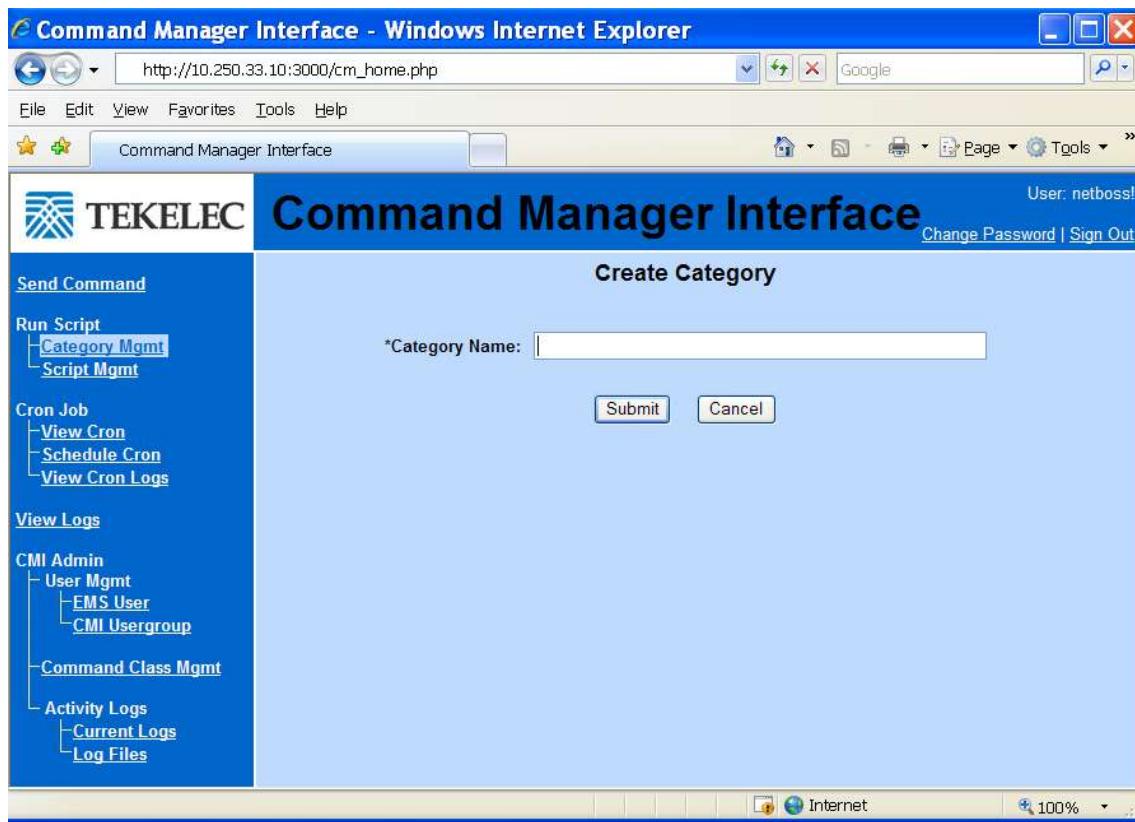


Figure 42: Create Category Page

This page is described in detail in [Create Category](#).

3. Enter the name for the new CMI command script category in the **Category Name** box.

The new CMI command script category name must meet the following constraints:

- It must be unique
- The category name must have at least three characters
- Only alpha-numeric characters (0-9, a-z, A-Z) are allowed.

4. If the new CMI command script category is no longer desired, click the **Cancel** button.

A page similar to [Figure 41: Category Management Page](#) appears again and no new CMI command category name will appear in the list.

5. Click the **Submit** button.

If the new category name was not entered, duplicated an existing category name, or did not follow the conventions described in [Step 3](#), an error message appears.

If a unique, valid name was entered in [Step 3](#), a page similar to the one shown in [Figure 41: Category Management Page](#) appears. The new CMI command script category name is included in the table.

6. If any errors were reported in [Step 5](#), perform [Step 3](#) through [Step 6](#) again, correcting the error.

Viewing a CMI Command Script Category

Before performing this procedure, an EMS User must be logged in to the Command Manager Interface, as described in [Logging In to CMI](#).

This procedure describes how to view the CMI command scripts associated with an existing category.

1. Click the **Category Mgmt** link under "Run Script" in the main menu on the left side of the page.
A page similar to the one shown in [Figure 43: Command Script Category Management Page](#) appears.

Category	Actions		
Default	View	Modify	Delete
test	View	Modify	Delete

Figure 43: Command Script Category Management Page

This page is described in detail in [Category Management](#).

The table on this page lists all of your defined CMI command script categories.

2. Click the **View** link on the same row as the CMI command script category to be viewed.

A page similar to the one shown in [Figure 44: View CMI Command Script Category Page](#) appears.

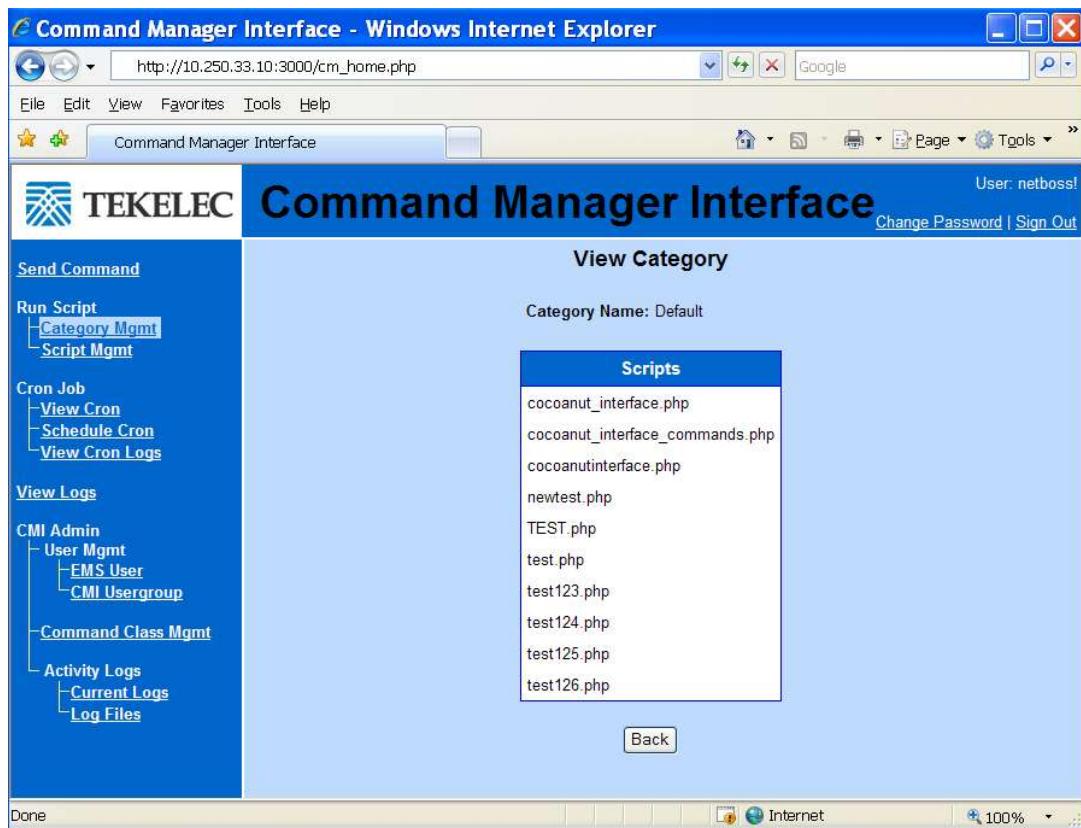


Figure 44: View CMI Command Script Category Page

This page is described in detail in *View Category*. The CMI command scripts assigned to the selected category are listed.

3. After viewing this information, click the **back** button.
A page similar to *Figure 43: Command Script Category Management Page* will appear again.

Modifying a CMI Command Script Category

Before performing this procedure, an EMS User must be logged in to the Command Manager Interface, as described in *Logging In to CMI*.

This procedure describes how to modify the name of a CMI command script category.

Note: The "Default" category cannot be deleted or modified.

1. Click the **Category Mgmt** link under "Run Script" in the main menu on the left side of the page.
A page similar to the one shown in *Figure 45: Category Management Page* appears

Category	Actions		
Default	View	Modify	Delete
test	View	Modify	Delete

Figure 45: Category Management Page

The table on this page contains a list of all of the CMI command script categories defined by this EMS User.

This page is described in detail in *Category Management*.

2. Click the **Modify** link in the same row as the name of the category to be modified.

A page similar to the one shown in *Figure 46: Modify CMI Command Script Category Page* appears.

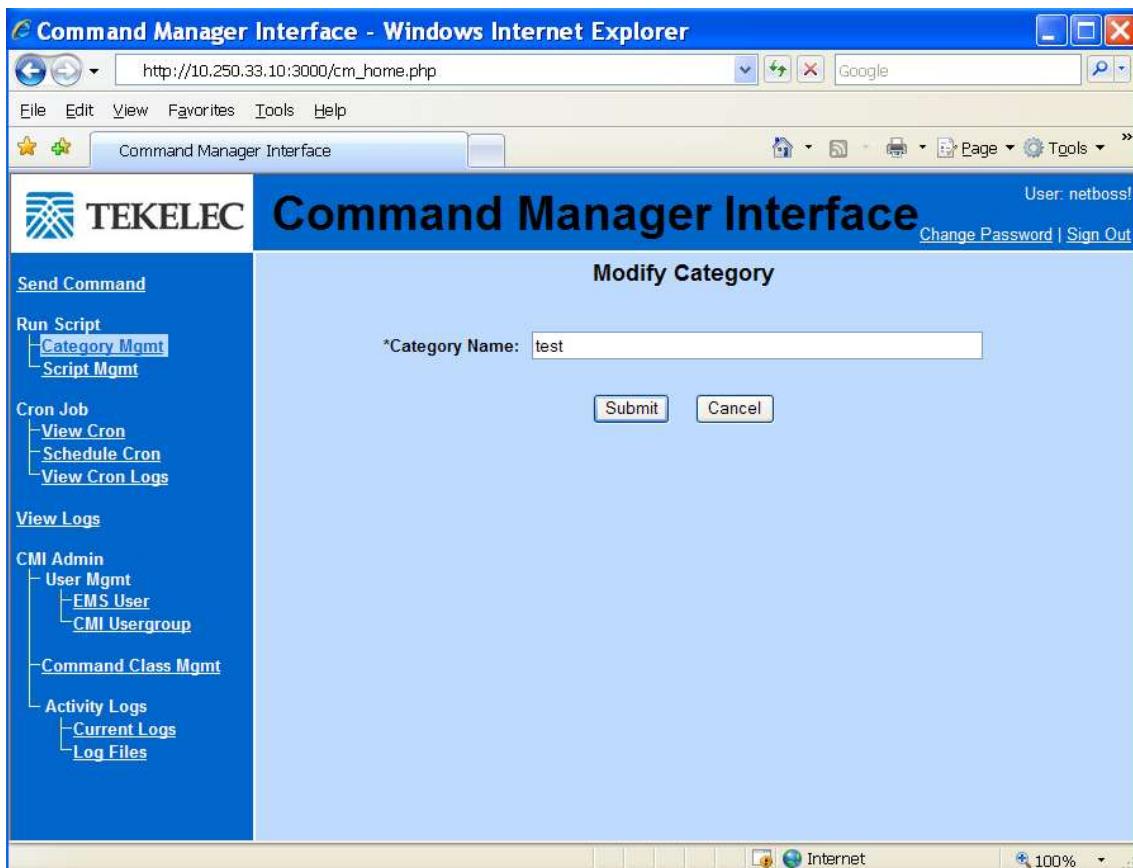


Figure 46: Modify CMI Command Script Category Page

This page is described in detail in [Modify Category](#).

3. Enter the new name for this CMI command script category in the **Category Name** box.
The new category name must meet the following constraints:
 - It must be unique
 - The name must have at least three characters.
 - Only alpha-numeric characters (0-9, a-z, A-Z) are allowed.
4. If the changes made in this procedure are no longer desired, click the **Cancel** button.
A page similar to the one shown in [Figure 45: Category Management Page](#) appears again and no changes will be made.
5. Click the **Submit** button.

If the new category name was not entered, duplicated an existing category name, or did not follow the conventions described in [Step 3](#), an error message appears.

If a unique, valid name was entered in [Step 3](#), a page similar to the one shown in [Figure 45: Category Management Page](#) appears. The new CMI command script category name replaces the old name in the table.

Note: The CMI command scripts assigned to the old category name are automatically assigned to the new category name.

- If any errors were reported in *Step 5*, perform *Step 3* through *Step 6* again, correcting the error.

Deleting a CMI Command Script Category

Before performing this procedure, an EMS User must be logged in to the Command Manager Interface, as described in *Logging In to CMI*.

This procedure describes how to delete a previously defined CMI command script category.

Note: The "Default" category cannot be deleted or modified.

- Click the **Category Mgmt** link under "Run Script" in the main menu on the left side of the page.

A page similar to the one shown in *Figure 47: Category Management Page* appears

Category	Actions		
Default	View	Modify	Delete
test	View	Modify	Delete

Figure 47: Category Management Page

This page is described in detail in *Category Management*.

- Click the **Delete** button on the same row as the CMI command script category to be deleted.

A dialog box similar to the one shown in *Figure 48: Delete Category Dialog Box* appears.



Figure 48: Delete Category Dialog Box

3. To cancel the deletion of the CMI command script category, click the **Cancel** button.
A page similar to the one shown in [Figure 47: Category Management Page](#) appears again and the table on that page will continue to list the category.
4. To confirm the deletion of the CMI command script category, click the **OK** button.

A page similar to [Category Management](#) appears again and the table on that page reflects the deletion of this category.

Note: CMI command scripts that are assigned to the category to be deleted will automatically be reassigned to the "Default" category. If the "Default" category is already assigned a CMI command script with the same name as one of the CMI command scripts assigned to the category to be deleted, the category is not deleted and none of its scripts are reassigned.

Executing a CMI Command Script

Before performing this procedure, a EMS User must be logged in to the Command Manager Interface, as described in [Logging In to CMI](#). Only CMI Administrators can execute scripts that do not belong to them.

This procedure describes how to execute an existing CMI command script.

1. Click the **Script Mgmt** link under "Run Script" in the main menu on the left side of the page.

A page similar to the one shown in [Figure 49: Script Management Page](#) appears.

The screenshot shows the 'Script Management' page of the Command Manager Interface. The left sidebar contains a navigation menu with links like 'Send Command', 'Run Script', 'Category Mgmt', 'Script Mgmt', 'Cron Job', 'View Cron', 'Schedule Cron', 'View Cron Logs', 'View Logs', 'CMI Admin', 'User Mgmt', 'EMS User', 'CMI Usergroup', 'Command Class Mgmt', 'Activity Logs', 'Current Logs', and 'Log Files'. The main content area is titled 'Script Management' and displays a table of scripts. The table has columns for 'Script', 'Category', and 'Actions'. The 'Actions' column includes links for View, Modify, Execute, Schedule, and Delete. The scripts listed are:

Script	Category	Actions
cocoanut_interface.php Last Modified: 2009-06-04 15:27:04	Default	View Modify Execute Schedule Delete
cocoanut_interface_commands.php Last Modified: 2009-06-04 15:10:20	Default	View Modify Execute Schedule Delete
cocoanutinterface.php Last Modified: 2009-06-04 15:29:19	Default	View Modify Execute Schedule Delete
newtest.php Last Modified: 2009-03-18 12:18:45	Default	View Modify Execute Schedule Delete
test.php Last Modified: 2009-06-04 15:03:19	Default	View Modify Execute Schedule Delete
TEST.php Last Modified: 2009-03-30 00:21:02	Default	View Modify Execute Schedule Delete
test123.php Last Modified: 2009-06-22 04:44:04	Default	View Modify Execute Schedule Delete

A 'Create Script' button is located at the bottom of the table.

Figure 49: Script Management Page

This page is described in detail in [Script Management Page](#).

2. For CMI Administrators only: select the CMI command script owner from the drop-down list in the **Select Owner** box.

Note: This option is not available to EMS Users who are not CMI Administrators.

3. If desired, select the category of the CMI command script to be executed from the drop-down list in the **Select Category** box.
The list of CMI command scripts shown in the table will only include those that belong to the selected category.
4. Click the **Execute** button in the same row as the name of the CMI command script to be executed.

A page similar to the one shown in [Figure 50: Execute Script Page](#) appears.

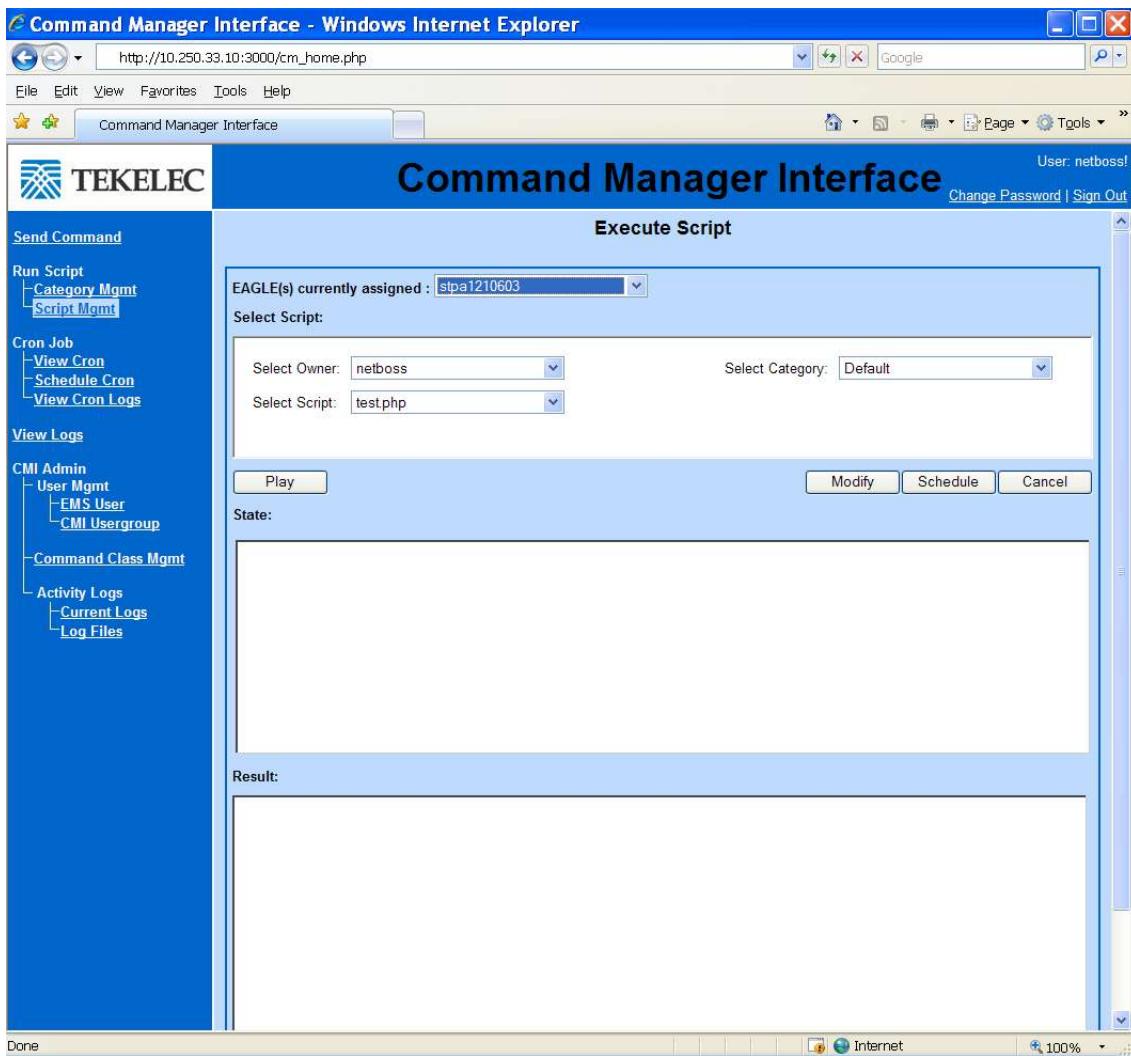


Figure 50: Execute Script Page

This page is described in detail in [Execute Script](#). The **EAGLE(s) currently assigned** box contains a drop-down list of EAGLE 5 systems to which you have access.

Note: **Execute** buttons are also available on other script management pages, as described in the following sections:

- [Create Script](#)
- [Modify Script](#)

These links can also be followed in order to execute a CMI command script.

5. Click the Play button.

While the CMI command script executes, the **Play** button disappears and **Pause** button and a **Stop** button appear. Clicking on the **Pause** button causes the suspension of the script execution for thirty seconds and then resume at the point where it was paused. Clicking on the **Stop** button causes the execution of the CMI command script to cease.

Information about the state of execution of the CMI command script and success or failure of individual statements in the script is displayed in the **State** pane. Each EAGLE 5 command that is sent will be reported.

The **Results** pane displays the results of command execution as reported by the EAGLE 5 system to which a command was sent.

Note: There may be a slight delay after clicking on the **Play** button and before the **Pause** and **Stop** buttons appear and state and result information is displayed.

If you are not authorized to access the EAGLE 5 systems that are targeted in commands in the CMI command script or use all of the commands used in the CMI command script, an error message appears above the **Result** pane and an explanation of the specific error encountered appears in the **Result** pane.

Note: If a CMI Administrator modified the EMS User's association to a CMI Usergroup or modified the CMI Usergroup itself after the creation of the CMI command script, a previously allowed CMI command script could now contain unauthorized commands or attempt to access EAGLE 5 systems to which you are not authorized to send commands.

6. If an error was reported in [Step 5](#), contact a CMI Administrator.

Scheduling a CMI Command Script

Before performing this procedure, an EMS User must be logged in to the Command Manager Interface, as described in [Logging In to CMI](#). You must have been granted the right to schedule scripts by a CMI Administrator, as described in [Modifying an EMS User Association](#).

This procedure is used to schedule existing CMI command scripts for execution. CMI Administrators can schedule the execution of scripts owned by any EMS User. EMS Users that are not CMI Administrators can only schedule their own scripts for execution.

1. Click the **Schedule Cron** link under "Cron Job" in the main menu on the left side of the page.

A page similar to the one shown in [Figure 51: Schedule Cron Page](#) appears.

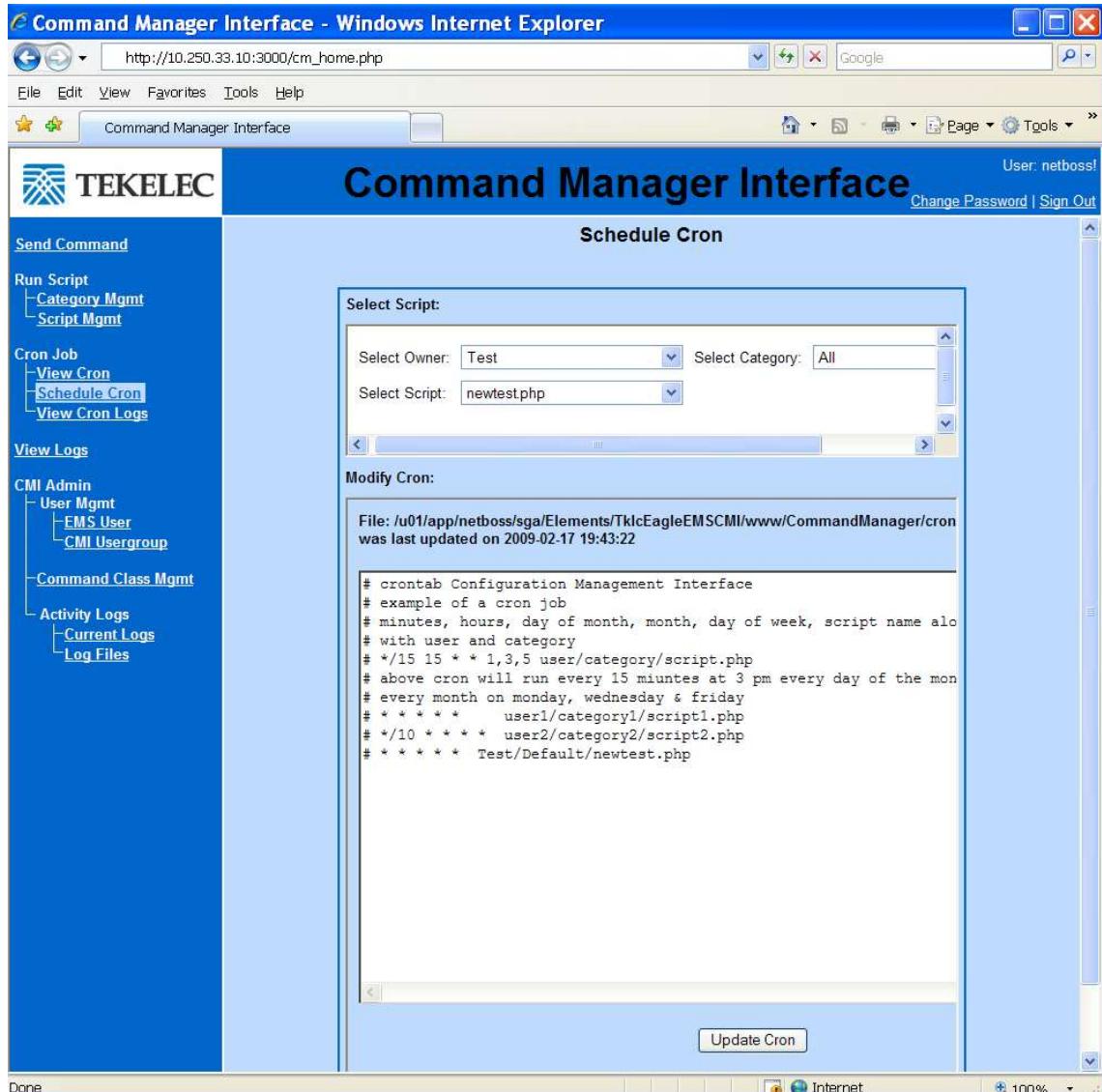


Figure 51: Schedule Cron Page

This page is described in detail in [Schedule Cron](#).

Note: If you are not a CMI Administrator, the **Select Owner** field will not offer a drop-down list as shown in [Figure 51: Schedule Cron Page](#). Instead, your EMS User name will be listed.

2. If you are a CMI Administrator, select the owner of the CMI command script to be scheduled from the list of EMS Users in the **Select Owner** field.
3. From the **Select Category** field, select the category of the CMI command script to be scheduled. The CMI command scripts belonging to the selected category will appear in the drop-down list presented in the **Select Script** field. If "All" is selected, all CMI command scripts belonging to the EMS User identified in the **Select Owner** field will be presented in the **Select Script** field.
4. From the drop-down list in the **Select Script** field, select the CMI command script to be scheduled for execution.

A new line will be added to the "Cron Job" in the **Modify Cron** pane. That new line contains the scheduling information for the Cron Job and will look like the following:

```
# * * * * * <EMSUserName>/<Category>/<ScriptName>.php
```

Where

- <EMSUserName> is your EMS User name
- <Category> is the category to which the CMI command script being scheduled is assigned
- <ScriptName> is the name of the CMI command script selected.

5. Modify the scheduling information.

- a) Replace the "*"s in the new Cron Job list with the time(s) to execute the CMI command script, as follows:

```
<minutes> <hours> <day of month> <month> <day of week>
```

where

- <minutes> specifies the minute of the hour that the CMI command script should execute.

Range: 1..60

- <hours> specifies the hour of day (using a 24-hour clock) that the CMI command script should be executed.

"*" is interpreted to mean all hours of the day and is synonymous with entering
1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,23,24

Range: 1..24

- <day of month> specifies the numerical day of the month that the script should be executed.

"*" is interpreted to mean all days of the month and is synonymous with entering
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

Range: 1..31

- <month> specifies the month in which the CMI command script should be executed, with 1=January, 2=February, etc.

Multiple months can be selected by separating those numbers with commas (no spaces).

"*" is interpreted to mean all months of the year and is synonymous with entering
1,2,3,4,5,6,7,8,9,10,11,12

Range: 1..12

- <day of week> specifies the weekdays that the CMI command script should be executed, with 1 signifying Monday, 2 signifying Tuesday, etc.

Multiple days can be selected by separating those numbers with commas (no spaces).

"*" is interpreted to mean all days of the week and is synonymous with entering 1,2,3,4,5,6,7

Range: 1..7

"Step" values are also supported in all of the fields above. For example, entering "*/3" in the <day of month> field indicates that the CMI command script should be executed every 3 days.

For example,

```
*/15 15 * * 1,3,5 netboss/Test/testscript3.php
```

means that script called testscript3.php belonging to the EMS User called "netboss" in the category called "Test" should run every 15 minutes at 3pm every Monday, Wednesday, and Friday.

- b) To enable the schedule entered in [Step 5](#), delete the "#" at the beginning of the line.

"#" indicates a comment. Lines that are preceded by "#" will not be executed.

A good description of cron can be found on the world-wide web at
<http://www.unixgeeks.org/security/newbie/unix/cron-1.html>.

A complete line in the Schedule Cron scheduler page will look something like this:

```
*/15 15 * * 1,3,5 netboss/Default/Script1.php
```

6. Click the **Update Cron** button.

The "Schedule Cron" page remains until another link is selected from the main menu on the left side of the page.

Viewing a CMI Command Script Execution Schedule

Before performing this procedure, an EMS User must be logged in to the Command Manager Interface, as described in [Logging In to CMI](#).

This procedure is used to view your existing CMI command script execution schedule. A single cron script contains all of the scheduling information for all EMS User CMI command scripts. No changes can be made to the schedule using this procedure.

1. Click the **View Cron** link under "Cron Job" in the main menu on the left side of the page.

A page similar to the one shown in [Figure 52: View Cron Page](#) appears.

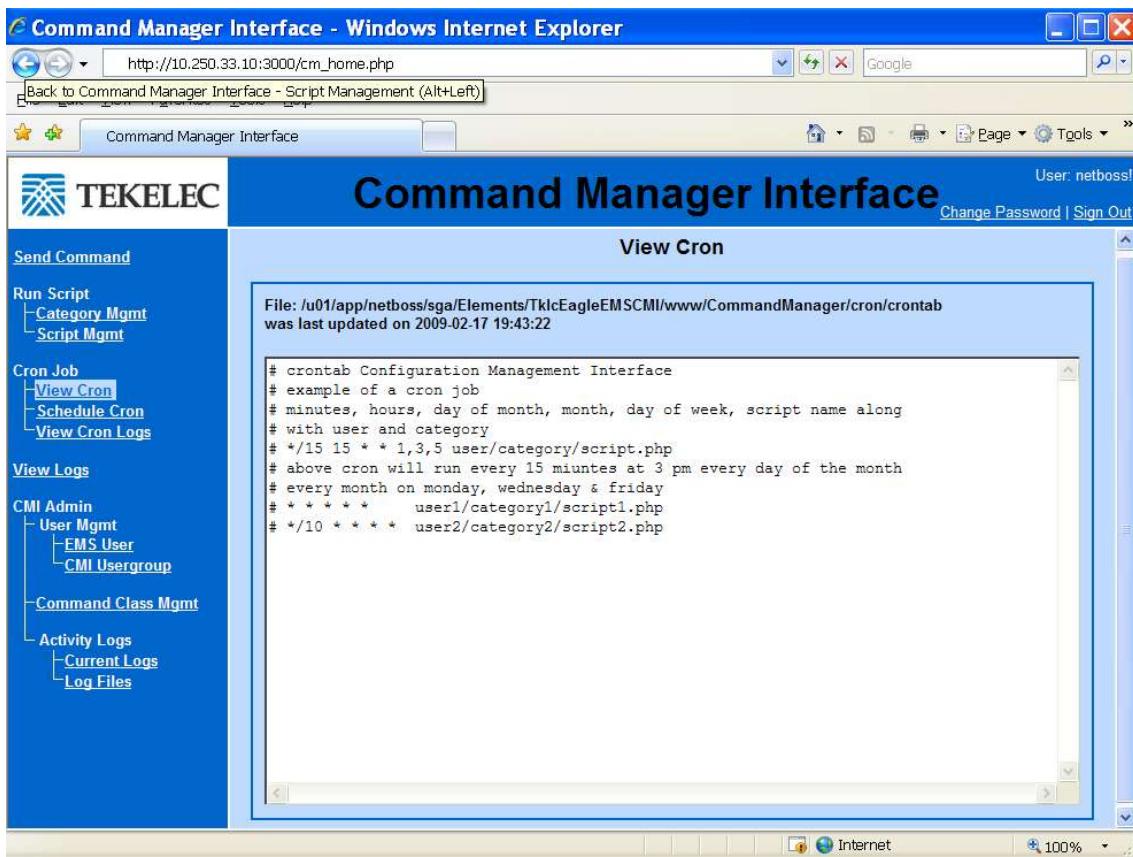


Figure 52: View Cron Page

This page is described in detail in [View Cron](#). The CMI command script schedule that was created using [Scheduling a CMI Command Script](#) appears in the pane.

Note: No changes can be made to the schedule from this page. To modify the schedule, perform the procedure described in [Scheduling a CMI Command Script](#).

2. To perform another CMI function, select that function from the main menu on the left side of the page.

Viewing Current EMS User Activity Logs

Before performing this procedure, a CMI Administrator must be logged in to the Command Manager Interface, as described in [Logging In to CMI](#).

This procedure is used to view a log of the Command Manager Interface activities of all EMS Users from the last 24 hours.

1. Click the **Current Logs** link under "Activity Logs" in the main menu on the left side of the page.
A page similar to the one shown in [Figure 53: Current Logs Page](#) appears.

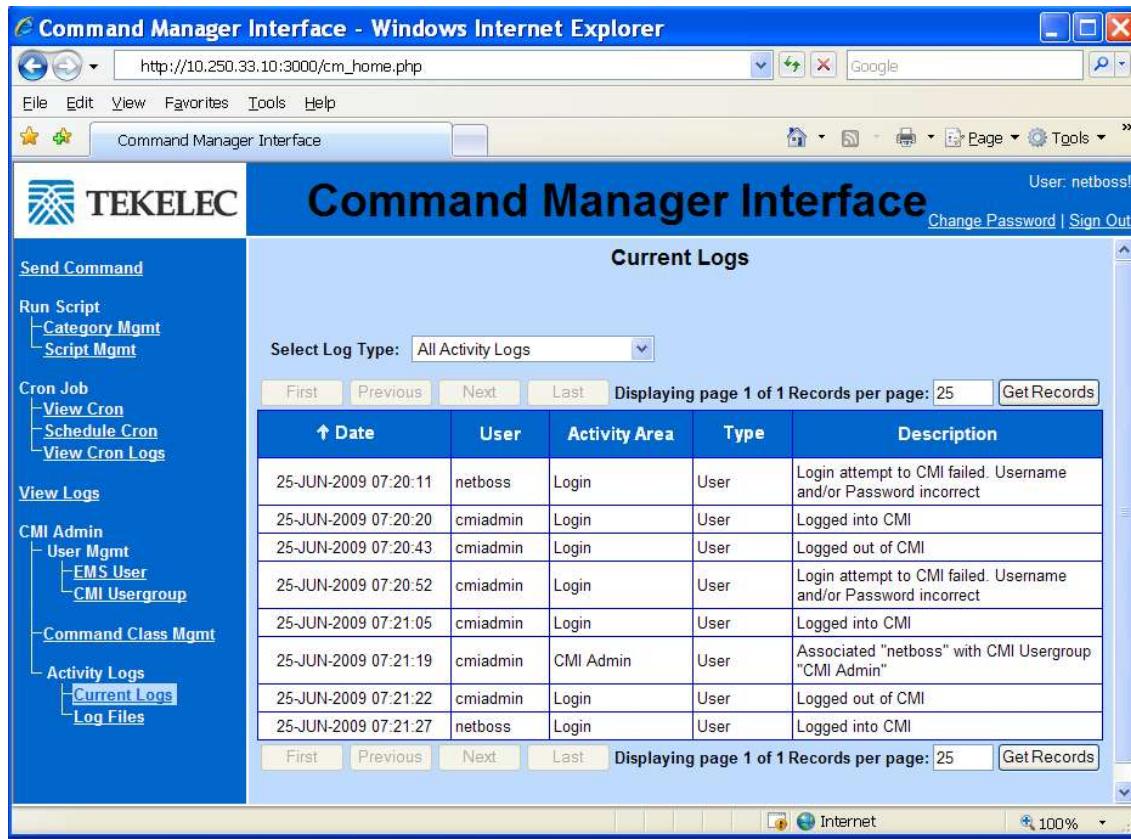


Figure 53: Current Logs Page

This page is described in detail in [Current Logs](#).

- From the drop-down list in the **Select Log Type** field, select one of the following types of current EMS User activity to be viewed:

- All Activity Logs:

Select this type if you want to view all recent EMS User activities, both within the Command Manager Interface and those that affect EAGLE 5 systems.

- User Action Logs:

Select this type if you want to view recent EMS User activities within the Command Manager Interface, but not those that affect EAGLE 5 systems.

- EAGLE Affecting Logs:

Select this type if you want to view recent EMS User activities that affect EAGLE 5 systems, but not EMS User activities within the Command Manager Interface.

The selected EMS User activity records appear in the table.

- To sort EMS User activity records in the table according to Date, User, Activity Area, Type, or Description, click on the corresponding column heading.

The sort order (ascending or descending) is toggled by repeatedly clicking on the column heading.

4. To change the number of EMS User activity records visible on each page, type the desired number in the **Records per page** field and then click the **Get Records** button.
5. To navigate through the Current Logs pages, click on one of the following buttons:
 - **First:** shows the first page of the Current Logs
 - **Previous:** shows the previous page of the Current Logs. This button is disabled if the first page of the Current Logs is displayed.
 - **Next:** shows the next page of the Current Logs. This button is disabled if the last page of the Current Logs is displayed.
 - **Last:** shows the last page of the Current Logs.

Viewing EMS User Activity Log Files

Before performing this procedure, a CMI Administrator must be logged in to the Command Manager Interface, as described in [Logging In to CMI](#).

This procedure is used to view EMS User activities from previous dates, up to 15 days old.

1. Click the **Log Files** link under "Activity Logs" in the main menu on the left side of the page.
A page similar to the one shown in [Figure 54: Log Files Page](#) appears.

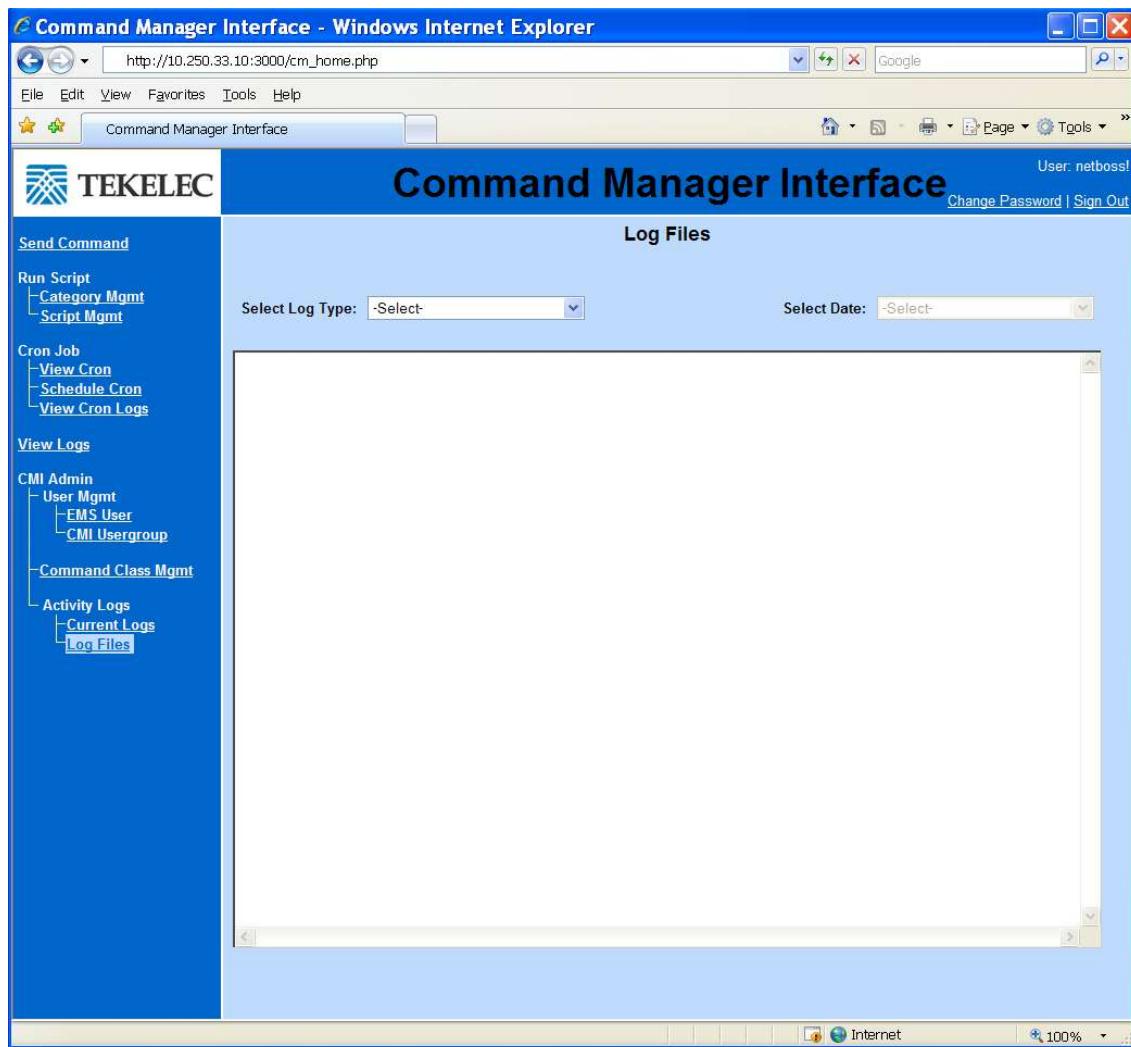


Figure 54: Log Files Page

This page is described in detail in [Log Files](#).

2. From the drop-down list in the **Select Log Type** field, select the log to be viewed:
 - User Action Logs:
Selecting User Action Logs results in the presentation of EMS User activities that are contained within the Command Manager Interface and do not affect EAGLE 5 systems.
 - EAGLE Affecting Logs:
Selecting EAGLE Affecting Logs results in the presentation of EMS User activities that directly affect EAGLE 5 systems.
3. From the drop-down list in the **Select Date** field, select the date for which the EMS User activity selected in [Step 2](#) is to be presented.
The EMS User activity records of the type selected in the **Select Log Type** field and the date selected in the **Select Date** field are presented as a flat file.

Viewing Cron Logs

Before performing this procedure, an EMS User must be logged in to the Command Manager Interface, as described in [Logging In to CMI](#). EMS Users can only view cron logs regarding the execution of their own CMI command scripts.

This procedure is used to view logs detailing the scheduled execution of your CMI command scripts.

1. Click the **View Cron Logs** link under "Cron Job" in the main menu on the left side of the page.

A page similar to the one shown in [Figure 55: View Cron Logs Page](#) appears.

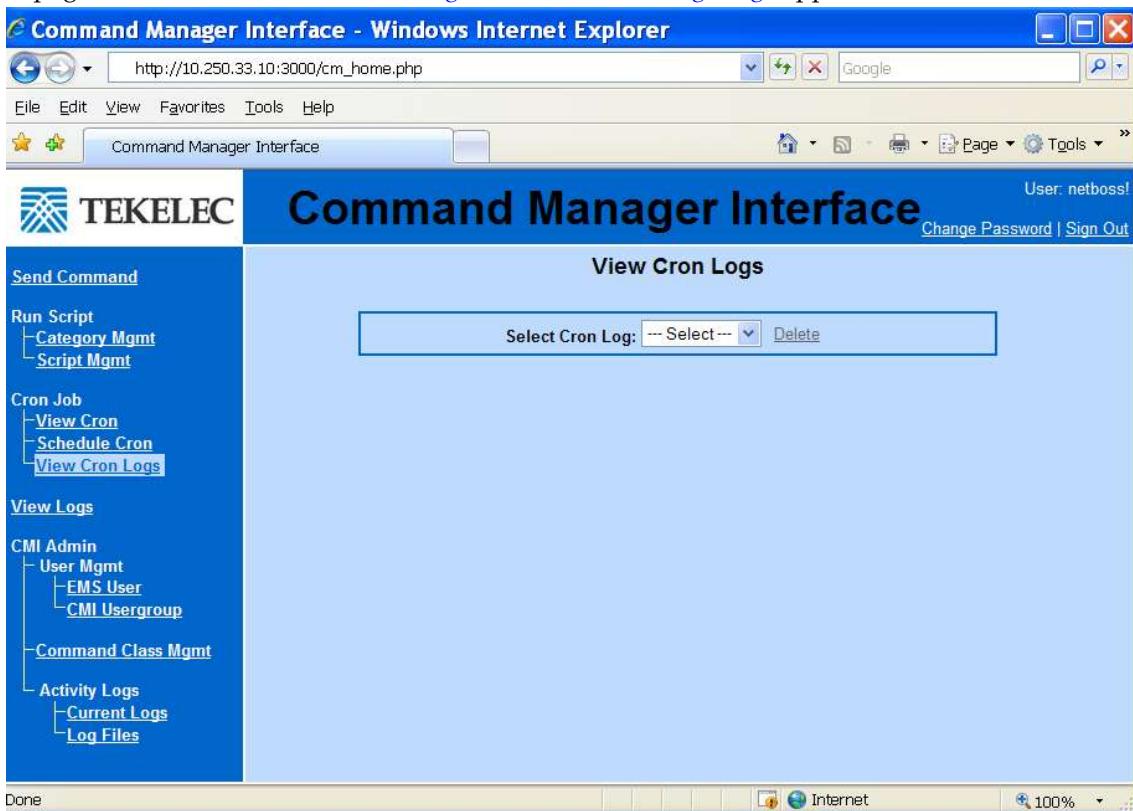


Figure 55: View Cron Logs Page

This page is described in detail in [View Cron Logs](#).

2. From the drop-down list in the **Select Cron Log** field, select the log to be viewed.
3. If you want to delete the log selected in the **Select Cron Log** field, click the **Delete** link.

The name of the log will be removed from the drop down list and the log will be deleted from the EAGLE EMS.

Viewing Logs

Before performing this procedure, you must be logged in to the Command Manager Interface, as described in [Logging In to CMI](#). You must have been granted the right to view logs by a CMI Administrator, as described in [Modifying an EMS User Association](#).

This procedure is used to view a Command Manager Interface log file.

1. Click the **View Logs** link in the main menu on the left side of the page.

A page similar to the one shown in [Figure 56: View Logs Page](#) appears.

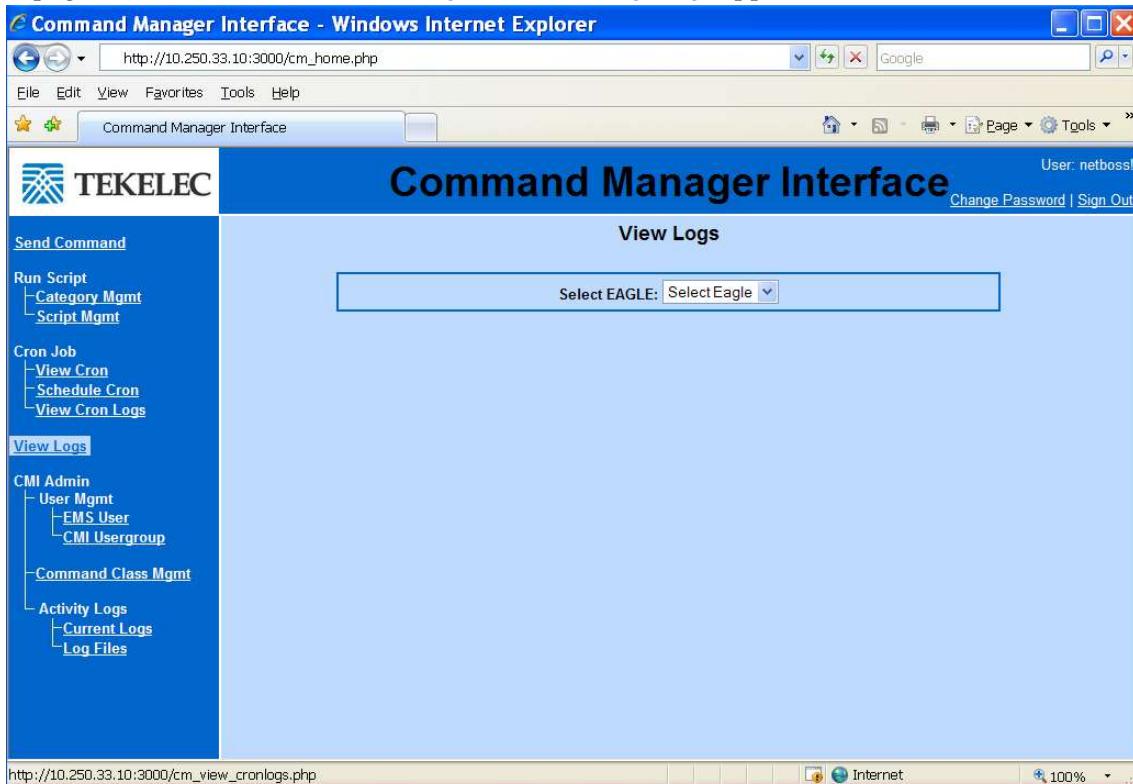


Figure 56: View Logs Page

This page is described in detail in [View Logs](#).

2. From the drop-down list, select the EAGLE 5 for which a log is to be viewed.

Note: The list of EAGLE 5 systems presented in the drop-down list includes all EAGLE 5 systems that have been connected to the EAGLE EMS. Some of those systems may no longer be connected to or manageable from the EAGLE EMS, even though logs of previous management activity are accessible via this page.

A page similar to the one shown in [Figure 57: View Logs Page - Log Selection](#) appears.

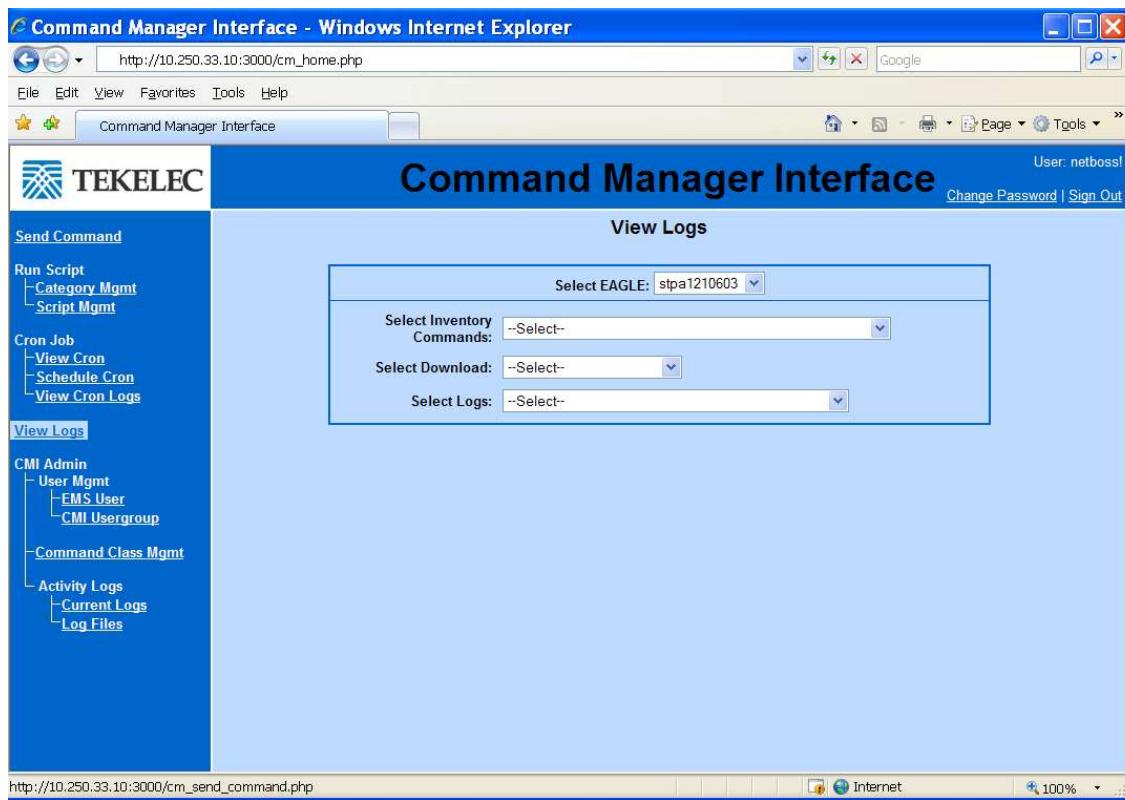


Figure 57: View Logs Page - Log Selection

Note: Some of the selection fields shown in *Figure 57: View Logs Page - Log Selection* may not be displayed, depending on the logs that are available for the selected EAGLE 5 system.

3. If desired and available, select a log file from the drop-down list provided in the **Select Inventory Commands** field.

The log files that are listed were generated when the on-demand "Update Inventory" process is executed in the Fault Management System or configured in the EAGLE EMS to run periodically and automatically. One log file is generated for each command executed during an "Update Inventory" process. These files are generated at the location /u01/app/netboss/local/STP/inventory/<clli name>, where <clli name> is the clli name of the EAGLE identified in the **Select EAGLE** field.

A page similar to the one shown in *Figure 58: Example Inventory Log Display* appears.

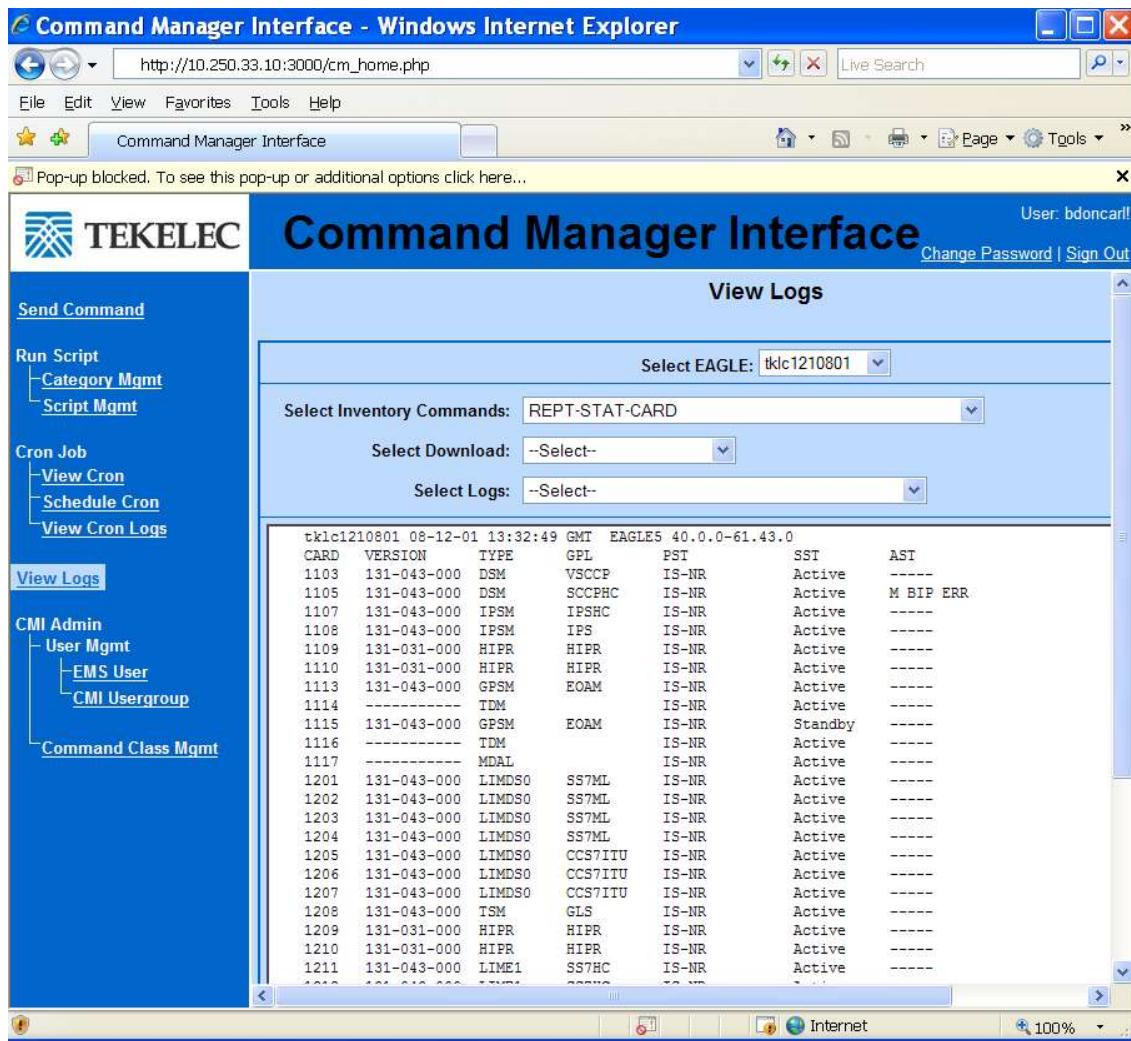


Figure 58: Example Inventory Log Display

The contents of the selected log are shown in the pane below the selection box.

Note: It may be necessary to scroll up and down as well as side to side to see the contents of the entire log.

- If desired and available, select a download log file from the drop-down list provided in the **Select Download** field.

The Download log files listed in this drop-down list contain the results of `rtrv-log` commands executed as part of an on-demand "Update Inventory" process is executed in the Fault Management System or configured in the EAGLE EMS to run periodically and automatically.

The selected log file will appear in a separate application window and will take the form of a comma-separated-values (csv) file which can be imported to a spreadsheet application for viewing and/or manipulation.

- If desired and available, select an SGA port log from the drop-down list provided in the **Select Logs** field.

There is one SGA port log for each SGA port configured in the Probuilder component of the EAGLE EMS.

The log names consist of the following, separated by " _ "

- CLLI name
- SGA port number
- Port Types

Ports can be any of the following types:

- EMSALM
 - RESYNC
 - COMMAND
 - GENERAL
-
- Date of log in MMDDYYYY format

The log file is displayed in the pane below the **Select Logs** field.

Command Manager Interface Pages

This chapter presents the pages used by EMS Users in performing the procedures defined in *Using the Command Manager Interface*.

Command Manager Interface Login

The Command Manager Interface login page is used to authenticate users of the CMI. An example of this page is shown in *Figure 59: CMI Login Page*.



Figure 59: CMI Login Page

This page is accessed while performing the following procedure: *Logging In to CMI*.

Login Page Elements

Element	Description
Username Field	Enter your EMS User name in this field.
Password Field	Enter your password in this field. If your password is not known, contact a CMI Administrator to reset the password.
Sign In Button	Click on this button to sign in to the CMI.

EMS User Management

The **EMS User Management** page is accessed by clicking on the **EMS User** link in the main menu on the left side of the Command Manager Interface page. An example of this page is shown in *Figure 60: EMS User Management Page*.

EMS Users	CMI Usergroups	Actions	
netboss*	CMI Admin	Modify	Delete
ProdVer	ProdVer	Modify	Delete
root*	CMI Admin	Modify	Delete
Test	ProdVer	Modify	Delete
test1	UG2	Modify	Delete

* These users are Netboss Administrators.

Figure 60: EMS User Management Page

This page is accessed while performing the following procedures:

- *Modifying an EMS User Association*
- *Changing an EMS User Password*
- *Deleting an EMS User Association*

EMS User Management Page Elements

Element	Description
EMS Users Column	This column lists all of the EMS Users defined in NetBoss.
CMI Usergroups Column	<p>This column lists the CMI Usergroup with which each EMS User is associated. EMS Users that are not associated with any CMI Usergroup have "---" in the CMI Usergroups column next to their name.</p>
Actions Columns	<p>Two Actions are defined for EMS User management:</p> <ul style="list-style-type: none"> • Modify Clicking this link allows you to change the login password for the corresponding EMS User on the same row or change the CMI Usergroup with which that EMS User is associated. When the Modify link is clicked, the <i>Modify EMS User Association</i> appears. • Delete Clicking this link allows you to delete the association between the EMS User and the CMI Usergroup on that line. When the Delete link is clicked, a confirmation dialog box appears and you must either confirm that this association should be deleted or cancel the deletion. <p>Note: If a link in the table is greyed out, it is disabled because you do not have permission to perform that function. CMI Administrators manage access rights by associating EMS Users with EMS Usergroups, as described in <i>Modifying an EMS User Association</i>.</p>

Modify EMS User Association

The **Modify EMS User Association** page is accessed by clicking on the **Modify** link on the *EMS User Management*. An example of this page is shown in *Figure 61: Modify EMS User Association Page*.



Figure 61: Modify EMS User Association Page

This page is accessed while performing the following procedure: [Modifying an EMS User Association](#).

Modify EMS User Association Page Elements

Element	Description
EMS User Field	The name of the EMS User for which modifications are to be made appears in this field.
Type Password Field	To change the login password for the EMS User, enter a new password in this field. The new password must meet the following constraints: <ul style="list-style-type: none"> • The password must have at least 4 characters • Only alphanumeric characters (0-9, a-z, A-Z) are allowed. Note: The passwords entered into the Type Password and Re-Type Password fields must be identical.
Re-Type Password Field	If the login password is being changed for the EMS User, enter the same password as you entered in the Type Password field.
Select CMI Usergroup List	To change the CMI Usergroup with which the EMS User is associated, select the new CMI Usergroup from this list. All of the currently-defined CMI Usergroups appear in this list.
Submit Button	Clicking on this button causes the requested password or CMI Usergroup association changes to be made. If no errors occurred,

Element	Description
	the <i>EMS User Management</i> appears. The EMS User for which a change was made is highlighted.
Cancel Button	Clicking this button cancels this modification and the <i>EMS User Management</i> appears.

CMI Usergroup Management

The **CMI Usergroup Management** page is accessed by clicking on the **CMI Usergroup** link in the main menu on the left side of the Command Manager Interface page. An example of this page is shown in *Figure 62: CMI Usergroup Management Page*.

The screenshot shows the Command Manager Interface (CMI) Usergroup Management page. The left sidebar contains a navigation menu with links such as Send Command, Run Script, Cron Job, View Logs, CMI Admin, Command Class Mgmt, and Activity Logs. The main content area is titled "CMI Usergroup Management" and displays a table of usergroups:

CMI Usergroups	Actions		
CMI Admin	View	Modify	Delete
ProdVer	View	Modify	Delete
PVEMSGRP1	View	Modify	Delete
UG1	View	Modify	Delete
UG2	View	Modify	Delete

A "Create Usergroup" button is located at the bottom of the main content area. The browser title bar reads "Command Manager Interface - Windows Internet Explorer".

Figure 62: CMI Usergroup Management Page

This page is accessed while performing the following procedures:

- *Creating a CMI Usergroup*
- *Viewing a CMI Usergroup*
- *Modifying a CMI Usergroup*
- *Deleting a CMI Usergroup*

CMI Usergroup Management Page Elements

Element	Description
CMI Usergroups Column	This column contains an entry for each CMI Usergroup.
Actions Column	<p>The following Actions can be performed for a CMI Usergroup:</p> <ul style="list-style-type: none"> • View Clicking on the View link allows you to view the CMI Functions, CMI command classes, and EMS Users associated with the CMI Usergroup on the same line. The <i>View CMI Usergroup</i> appears. • Modify Clicking on the Modify link allows you to modify the CMI Functions, CMI command classes, or EMS Users associated with the CMI Usergroup on the same line. The <i>Modify CMI Usergroup</i> appears. • Delete Clicking on the Delete link allows you to delete the CMI Usergroup on the same line. Note: Before a CMI Usergroup can be deleted, all associations between EMS Users and that CMI Usergroup must be deleted. This can be accomplished with the following procedure: <i>Deleting an EMS User Association</i>.
Create Usergroup Button	Clicking the Create Usergroup button allows you to create a new CMI Usergroup. The <i>Create CMI Usergroup</i> appears.

Create CMI Usergroup

The **Create CMI Usergroup** page is accessed by clicking on the **Create Usergroup** button on the *CMI Usergroup Management*. An example of this page is shown in *Figure 63: Create CMI Usergroup Page*.

Figure 63: Create CMI Usergroup Page

This page is accessed while performing the following procedure: *Creating a CMI Usergroup*.

Create CMI Usergroup Page Elements

Element	Description
CMI Usergroup Name Field	<p>Enter the name of the new CMI Usergroup that is being created. The name must meet the following requirements:</p> <ul style="list-style-type: none"> • The name must be unique • The name must be at least 3 characters long • Only alphanumeric characters (0-9, a-z, A-Z) are allowed. (No spaces are allowed.)

Element	Description
Select CMI Functions Pane	This pane is used to associate CMI functions with the CMI Usergroup that is being created. The elements in the Select CMI Functions pane are described in Table 1: Select CMI Functions Pane .
Select Command Classes Pane	This pane is used to associate EAGLE 5 command classes and CMI command classes with the CMI Usergroup that is being created. The elements in the Select Command Classes pane are described in Table 2: Select Command Classes Pane .
Select EAGLE(s)	This pane is used to associate a set of EAGLE 5 systems with the CMI Usergroup that is being created. The elements in the Select EAGLE(s) pane are described in Table 3: Select EAGLE(s) Pane .
Submit Button	Clicking on this button creates a new CMI Usergroup with the name entered in CMI Usergroup Name . The CMI Functions and Command classes selected in the Select CMI Functions and Select Command Classes panes, respectively are associated with the new CMI Usergroup. The CMI Usergroup Management appears and the newly created CMI Usergroup is listed.
Cancel Button	Clicking on this button cancels the creation of the new CMI Usergroup and the CMI Usergroup Management appears.

Table 1: Select CMI Functions Pane

Element	Description
Available Column	This column lists all of the CMI functions that are available to be associated with a CMI Usergroup. One or more CMI functions can be selected from this list.
>> Button	Clicking on this button associates all of the CMI functions in the Available list with the CMI Usergroup that is being created.
> Button	Clicking on this button associates the CMI functions that were selected in the Available list with the CMI Usergroup that is being created.
<< Button	Clicking on this button causes the CMI functions that are selected in the Selected column to be removed from that column and therefore not associated with the CMI Usergroup that is being created.
< Button	Clicking on this button causes all of the CMI functions in the Selected column to be removed from that column and therefore not associated with the CMI Usergroup that is being created.
Selected Column	This column lists the CMI functions that you selected to be associated with the CMI Usergroup that is being created. If CMI functions were selected but should not be associated with the CMI Usergroup, they can be selected from this column and removed using either the < button or << button in the Select CMI Functions pane.

Element	Description
Note: The Create Script Function is also used to control the right to modify CMI command scripts. That is, if an EMS User is associated with a CMI Usergroup that allows that EMS User to create CMI command scripts, that EMS User can also modify CMI command scripts. If the EMS User is associated with a CMI Usergroup that prohibits that EMS User from creating CMI command scripts, that EMS User is also prohibited from modifying CMI command scripts.	

Table 2: Select Command Classes Pane

Element	Description
Available Column	This column lists all of the EAGLE 5 command classes and CMI command classes that are available to be associated with a CMI Usergroup. One or more command classes can be selected from this list.
>> Button	Clicking on this button associates all of the EAGLE 5 command classes and CMI command classes in the Available list with the CMI Usergroup that is being created.
> Button	Clicking on this button associates the EAGLE 5 command classes and CMI command classes that were selected in the Available list with the CMI Usergroup that is being created.
<< Button	Clicking on this button causes all of the EAGLE 5 command classes and CMI command classes in the Selected column to be removed from that column and therefore not associated with the CMI Usergroup that is being created.
< Button	Clicking on this button causes the EAGLE 5 command classes and CMI command classes that are selected in the Selected column to be removed from that column and therefore not associated with the CMI Usergroup that is being created.
Selected Column	This column lists the EAGLE 5 command classes and CMI command classes that you selected to be associated with the CMI Usergroup that is being created. If EAGLE 5 command classes or CMI command classes were selected but should not be associated with the CMI Usergroup, they can be selected from this column and removed using either the < button or << button in the Select CMI Command Classes pane.
Note: CMI command scripts belonging to EMS Users that are associated with CMI Usergroups that allow access to all EAGLE 5 commands and all connected EAGLE 5 systems are not validated to ensure that the EMS User has access to the EAGLE 5 commands and EAGLE 5 systems, as described in Creating a CMI Command Script and Modifying a CMI Command Script .	

Table 3: Select EAGLE(s) Pane

Element	Description
Available Column	This column lists all of the EAGLE 5 systems that are connected to the EAGLE EMS and available to be accessed by EMS Users.
>> Button	Clicking on this button associates all of the EAGLE 5 systems in the Available column with the CMI Usergroup that is being created.
> Button	Clicking on this button associates the EAGLE 5 systems that were selected in the Available column with the CMI Usergroup that is being created.
<< Button	Clicking on this button causes all of the EAGLE 5 systems in the Selected column to be removed from that column and therefore not associated with the CMI Usergroup that is being created. EMS Users associated with this CMI Usergroup will not be permitted to access any EAGLE 5 systems.
< Button	Clicking on this button causes all of the EAGLE 5 systems that are selected in the Selected column to be removed from that column and therefore not associated with the CMI Usergroup that is being created.
Selected Column	This column lists the EAGLE 5 systems that you selected to be associated to be associated with the CMI Usergroup that is being created. If EAGLE 5 systems were selected but should not be associated with the CMI Usergroup, they can be selected from this column and removed using either the < button or << button in the Select EAGLE(s) pane.
Note: CMI command scripts belonging to EMS Users that are associated with CMI Usergroups that allow access to all EAGLE 5 commands and all connected EAGLE 5 systems are not validated to ensure that the EMS User has access to the EAGLE 5 commands and EAGLE 5 systems, as described in Creating a CMI Command Script and Modifying a CMI Command Script .	

Table 4: Submit/Cancel Buttons

Element	Description
Submit Button	Clicking on this button creates a new CMI Usergroup with the name entered in the CMI Usergroup Name field. The new CMI Usergroup is associated with the following: <ul style="list-style-type: none"> • CMI Functions in the Selected column of the Select CMI Functions pane • Command classes in the Selected column of the Select Command Classes pane The CMI Usergroup Management appears and the newly created CMI Usergroup is listed.

Element	Description
Cancel Button	Clicking on this button aborts the creation of the new CMI Usergroup and the <i>CMI Usergroup Management</i> re-appears.

View CMI Usergroup

The View CMI Usergroup page is accessed by clicking on a **View** link in the *CMI Usergroup Management*. An example of this page is shown in *Figure 64: View CMI Usergroup Page*.

The screenshot shows a Windows Internet Explorer window titled "Command Manager Interface - Windows Internet Explorer". The URL is http://10.250.33.10:3000/cm_home.php. The page header includes the TEKELEC logo, the title "Command Manager Interface", and a user session "User: netboss! Change Password | Sign Out". On the left, there is a navigation sidebar with links like "Send Command", "Run Script", "Cron Job", "View Logs", "CMI Admin", "Command Class Mgmt", and "Activity Logs". The main content area is titled "View CMI Usergroup" and shows a table for the usergroup "UG2". The table has four columns: "CMI Functions" (listing "Create Script", "Execute Script", and "Send Command"), "EAGLE(s)" (listing "stpa1210701"), "Command Classes" (listing "CC1"), and "EMS Users" (listing "test1"). A "Back" button is at the bottom of the content area.

Figure 64: View CMI Usergroup Page

This page is accessed while performing the following procedure: *Viewing a CMI Usergroup*.

View CMI Usergroup Page Elements

Element	Description
CMI Usergroup Name Field	This field contains the name of the CMI Usergroup for which information appears.
CMI Functions Column	This column lists the CMI functions with which the CMI Usergroup identified in the CMI Usergroup Name field is associated.

Element	Description
EAGLE(s) Column	This column lists the EAGLE 5 systems with which the CMI Usergroup identified in the CMI Usergroup Name field is associated.
Command Classes Column	This column lists the EAGLE 5 command classes and CMI command classes with which the CMI Usergroup identified in the CMI Usergroup Name field is associated.
EMS Users Column	This column lists the EMS Users with which the CMI Usergroup identified in the CMI Usergroup Name field is associated.
Back Button	Clicking on this button will return to the <i>CMI Usergroup Management</i> .

Modify CMI Usergroup

The **Modify CMI Usergroup** page is accessed by clicking on a **Modify** link in the [*CMI Usergroup Management*](#). An example of this page is shown in [*Figure 65: Modify CMI Usergroup Page*](#).



Figure 65: Modify CMI Usergroup Page

This page is accessed while performing the following procedure: [Modifying a CMI Usergroup](#).

Modify CMI Usergroup Page Elements

Element	Description
CMI Usergroup Name Field	This field contains the name of the CMI Usergroup that is being modified.
Select CMI Functions Pane	This pane is used to associate CMI functions with the CMI Usergroup that is being modified. The elements in the Select CMI Functions pane are described in Table 5: Select CMI Functions Pane .
Select Command Classes Pane	This pane is used to associate EAGLE 5 command classes and CMI command classes with the CMI Usergroup that is being modified.

Element	Description
	The elements in the Select Command Classes pane are described in Table 6: Select Command Classes Pane .
EAGLE(s) Column	This pane is used to associate EAGLE 5 systems with the CMI Usergroup that is being modified. The elements in the Select EAGLE(s) are described in Table 7: Select EAGLE(s) Pane .
Submit Button	Clicking on this button modifies the CMI Usergroup identified by the name entered in CMI Usergroup Name . The CMI Functions and Command classes associated with the CMI Usergroup are those selected in the Select CMI Functions and Select Command Classes panes, respectively. The CMI Usergroup Management appears.
Cancel Button	Clicking on this button cancels the modification of the CMI Usergroup and the CMI Usergroup Management appears.

Table 5: Select CMI Functions Pane

Element	Description
Available Column	This column lists all of the CMI functions that are available to be associated with a CMI Usergroup. One or more CMI functions can be selected from this list by clicking on each desired function while holding the <Ctrl> key on the keyboard down.
>> Button	Clicking on this button associates all of the CMI functions in the Available list with the CMI Usergroup that is being modified.
> Button	Clicking on this button associates the CMI functions that were selected in the Available list with the CMI Usergroup that is being modified.
< Button	Clicking on this button causes the CMI functions that are selected in the Selected column to be removed from that column and therefore not associated with the CMI Usergroup that is being modified.
<< Button	Clicking on this button causes all of the CMI functions in the Selected column to be removed from that column and therefore not associated with the CMI Usergroup that is being modified.
Selected Column	This column lists the CMI functions that you selected to be associated with the CMI Usergroup that is being modified. If CMI functions were selected but should not be associated with the CMI Usergroup, they can be selected from this column and removed using either the < button or << button in the Select CMI Functions pane.
Note: The Create Script Function is also used to control the right to modify CMI command scripts. That is, if an EMS User is associated with a CMI Usergroup that allows that EMS User to create CMI command scripts, that EMS User can also modify CMI command scripts. If the EMS User is associated with a CMI Usergroup that prohibits that EMS User from creating CMI command scripts, that EMS User is also prohibited from modifying CMI command scripts.	

Table 6: Select Command Classes Pane

Element	Description
Available Column	This column lists all of the EAGLE 5 command classes and CMI command classes that are available to be associated with a CMI Usergroup. One or more command classes can be selected from this list by clicking on each desired command class while holding the <Ctrl> key on the keyboard down.
>> Button	Clicking on this button associates all of the EAGLE 5 command classes and CMI command classes in the Available list with the CMI Usergroup that is being modified.
> Button	Clicking on this button associates the EAGLE 5 command classes and CMI command classes that were selected in the Available list with the CMI Usergroup that is being modified.
< Button	Clicking on this button causes the EAGLE 5 command classes and CMI command classes that are selected in the Selected column to be removed from that column and therefore not associated with the CMI Usergroup that is being modified.
<< Button	Clicking on this button causes all of the EAGLE 5 command classes and CMI command classes in the Selected column to be removed from that column and therefore not associated with the CMI Usergroup that is being modified.
Selected Column	This column lists the EAGLE 5 command classes and CMI command classes that you selected to be associated with the CMI Usergroup that is being modified. If EAGLE 5 command classes or CMI command classes were selected but should not be associated with the CMI Usergroup, they can be selected from this column and removed using either the < button or << button in the Select CMI Command Classes pane.
Note: CMI command scripts belonging to EMS Users that are associated with CMI Usergroups that allow access to all EAGLE 5 commands and all connected EAGLE 5 systems are not validated to ensure that the EMS User has access to the EAGLE 5 commands and EAGLE 5 systems, as described in Creating a CMI Command Script and Modifying a CMI Command Script .	

Table 7: Select EAGLE(s) Pane

Element	Description
Available Column	This column lists all of the EAGLE 5 systems that are connected to the EAGLE EMS and available to be accessed by EMS Users.
>> Button	Clicking on this button associates all of the EAGLE 5 systems in the Available column with the CMI Usergroup that is being modified.

Element	Description
> Button	Clicking on this button associates the EAGLE 5 systems that were selected in the Available column with the CMI Usergroup that is being modified.
<< Button	Clicking on this button causes all of the EAGLE 5 systems in the Selected column to be removed from that column and therefore not associated with the CMI Usergroup that is being modified. EMS Users associated with this CMI Usergroup will not be permitted to access any EAGLE 5 systems.
< Button	Clicking on this button causes all of the EAGLE 5 systems that are selected in the Selected column to be removed from that column and therefore not associated with the CMI Usergroup that is being created.
Selected Column	This column lists the EAGLE 5 systems that you selected to be associated to be associated with the CMI Usergroup that is being modified. If EAGLE 5 systems were selected but should not be associated with the CMI Usergroup, they can be selected from this column and removed using either the < button or << button in the Select EAGLE(s) pane.
Note: CMI command scripts belonging to EMS Users that are associated with CMI Usergroups that allow access to all EAGLE 5 commands and all connected EAGLE 5 systems are not validated to ensure that the EMS User has access to the EAGLE 5 commands and EAGLE 5 systems, as described in Creating a CMI Command Script and Modifying a CMI Command Script .	

Change Password

The **Change Password** page is accessed by clicking on the **Change Password** link at the top of any Command Manager Interface page. An example of this page is shown in [Figure 66: Change Password Page](#).

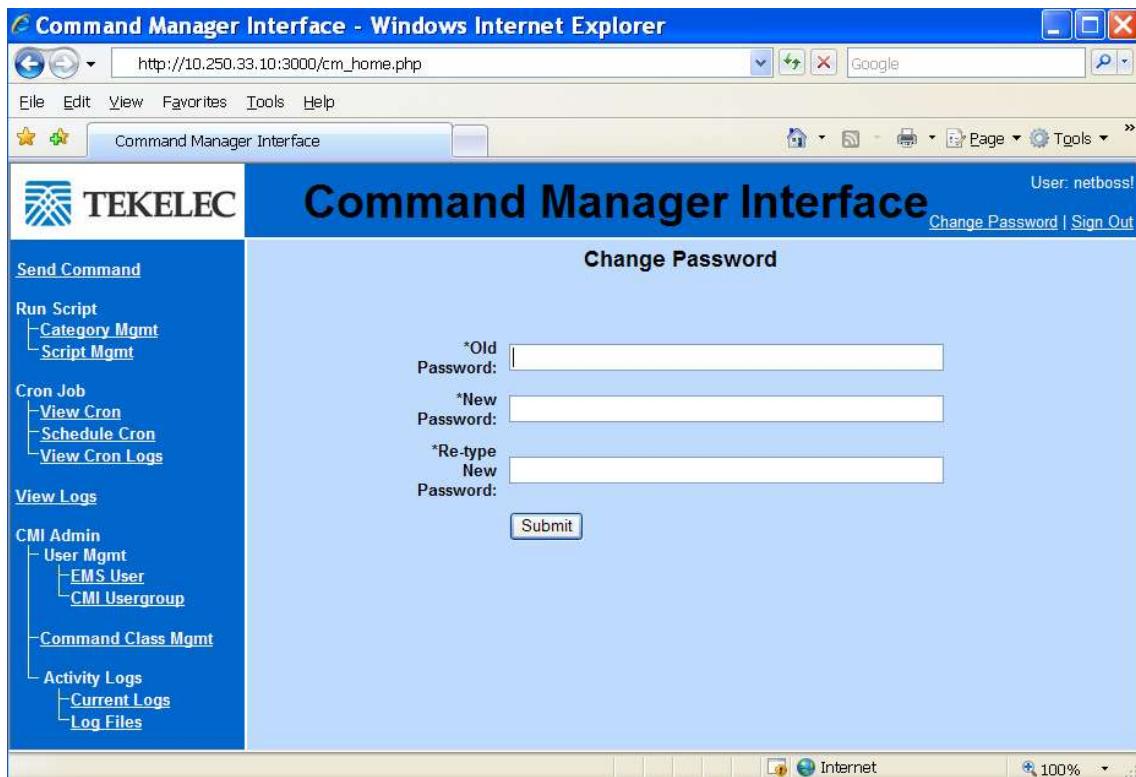


Figure 66: Change Password Page

This page is accessed while performing the following procedure: [Changing an EMS User Password](#).

Change Password Page Elements

Element	Description
Old Password Field	Enter your old password in this field.
New Password Field	Enter your new password in this field. Valid CMI passwords must meet the following constraints: <ul style="list-style-type: none"> • Passwords must have a minimum of 4 characters. • Only alphanumeric characters(0-9, a-z, A-Z) are allowed.
Re-Type New Password Field	Re-enter the same new password that was entered in the New Password field.
Submit Button	Clicking on this button changes your password from the one entered in the Old Password field to the one entered in both the New Password and Re-Type New Password fields. If an error was discovered with any of the information entered, an error message is displayed above the Old Password field.

Command Class Management

The **Command Class Management** page is accessed by clicking on the **Command Class Mgmt** link in the main menu on the left side of the Command Manager Interface page. An example of this page is shown in *Figure 67: Command Class Management Page*.

The screenshot shows a Windows Internet Explorer window with the title bar "Command Manager Interface - Windows Internet Explorer". The address bar shows the URL "http://10.250.33.10:3000/cm_home.php". The page content is titled "Command Manager Interface" and "Command Class Management". On the left, there is a navigation menu with the following items:

- Send Command
- Run Script
 - [Category Mgmt](#)
 - [Script Mgmt](#)
- Cron Job
 - [View Cron](#)
 - [Schedule Cron](#)
 - [View Cron Logs](#)
- [View Logs](#)
- CMI Admin
 - [User Mgmt](#)
 - [EMS User](#)
 - [CMI Usergroup](#)
 - [Command Class Mgmt](#)
- Activity Logs
 - [Current Logs](#)
 - [Log Files](#)

The main content area displays a table titled "Command Class Management" with the following data:

Command Class	Type	Actions		
BASIC	Default	View	Modify	Delete
DATABASE	Default	View	Modify	Delete
LINK MAINT	Default	View	Modify	Delete
PROGRAM UPDATE	Default	View	Modify	Delete
SECURITY ADMIN	Default	View	Modify	Delete
SYSTEM MAINT	Default	View	Modify	Delete
CC1	Custom	View	Modify	Delete

A "Create Command Class" button is located at the bottom of the table.

Figure 67: Command Class Management Page

This page is accessed while performing the following procedures:

- [Creating a CMI Command Class](#)
- [Viewing a CMI Command Class](#)
- [Modifying a CMI Command Class](#)
- [Deleting a CMI Command Class](#)

Command Class Management Page Elements

Element	Description
Command Class Column	This column lists all of the EAGLE 5 command classes and the CMI command classes. EAGLE 5 command classes are defined by the EAGLE 5 release with which this release of CMI is associated.
Type Column	The entries in this column indicate whether the command class on the same line is an EAGLE 5 command class or a CMI command

Element	Description
	class. EAGLE 5 command classes are listed as "Default". CMI command classes are listed as "Custom".
Actions Column	<p>The following Actions can be performed for a Command Class:</p> <ul style="list-style-type: none"> • View Clicking on the View link allows you to view the EAGLE 5 commands and CMI Usergroups associated with the command class listed on the same line. The View Command Class appears. • Modify Clicking on the Modify link allows you to modify the EAGLE 5 commands associated with the command class on the same line. The Modify CMI Command Class Page Elements Modify CMI Command Class appears. • Delete Clicking on the Delete link allows you to delete the command class on the same line. Note: Before a CMI command class can be deleted, all associations between CMI Usergroups and that CMI command class must be deleted. This can be accomplished with the following procedure: Modifying a CMI Usergroup. Note: The Modify and Delete links are inactive (greyed out) for the EAGLE 5 command classes. These command classes cannot be changed or deleted.
Create Command Class Button	Clicking on the Create Command Class button allows you to create a new CMI command class. The Create CMI Command Class appears.

Create CMI Command Class

The **Create CMI Command Class** page is accessed by clicking on the **Create Command Class** button on the [Command Class Management](#). An example of this page is shown in [Figure 68: Create Command Class Page](#).

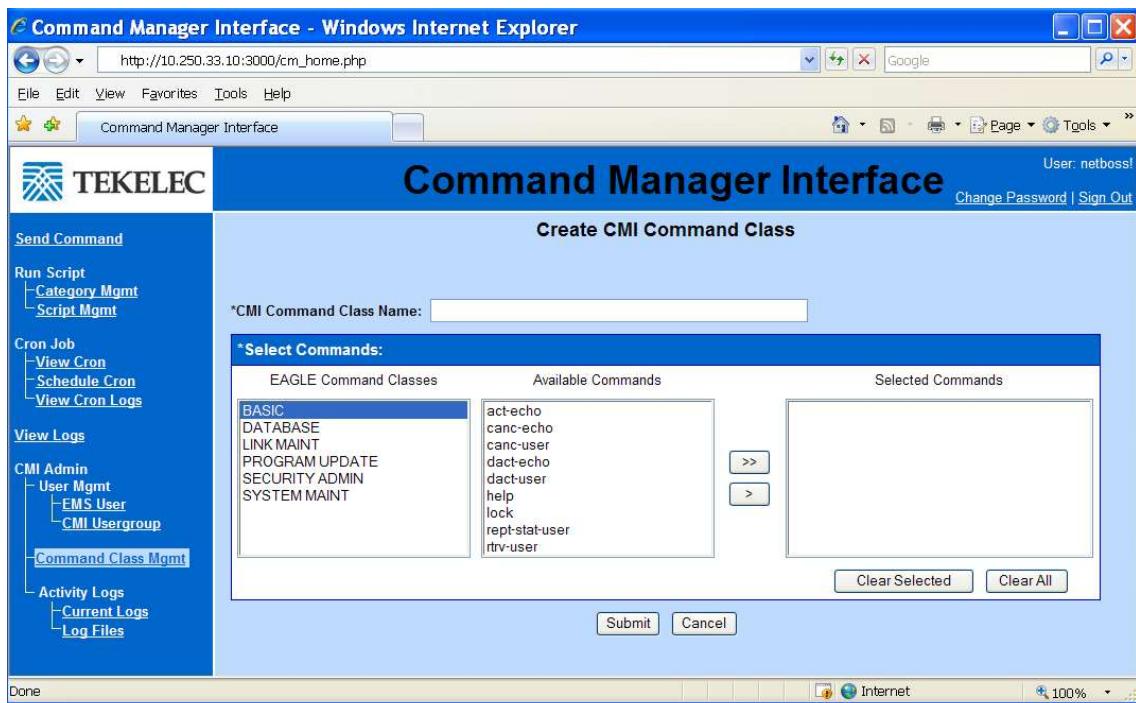


Figure 68: Create Command Class Page

This page is accessed while performing the following procedure: [Creating a CMI Command Class](#).

Create CMI Command Class Page Elements

Element	Description
CMI Command Class Name Field	Enter the name of the new Command Class to be created in this field. CMI Command Class names must meet the following requirements: <ul style="list-style-type: none"> The name must be unique within the Command Manager Interface. The name must have at least 3 characters. Only alphanumeric characters (0-9, a-z, A-Z) and spaces are allowed.
Select Commands Pane	This pane is used to select the EAGLE 5 commands to associate with the new CMI command class.
EAGLE Command Classes Column	This column lists all of the EAGLE 5 command classes defined for the associated EAGLE 5 release. Selecting a command class from this list causes the EAGLE 5 commands associated with that command class to populate the Available Commands column.
Available Commands Column	This column lists all of the EAGLE 5 commands defined for the EAGLE 5 command class selected in the EAGLE Command Classes

Element	Description
	column. One or more EAGLE 5 commands can be selected in this column and associated with the CMI command class that is being created using either the >> or > button.
>> Button	Clicking on the >> button causes all of the EAGLE 5 commands listed in the Available Commands column to be added to the Selected Commands column.
> Button	Clicking on the > button causes the selected EAGLE 5 commands from the Available Commands column to be added to the Selected Commands column.
Selected Commands Column	This column contains the list of EAGLE 5 commands that are to be associated with the CMI command class that is being created. If EAGLE 5 commands were selected but should not be associated with the created CMI command class, they can be selected from this column and removed using either the Clear Selected button or Clear All button.
Clear Selected Button	Clicking on this button causes the EAGLE 5 commands that are selected in the Selected column to be removed from that column and therefore not associated with the CMI command class that is being created.
Clear All Button	Clicking on this button causes all of the EAGLE 5 commands in the Selected column to be removed from that column and therefore not associated with the CMI command class that is being created.
Submit Button	Clicking on this button creates a new CMI command class with the name entered in the CMI Command Class Name field. The EAGLE 5 commands listed in the Selected column are associated with the new CMI command class. The <i>Command Class Management</i> appears and the newly created CMI command class is listed.
Cancel Button	Clicking on this button aborts the creation of the new CMI command class and the <i>Command Class Management</i> appears.

View Command Class

The **View Command Class** page is accessed by clicking on a **View** link in the *Command Class Management*. An example of this page is shown in *Figure 69: View Command Class Page*.

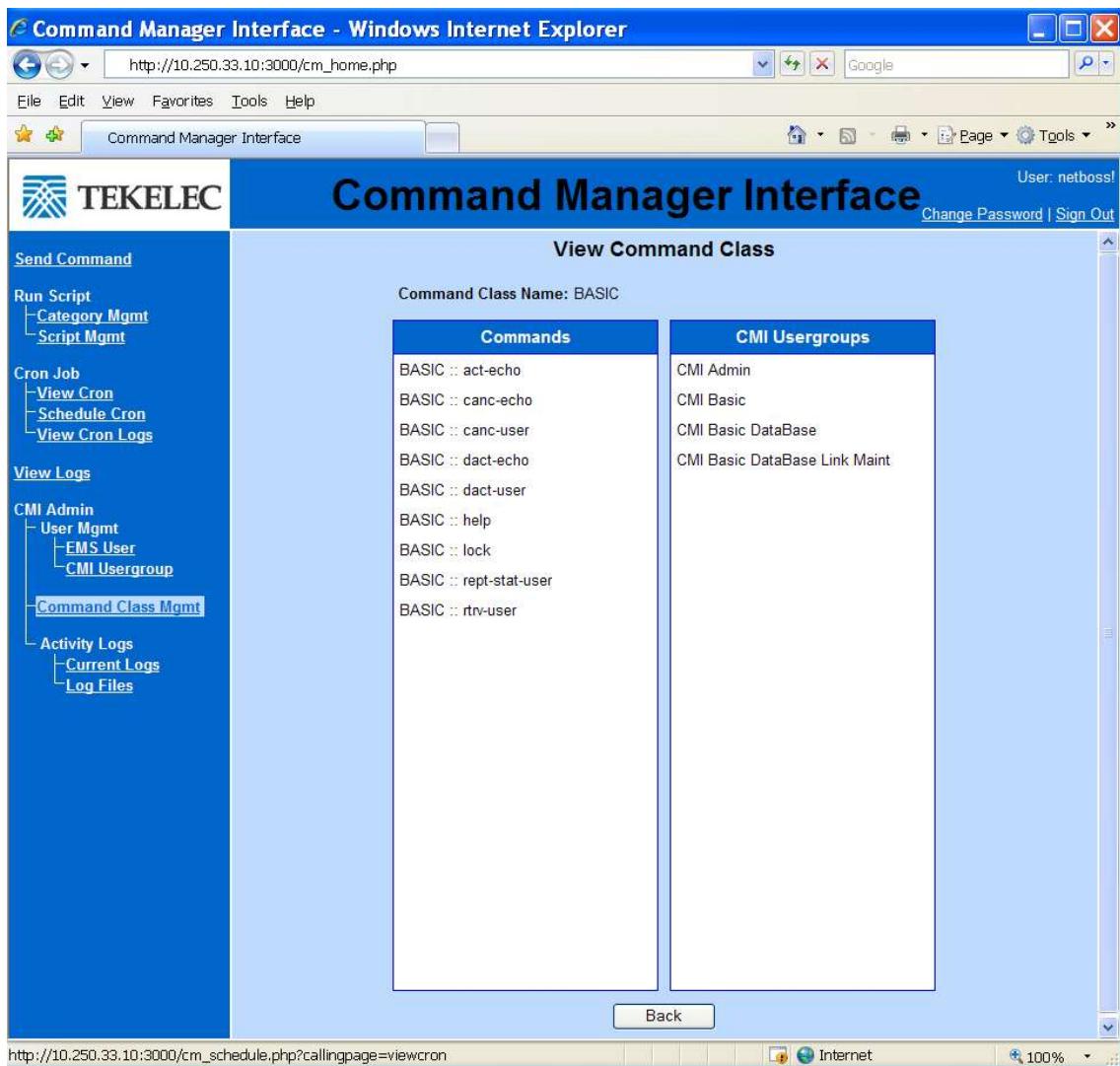


Figure 69: View Command Class Page

This page is accessed while performing the following procedure: [Viewing a CMI Command Class](#).

View CMI Command Class Page Elements

Element	Description
Command Class Name Field	This field contains the name of the CMI command class for which information is being presented.
Commands Column	This column lists the EAGLE 5 commands (and their respective EAGLE 5 command classes) with which the CMI command class identified in the Command Class Name field is associated. This information is presented in the following format: <EAGLE 5 command class>::: <EAGLE 5 command>

Element	Description
	Note: The command classes listed in this column are the EAGLE 5 command classes that correspond to the commands. The command class for which information is presented may be a CMI command class or an EAGLE 5 command class. EAGLE 5 commands belong to only one EAGLE 5 command class and may also belong to a CMI command class.
CMI Usergroups Column	This column lists the CMI Usergroups with which the command class identified in the Command Class Name field is associated.
Back Button	Clicking on this button causes the <i>Command Class Management Page Elements</i> to appear.

Modify CMI Command Class

The **Modify CMI Command Class** page is accessed by clicking on the **Modify** link on the *Command Class Management*. An example of this page is shown in *Figure 70: Modify CMI Command Class Page*.

The screenshot shows a Windows Internet Explorer window titled "Command Manager Interface - Windows Internet Explorer". The URL in the address bar is "http://10.250.33.10:3000/cm_home.php". The browser toolbar includes Back, Forward, Stop, Refresh, Home, Page, Tools, and a search field. The title bar says "Command Manager Interface". The top right shows "User: netboss!", "Change Password", and "Sign Out". The main content area has a blue header "Command Manager Interface". On the left is a sidebar menu with items like Send Command, Run Script, Category Mgmt, Script Mgmt, Cron Job, View Cron, Schedule Cron, View Cron Logs, View Logs, CMI Admin (User Mgmt, EMS User, CMI Usergroup), Command Class Mgmt, and Activity Logs (Current Logs, Log Files). The main content area has a title "Modify CMI Command Class". It contains a form with a field "*CMI Command Class Name: Test 1". Below it is a section titled "*Select Commands:" with three columns: "EAGLE Command Classes" (listing BASIC, DATABASE, LINK MAINT, PROGRAM UPDATE, SECURITY ADMIN, SYSTEM MAINT), "Available Commands" (listing act-echo, canc-echo, canc-user, dact-echo, dact-user, help, lock, rept-stat-user, rtrv-user), and "Selected Commands" (listing BASIC::act-echo, BASIC::canc-echo, BASIC::canc-user, BASIC::dact-echo, BASIC::dact-user, BASIC::help, BASIC::lock, BASIC::rept-stat-user, BASIC::rtrv-user). There are "">>>>

Figure 70: Modify CMI Command Class Page

This page is accessed while performing the following procedure: *Modifying a CMI Command Class*.

Modify CMI Command Class Page Elements

Element	Description
CMI Command Class Name Field	<p>This field contains the name of the CMI command class to be modified. If the name of the CMI command class is to be changed, a new name can be entered in this field. CMI command class names must meet the following constraints:</p> <ul style="list-style-type: none"> • The name must be unique. • The name must have at least 3 characters • Only alphanumeric characters (0-9, a-z, A-Z) and spaces are allowed.
Select Commands Pane	<p>This pane is used to select the EAGLE 5 commands to associate with the CMI command class identified in the CMI Command Class Name field.</p>
EAGLE Command Classes Column	<p>This column lists all of the EAGLE 5 command classes defined for the associated EAGLE 5 release. Selecting a command class from this list causes the EAGLE 5 commands associated with that command class to populate the Available Commands column.</p>
Available Commands Column	<p>This column lists all of the EAGLE 5 commands defined for the EAGLE 5 command class selected in the EAGLE Command Classes column. One or more EAGLE 5 commands can be selected in this column and associated with the CMI command class being modified using either the >> or > button.</p>
>> Button	<p>Clicking on the >> button causes all of the EAGLE 5 commands listed in the Available Commands column to be added to the Selected Commands column.</p>
> Button	<p>Clicking on the > button causes the selected EAGLE 5 commands from the Available Commands column to be added to the Selected Commands column.</p>
Selected Commands Column	<p>This column contains the list of EAGLE 5 commands that are to be associated with the CMI command class that is being modified. If EAGLE 5 commands were selected but should not be associated with the modified CMI command class, they can be selected from this column and removed using either the Clear Selected button or Clear All button.</p>
Clear Selected Button	<p>Clicking on this button causes the EAGLE 5 commands that are selected in the Selected column to be removed from that column and therefore not associated with the CMI command class that is being modified.</p>
Clear All Button	<p>Clicking on this button causes all of the EAGLE 5 commands in the Selected column to be removed from that column and therefore not associated with the CMI command class that is being modified.</p>

Element	Description
Submit Button	Clicking on this button modifies CMI command class identified in the CMI Command Class Name field. The EAGLE 5 commands listed in the Selected column are associated with the modified CMI command class. The <i>Command Class Management</i> appears and, if the command class name was changed, the new name appears in the table.
Cancel Button	Clicking on this button cancels the modification of the CMI command class and the <i>Command Class Management</i> appears.

Send Command

The **Send Command** page is accessed by clicking on the **Send Command** link in the main menu on the left side of the Command Manager Interface page. An example of this page is shown in [Figure 71: Send Command Page](#).

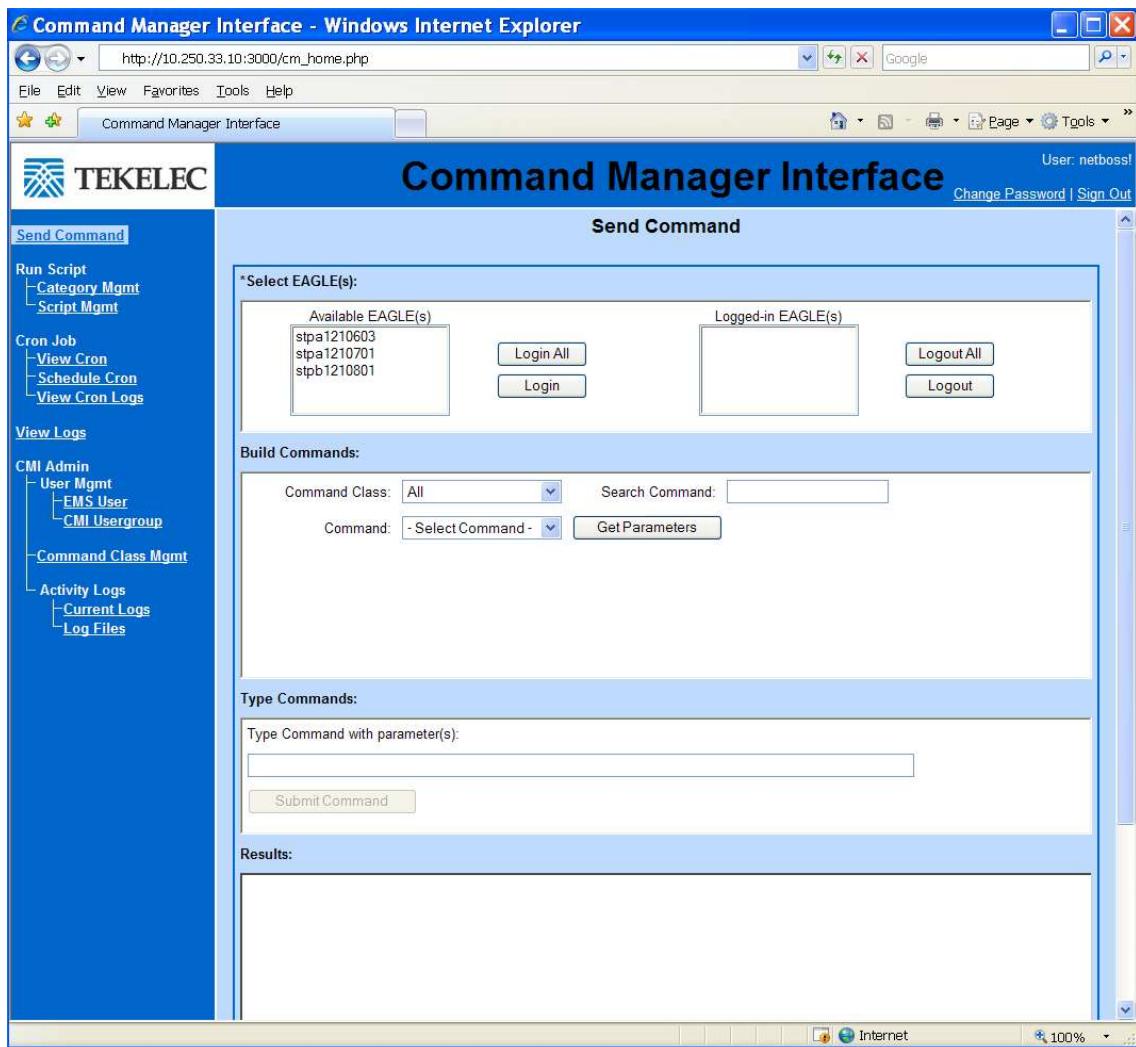


Figure 71: Send Command Page

This screen is accessed in the execution of the following procedures:

- *Sending a Command to One or More EAGLE 5 Systems Using Menus*
- *Sending a Command to One or More EAGLE 5 Systems Without Using Menus*

Send Command Page Elements

Element	Description
Select EAGLE(s) Pane	This pane is used to select the EAGLE 5 systems to which a command is sent. Before sending a command to an EAGLE 5 system, you must be logged in to that system. The elements contained in this pane are described in Table 8: Select EAGLE(s) Pane .

Element	Description
Build Commands Pane	This pane is used to build EAGLE 5 commands using menus. The elements described in this pane are described in Table 9: Build Commands Pane .
Type Commands Pane	This pane is used when you know the exact command (including its syntax) to send.
Type Command with Parameter(s) Field	Enter a well-formed EAGLE 5 command in the Type Command with Parameter(s) field. If an incorrectly-formed command is entered and submitted for execution, the error is reported in the Results pane. As soon as any characters are entered, The Submit Command button becomes active.
Submit Command Button	Clicking this button in the Type Commands pane causes the EAGLE 5 command entered in the Type Command with Parameter(s) field to be sent to the EAGLE 5 systems identified in the Logged-In EAGLE(s) list in the Select EAGLE(s) pane.
Results Pane	This pane displays the results of logging in to the EAGLE 5 systems in the Select EAGLE(s) pane and the results of the command submitted from either the Build Commands Pane or the Type Commands Pane. Note: The Results pane is cleared when a new command is entered either in the Build Comands pane or Type Commands pane.

Table 8: Select EAGLE(s) Pane

Element	Description
Available EAGLE(s) List	This list contains an entry for each of the EAGLE 5 systems that you are authorized to access.
Login All Button	Clicking on this button causes the CMI to log in to all of the EAGLE 5 systems listed in the Available EAGLE(s) list.
Login Button	Clicking on this button causes the CMI to log in to the EAGLE 5 systems that are selected in the Available EAGLE(s) list.
Logged-In EAGLE(s) List	This list contains an entry for each EAGLE 5 system to which the CMI is currently logged in.
Logout All Button	Clicking on this button causes the CMI to log out of all of the EAGLE 5 systems to which it is currently logged in.

Element	Description
Logout Button	Clicking on this button causes the CMI to log out of the EAGLE 5 systems that are selected in the Logged-In EAGLE(s) list.

Table 9: Build Commands Pane

Element	Description
Command Class	This field contains a drop-down list of all of the command classes that you are authorized to access. This list includes EAGLE 5 command classes and CMI command classes. By selecting a command class from this list, the list of commands listed in the Command field is narrowed to include only the EAGLE 5 commands defined for the selected command class. Selecting All will cause all of the EAGLE 5 commands to which this EMS User has access to appear in the drop-down list in the Command field.
Search Command field	Typing the first part of an EAGLE 5 command name in this field will cause the EAGLE 5 command starting with these characters to appear in the Command field.
Command Field	This field contains a drop-down list of all of the EAGLE 5 commands associated with the command class selected in the Command Class field that you are authorized to access.
Get Parameters Button	Clicking this button causes the mandatory and optional parameters of the EAGLE 5 command selected in the Command field to appear. When the Get Parameters button is clicked, a link to the help document that describes this command appears. The help document is excerpted from the <i>EAGLE 5 Commands Manual</i> .
<command parameters>	<p>After the Get Parameters button is clicked, the mandatory and optional parameters appear. Values may be selected for each parameter from the provided drop-down value lists. Typing a single character narrows the parameter value choices to those that start with that character. Re-typing that character will move the selection through the list of values that start with that character.</p> <p>Values must be provided for all mandatory parameters. The Command Manager Interface saves the parameter values for the previous 20 commands entered into the Build Commands pane during the current EMS User session.</p> <p>Note: Depending on the configuration the EAGLE 5 system(s) being managed, some parameters may appear as optional, but in fact, be mandatory. This is because certain EAGLE 5 features require that some commands have additional mandatory parameters. A complete explanation of these dependencies can be viewed by</p>

Element	Description
	clicking on the Help Document link on the right side of the Build Commands pane.
Help Document Link	<p>After an EAGLE 5 command has been selected in the Command field and the Get Parameters button is clicked, a link to the Help Document for that command appears. By clicking on the link, the <i>EAGLE 5 Commands Manual</i> information about the command identified in the Command field is presented.</p> <p>Note: The <i>EAGLE 5 ISS Commands Manual</i> is the definitive guide to EAGLE 5 command syntax and usage.</p>
Submit Command Button	<p>Clicking this button causes the EAGLE 5 command entered in the Command field and parameter values listed below that command to be sent to the EAGLE 5 systems in the Logged-In EAGLE(s) list in the Select EAGLE(s) pane.</p>

Script Management Page

The **Script Management** page is accessed by clicking on the **Script Mgmt** link in the main menu on the left side of the Command Manager Interface page. An example of this page is shown in [Figure 72: Script Management Page](#).

Script Management

Script	Category	Actions				
cocoanut_interface.php Last Modified: 2009-06-04 15:27:04	Default	View	Modify	Execute	Schedule	Delete
cocoanut_interface_commands.php Last Modified: 2009-06-04 15:10:20	Default	View	Modify	Execute	Schedule	Delete
cocoanutinterface.php Last Modified: 2009-06-04 15:29:19	Default	View	Modify	Execute	Schedule	Delete
newtest.php Last Modified: 2009-05-18 12:18:45	Default	View	Modify	Execute	Schedule	Delete
test.php Last Modified: 2009-06-04 15:03:19	Default	View	Modify	Execute	Schedule	Delete
TEST.php Last Modified: 2009-03-30 00:21:02	Default	View	Modify	Execute	Schedule	Delete
test123.php Last Modified: 2009-06-22 04:44:04	Default	View	Modify	Execute	Schedule	Delete

[Create Script](#)

Figure 72: Script Management Page

This page is accessed while executing the following procedures:

- *Creating a CMI Command Script*
- *Viewing a CMI Command Script*
- *Modifying a CMI Command Script*
- *Executing a CMI Command Script*
- *Scheduling a CMI Command Script*
- *Deleting a CMI Command Script*

Script Management Page Elements

Element	Description
Select Owner	Only CMI Administrators can manage scripts for other EMS Users. If you are not a CMI Administrator, your EMS User name appears in this field. If you are a CMI Administrator, this field contains a drop-down list of the names of all of the EMS Users. Selecting an EMS User will cause the CMI to present the CMI command scripts owned by that EMS User in the table.

Element	Description
Select Category	This field contains a drop-down list of the CMI command script categories defined by the EMS User identified in the Select Owner field. Selecting one of these categories narrows the list of CMI command scripts in the table to those belonging to the selected category. A selection of All results in all CMI command scripts for the EMS User to be listed in the table.
Script Column	This column contains an entry for each CMI command script meeting the criteria in the Select Owner and Select Category fields. For each CMI command script, the time of the last modification is also presented.
Category Column	This column lists the category to which the CMI command script on the same line belongs.
Actions Column	<p>The following actions can be performed for a CMI command script:</p> <ul style="list-style-type: none"> • View Clicking on this link allows you to view the CMI command script listed on the same line. The <i>View Script</i> appears. • Modify Clicking on this link allows you to modify the CMI command script listed on the same line. The <i>Modify Script</i> appears. • Execute Clicking on this link begins the process of submitting the CMI command script listed on the same line for execution. The <i>Execute Script</i> appears. • Schedule Clicking on this link allows you to schedule the execution of the CMI command script listed on the same line. The <i>Schedule Cron</i> appears. • Delete Clicking on this link requests the deletion of the command script listed on the same line. A dialog box appears that offers you the opportunity to confirm or cancel this delete operation. <p>Note: If a link in the table is greyed out, it is disabled because the EMS User does not have permission to perform that function. CMI Administrators manage access rights by associating EMS Users with EMS Usergroups, as described in <i>Modifying an EMS User Association</i>.</p>
Create Script Button	Clicking on this button allows you to create a new CMI command script. The <i>Create Script</i> appears.

Create Script

The **Create Script** page is accessed by clicking on the button labeled **Create Script** on the **Script Management** page described in [Script Management Page](#). An example of this screen is shown in [Figure 73: Create Script Page](#).

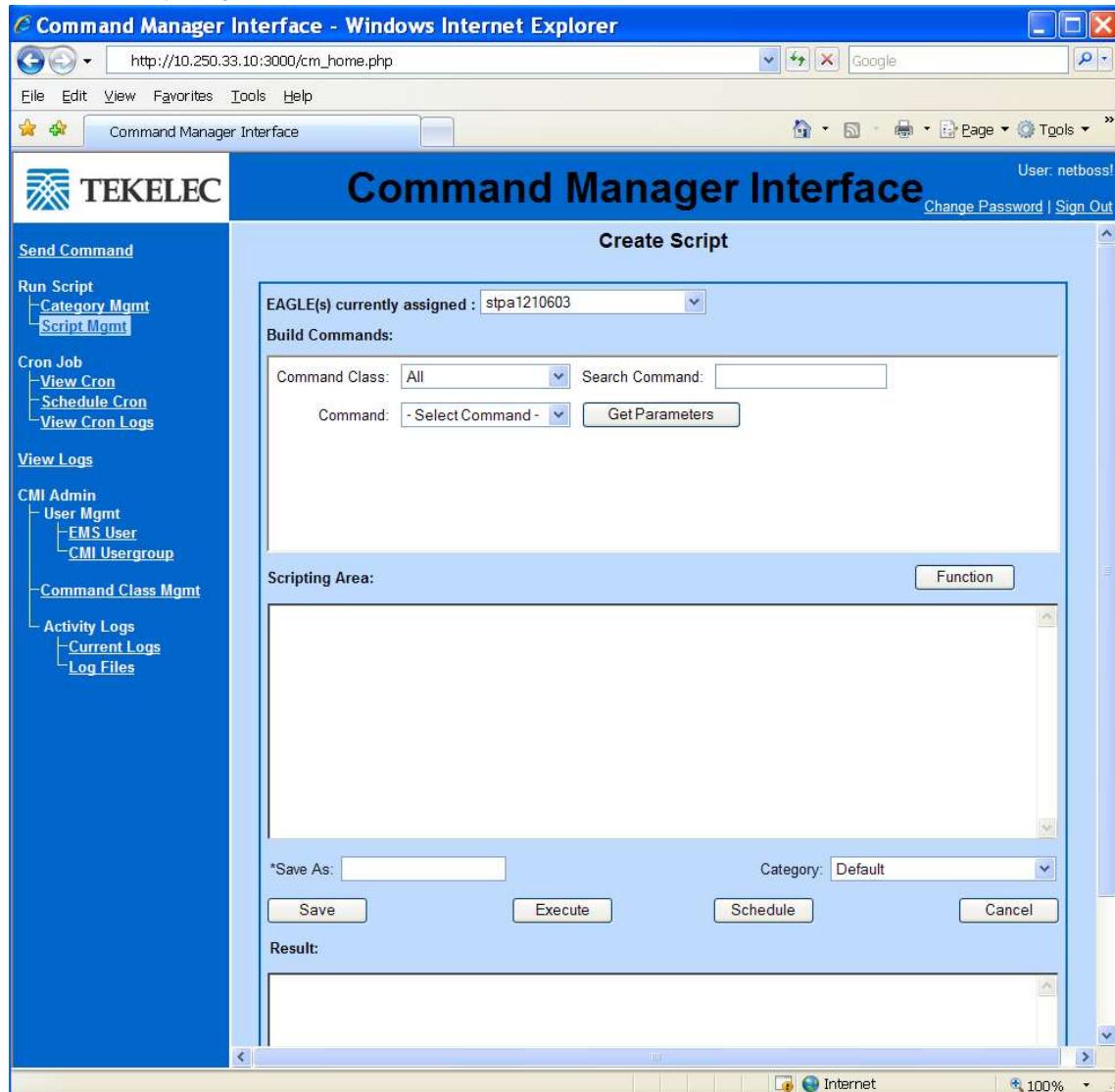


Figure 73: Create Script Page

This page is accessed while performing the following procedure: [Creating a CMI Command Script](#).

Create Script Page Elements

Element	Description
EAGLE(s) currently assigned Field	The drop-down list in this field lists the EAGLE 5 systems that you are authorized to access. If you are not authorized to access any EAGLE 5 systems, "None" will be displayed.
Build Commands Pane	This pane is used to build EAGLE 5 commands using menus. The elements in the Build Commands pane are described in Table 10: Build Commands Pane .
Function Button	Hovering over this button causes the list of API functions provided by the CMI to be listed. Selecting one of these functions, by clicking on the name, causes the function to be entered in the CMI command script at the location marked by the cursor in the Scripting Area pane.
Scripting Area Pane	<p>This pane contains the full text of the CMI command script. Scripts are written in the PHP scripting language and may invoke CMI functions and EAGLE 5 commands. The Scripting Area pane can be edited directly.</p> <p>Note: Variables cannot be substituted for EAGLE 5 command names or CLLI parameters. Literal strings, explicitly specifying the EAGLE 5 command or CLLI name, must be used instead. This restriction does not apply to CMI command scripts created by a CMI administrator or by an EMS User that has access to all EAGLE 5 commands and is authorized to access all EAGLE 5 systems to which the EAGLE EMS is connected.</p>
Save As Field	<p>Enter the name of a new script in this field before clicking the Save button. The script name must meet the following requirements:</p> <ul style="list-style-type: none"> • The name must be unique within the category specified in the Category field. • The name must be at least 3 characters long • Only alphanumeric characters (0-9, a-z, A-Z), underscore (_), hyphen (-), and period (.) are allowed in the CMI command script name. • The CMI command script name must begin with an alpha character (a-z, A-Z).
Category Field	Clicking on this field causes a drop-down list of your CMI command script categories to be presented. By selecting a category from this list, the CMI command script being created is assigned to the selected category.

Element	Description
Save Button	Clicking on this button causes the CMI command script shown in the Scripting Area pane to be saved with the name given in the Save As field and the category listed in the Category field.
Execute Button	Clicking on this button causes the CMI command script shown in the Scripting Area to be executed. After clicking this button, the <i>Execute Script</i> appears. Note: The CMI command script must be saved before it can be executed.
Schedule Button	Clicking on this button enables the CMI command script shown in the Scripting Area to be scheduled for execution. After clicking this button, the <i>Schedule Cron</i> appears.
Cancel Button	Clicking on this button cancels the creation of the new CMI command script and the <i>Script Management Page</i> appears.
Result Pane	This pane contains the result of attempting to save the CMI command script shown in the Scripting Area. Results may include success, syntax errors, duplicate script names, and use of unauthorized EAGLE 5 commands.

Table 10: Build Commands Pane

Element	Description
Command Class	This field contains a drop-down list of all of the command classes that you are authorized to access. This list includes EAGLE 5 command classes and CMI command classes. By selecting a command class from this list, the list of commands listed in the Command field is narrowed to include only the EAGLE 5 commands defined for the selected command class. Selecting All will cause all EAGLE 5 commands to which you have access to appear in the drop-down list in the Command field.
Search Command Field	Typing the first part of an EAGLE 5 command name in this field will cause the EAGLE 5 command starting with these characters to appear in the Command field.
Command Field	This field contains a drop-down list of all of the EAGLE 5 commands associated with the command class selected in the Command Class field that you are authorized to access.
Get Parameters Button	Clicking this button causes the mandatory and optional parameters of the EAGLE 5 command selected in the Command field to appear.

Element	Description
<command parameters>	<p>After the Get Parameters button is clicked, the mandatory and optional parameters appear. Values may be selected for each parameter from the drop-down value list provided. Typing a single character narrows the parameter value choices to those that start with that character. Re-typing that character will move the selection through the list of values that start with that character.</p> <p>The Command Manager Interface saves the parameter values for the previous 20 commands entered into the Build Commands pane during the current EMS User session.</p> <p>Note: Depending on the configuration the EAGLE 5 system(s) being managed, some parameters may be labeled as optional, but in fact, be mandatory. This is because certain EAGLE 5 features require that some commands have additional mandatory parameters. A complete explanation of these dependencies can be viewed by clicking on the Help Document link on the right side of the pane.</p>
'Help Document' Link	<p>After an EAGLE 5 command has been selected in the Command field and the Get Parameters button is clicked, a link to the help document for that command appears. By clicking on the link, information about this command is presented.</p> <p>Note: The <i>EAGLE 5 ISS Commands Manual</i> is the definitive guide to EAGLE 5 command syntax and usage.</p>
Submit Command Button	<p>Clicking on this button causes the command that was built in the Build Commands pane to be entered in the CMI command script at the location marked by the cursor in the Scripting Area pane.</p>
<p>Note: Variables cannot be substituted for EAGLE 5 command names or CLLI parameters. Literal strings, explicitly specifying the EAGLE 5 command or CLLI name, must be used instead. This restriction does not apply to CMI command scripts created by a CMI administrator or by an EMS User that has access to all EAGLE 5 commands and is authorized to access all EAGLE 5 systems to which the EAGLE EMS is connected.</p>	

View Script

The **View Script** page is accessed by clicking on a **View** link on the *Script Management Page*. An example of this page is shown in [Figure 74: View Script Page](#).

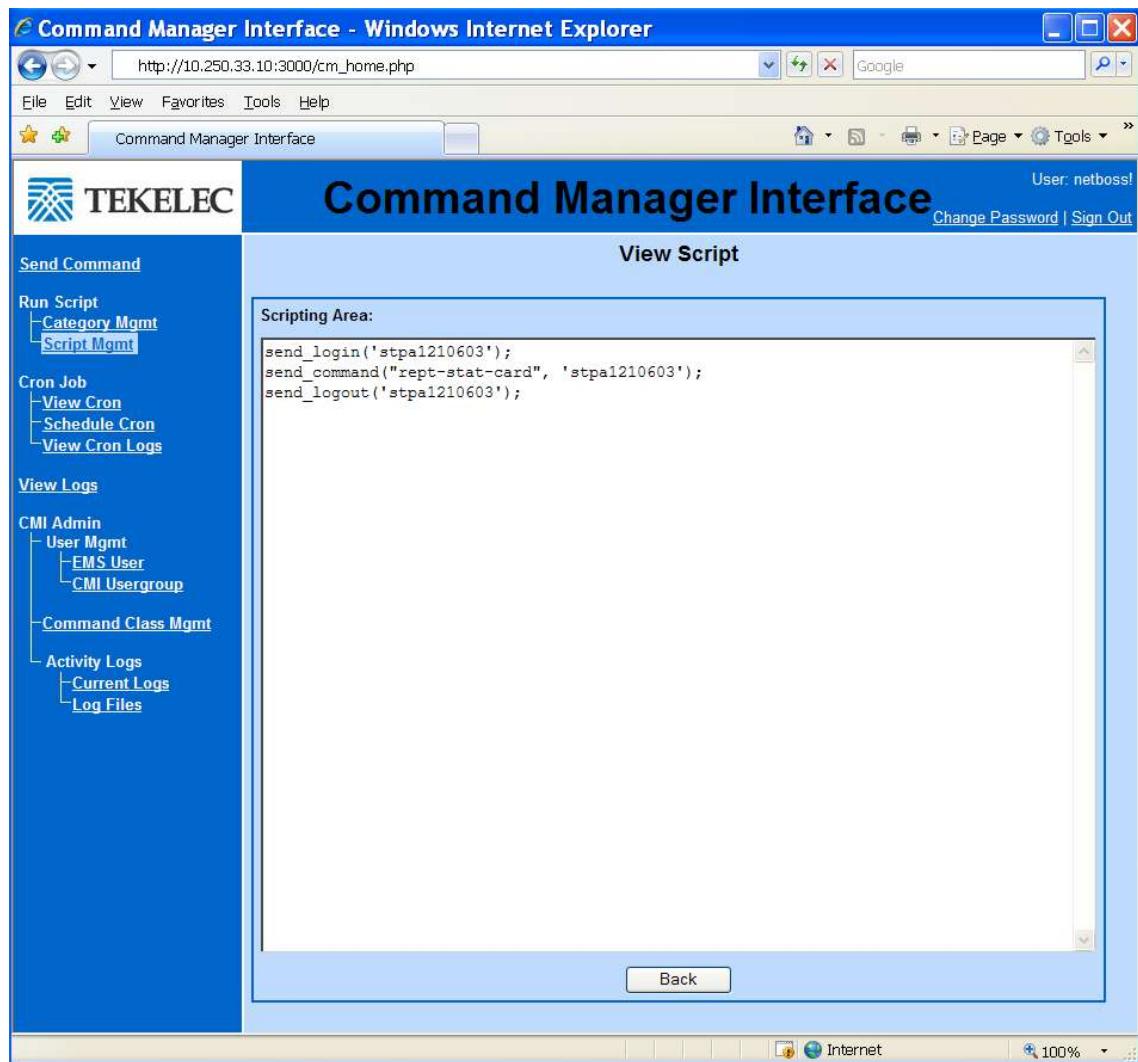


Figure 74: View Script Page

This page is accessed while executing the following procedure: [Viewing a CMI Command Script](#).

View Script Page Elements

Element	Description
Scripting Area Pane	This pane contains the actual CMI command script. It is only available for viewing in this page. No modifications can be made to the CMI command script from this page.
Back Button	Clicking on this button returns to the Script Management Page .

Modify Script

The **Modify Script** page is accessed by any of the following ways:

- Clicking on the **Modify** link on the *Script Management Page*
- Clicking on the **Modify** link on the *Execute Script*

An example of this page is shown in *Figure 75: Modify Script Page*.

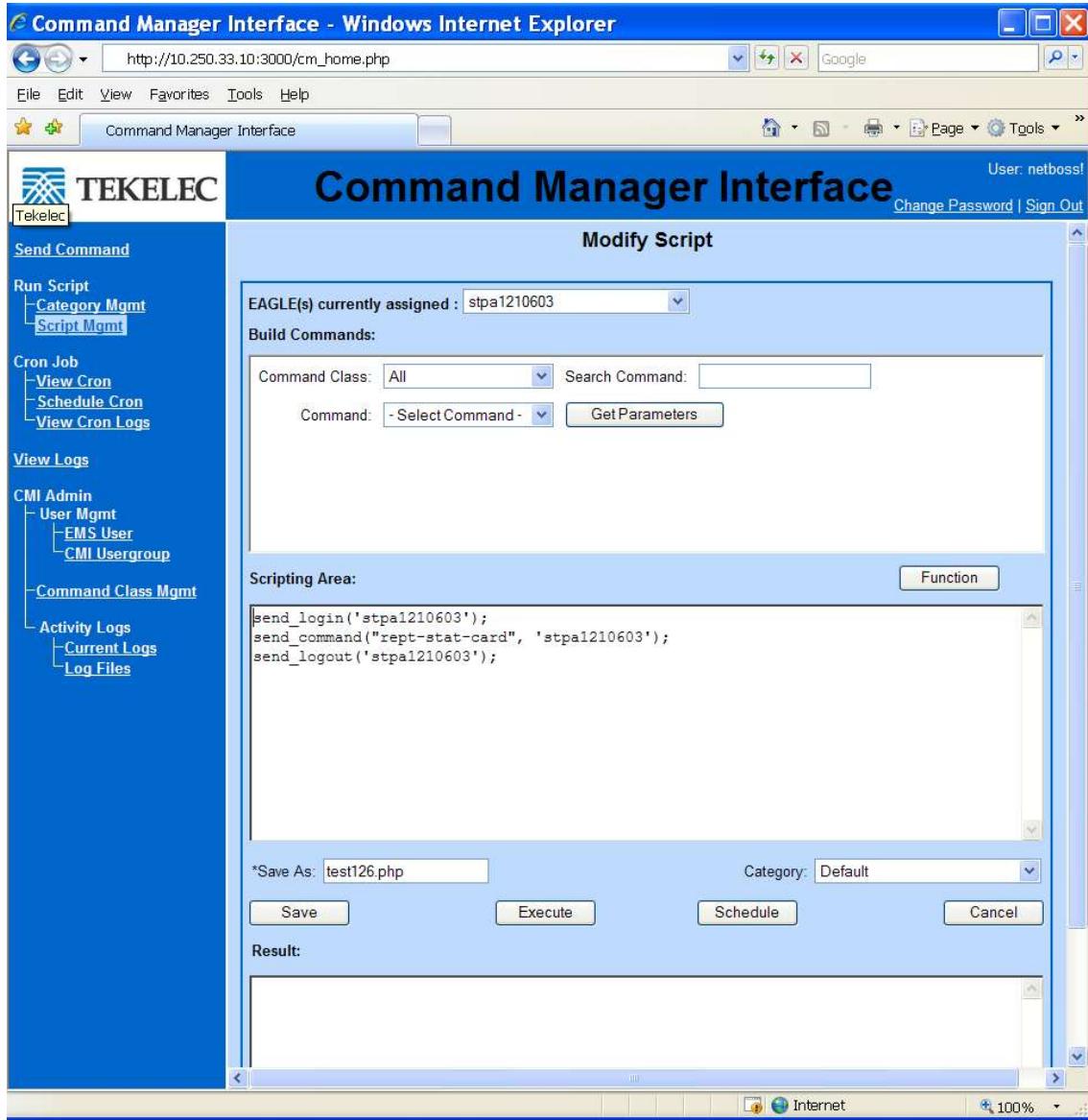


Figure 75: Modify Script Page

This page is accessed while executing the following procedure: *Modifying a CMI Command Script*.

Modify Script Page Elements

Element	Description
EAGLE(s) currently assigned Field	The drop-down list in this field lists the EAGLE 5 systems that you are authorized to access. If you are not authorized to access any EAGLE 5 systems, "None" will be displayed.
Build Commands Pane	This pane is used to build EAGLE 5 commands using menus. The elements in this pane are presented in Table 11: Build Commands Pane .
Function Button	Hovering over this button causes the list of API functions provided by the CMI to be listed. Selecting one of these functions, by clicking on the name, causes the function to be entered in the CMI command script at the location marked by the cursor in the Scripting Area pane.
Scripting Area Pane	<p>This pane contains the full text of the CMI command script. Scripts are written in the PHP scripting language and may invoke CMI functions and EAGLE 5 commands. The Scripting Area pane can be edited directly.</p> <p>Note: Variables cannot be substituted for EAGLE 5 command names or CLLI parameters. Literal strings, explicitly specifying the EAGLE 5 command or CLLI name, must be used instead. This restriction does not apply to CMI command scripts created by a CMI administrator or by an EMS User that has access to all EAGLE 5 commands and is authorized to access all EAGLE 5 systems to which the EAGLE EMS is connected.</p>
Save As Field	<p>This field contains the name of the CMI command script being modified. If the name of the script is being changed, enter the new name of the script in this field before clicking the Save button. The script name must meet the following requirements:</p> <ul style="list-style-type: none"> • The name must be unique within the category specified in the Category field. • The name must be at least 3 characters long • Only alphanumeric characters (0-9, a-z, A-Z), underscore (_), hyphen (-), and period (.) are allowed in the CMI command script name. • The CMI command script name must begin with an alpha character (a-z, A-Z). <p>Note: This does not remove the CMI command script that was being modified. A new copy is made and given the name entered in the Save As field.</p>

Element	Description
Category Field	<p>Clicking on this button causes a drop-down list of your CMI command script categories to be presented. By selecting a new category from this list, this CMI command script is also assigned to that category.</p> <p>Note: This does not remove the CMI command script that was associated with the original category. A new copy is made and assigned to the category listed in this field.</p>
Save Button	<p>Clicking on this button causes the CMI command script shown in the Scripting Area pane to be saved with the name given in the Save As field and the category listed in the Category field.</p>
Execute Button	<p>Clicking on this button causes the CMI command script shown in the Scripting Area pane to be executed. After clicking this button, the Execute Script appears.</p> <p>Note: The modified CMI command script must be saved before it can be executed.</p>
Schedule Button	<p>Clicking on this button enables the CMI command script shown in the Scripting Area to be scheduled for execution. After clicking this button, the Schedule Cron appears.</p> <p>Note: The modified CMI command script must be saved before it can be scheduled for execution.</p>
Cancel Button	<p>Clicking on this button cancels the modification of this CMI command script and the Script Management Page appears.</p>
Result Pane	<p>This pane contains the result of attempting to save the CMI command script shown in the Scripting Area pane. Results may include success, syntax errors, duplicate script names, and attempted use of unauthorized EAGLE 5 commands.</p>

Table 11: Build Commands Pane

Element	Description
Command Class Field	<p>This field contains a drop-down list of all of the command classes that you are authorized to access. This list includes EAGLE 5 command classes and CMI command classes. By selecting a command class from this list, the list of commands listed in the Command field is narrowed to include only the EAGLE 5 commands defined for the selected command class. Selecting All will cause all EAGLE 5 commands to which you have access to appear in the drop-down list in the Command field.</p>

Element	Description
Search Command Field	Typing the first part of an EAGLE 5 command name in this field will cause the EAGLE 5 command starting with these characters to appear in the Command field.
Command Field	This field contains a drop-down list of all of the EAGLE 5 commands associated with the command class selected in the Command Class field that you are authorized to access.
Get Parameters Button	Clicking this button causes the mandatory and optional parameters of the EAGLE 5 command selected in the Command field to appear.
<command parameters>	<p>After the Get Parameters button is clicked, the mandatory and optional parameters appear. Values may be selected for each parameter from the drop-down value list provided. Typing a single character narrows the parameter value choices to those that start with that character. Re-typing that character will move the selection through the list of values that start with that character.</p> <p>The Command Manager Interface saves the parameter values for the previous 20 commands entered into the Build Commands pane during the current EMS User session.</p> <p>Note: Depending on the configuration the EAGLE 5 system(s) being managed, some parameters may appear as optional, but in fact, be mandatory. This is because certain EAGLE 5 features require that some commands have additional mandatory parameters. A complete explanation of these dependencies can be viewed by clicking on the Help Document link on the right side of the pane.</p>
Help Document Link	<p>After an EAGLE 5 command has been selected in the Command field and the Get Parameters button is clicked, a link to the Help Document for that command appears. By clicking on the link, information about this command is presented.</p> <p>Note: The <i>EAGLE 5 ISS Commands Manual</i> is the definitive guide to EAGLE 5 command syntax and usage.</p>
Submit Command Button	Clicking on this button causes the command that was built in the Build Commands pane to be entered in the CMI command script at the location marked by the cursor in the Scripting Area pane.

Execute Script

The Execute Script page can be accessed in any of the following ways:

- Clicking on an **Execute** link on the *Script Management Page*
- Clicking on the **Execute** button on the *Create Script*
- Clicking on the **Execute** button on the *Modify Script*

An example of this page is shown in [Figure 76: Execute Script Page](#).

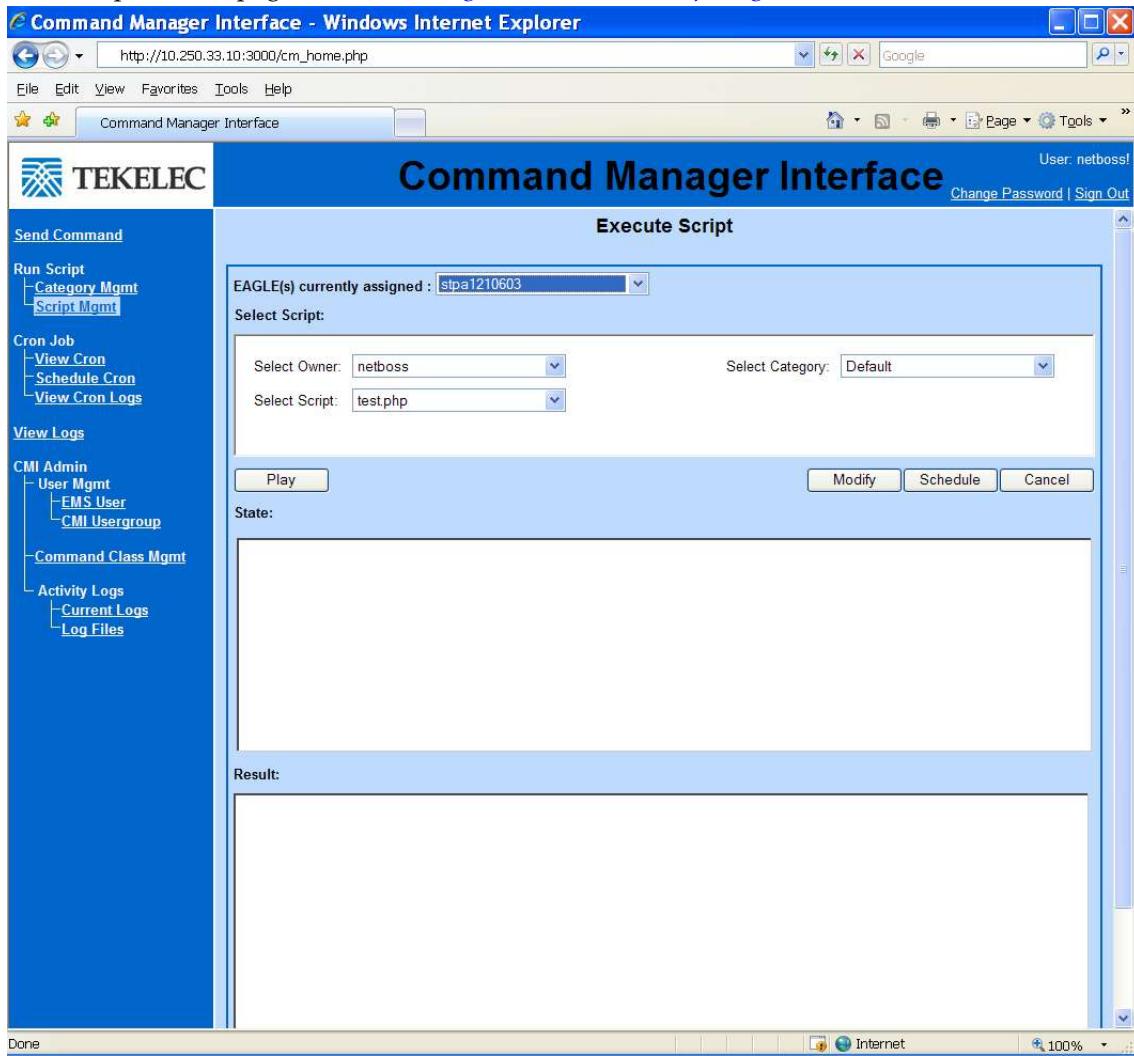


Figure 76: Execute Script Page

This page is accessed while performing the following procedure: [Executing a CMI Command Script](#).

Execute Script Page Elements

Element	Description
EAGLE(s) currently assigned Field	The drop-down list in this field lists the EAGLE 5 systems that you are authorized to access. If you are not authorized to access any EAGLE 5 systems, "None" will be displayed.
Select Script Pane	This pane is used to select a CMI command script for execution.

Element	Description
Select Owner Field	<p>Only CMI Administrators can execute CMI command scripts that belong to other EMS Users. If you are not a CMI Administrator, your EMS User name appears in this field.</p> <p>If you are a CMI Administrator, this field contains a drop-down list of the names of all of the EMS Users. Selecting an EMS User from this list causes the lists provided in the Select Category field and Select Script field to reflect the CMI command script categories and CMI command scripts defined for that EMS User.</p>
Select Category Field	<p>This field contains a list of all of the CMI command script categories defined for the EMS User identified in the Select Owner Field. Selecting a category from this list narrows the list of CMI command scripts presented in the Select Script field to those belonging to that category.</p>
Select Script Field	<p>This field contains a list of all of the CMI command scripts owned by the EMS User identified in the Select Owner field and belonging to the category specified by the Select Category field. One script can be selected from this list for execution, modification, or scheduling using the Play, Modify, or Schedule buttons, respectively.</p>
Play Button	<p>Clicking on this button causes the CMI command script identified in the Select Script field to be executed. Information about this execution are presented in the State and Result panes.</p>
Pause Button	<p>This button appears only after the Play button has been clicked and disappears once the script has finished executing. Clicking on this button causes the CMI command script to pause its execution. Pausing a script causes a "paused" state to appear in the State pane.</p>
Stop Button	<p>This button appears only after the Play button has been clicked and disappears once the script has finished executing. Clicking on this button causes the CMI command script to stop execution. Stopping a script is reported in the State pane.</p>
Modify Button	<p>Clicking on this button allows the CMI command script identified in the Select Script field to be modified. The Modify Script appears.</p>
Schedule Button	<p>Clicking on this button allows the CMI command script identified in the Select Script field to be scheduled for execution at a later time. The Schedule Cron appears.</p>
Cancel Button	<p>Clicking on this button cancels this request and the Script Management Page appears.</p>
State Pane	<p>This pane contains information about the state of the CMI command script execution.</p>
Result Pane	<p>The results of the CMI command script execution are displayed in this pane. This includes results and messages returned from any EAGLE 5 systems to which the CMI command script sent commands.</p>

Schedule Cron

The **Schedule Cron** page is accessed in any of the following ways:

- by clicking on a **Schedule Cron** link in the main menu on the left side of the Command Manager Interface page
- by clicking on a **Schedule** link in the *Script Management Page*
- by clicking on a **Schedule** link in the *Create Script*
- by clicking on a **Schedule** link in the *Modify Script*.

An example of this page is shown in *Figure 77: Schedule Cron Page*.

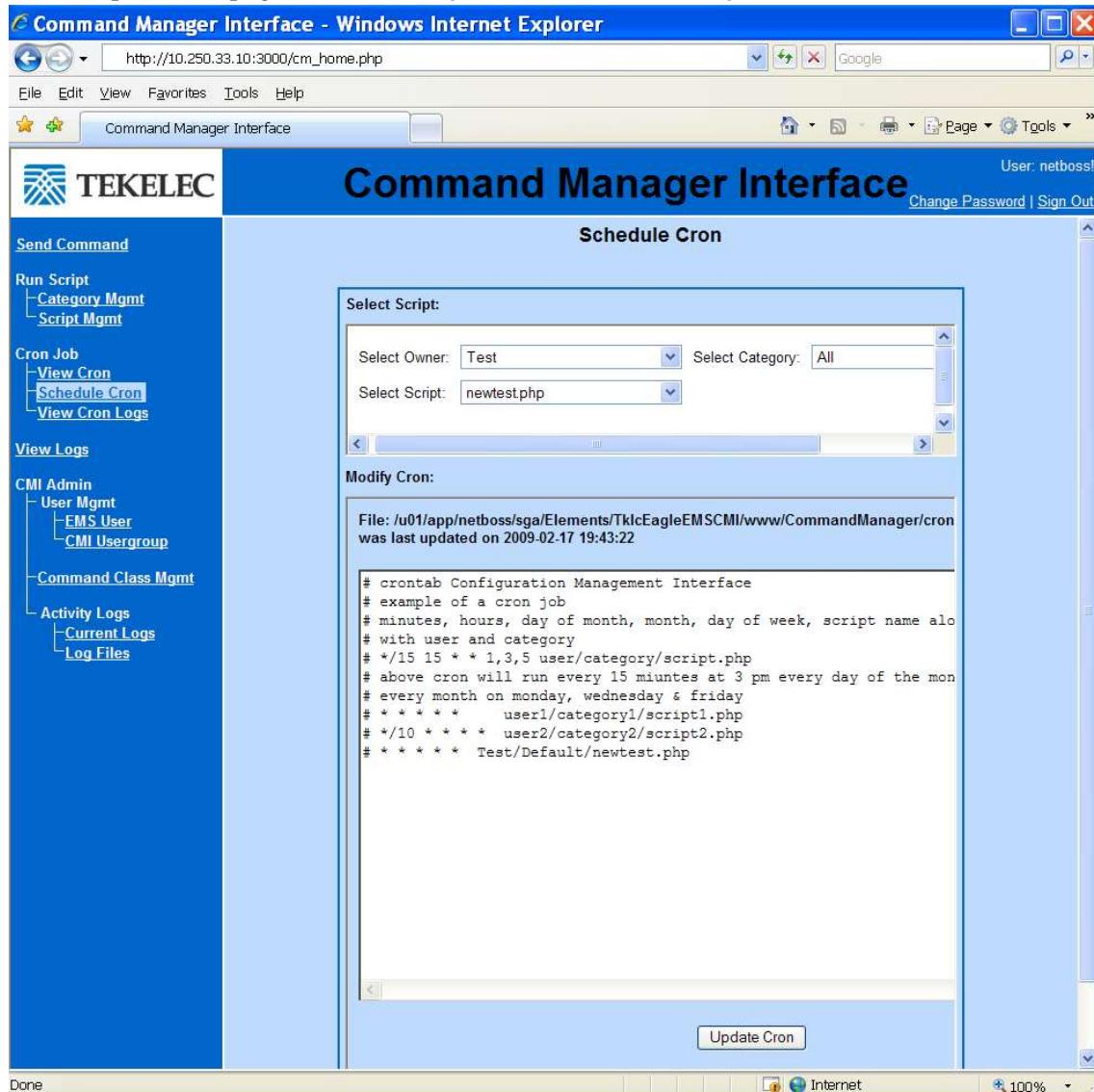


Figure 77: Schedule Cron Page

This page is accessed while performing the following procedure: *Scheduling a CMI Command Script*.

Schedule Cron Page Elements

Element	Description
Select Owner Field	<p>Select the EMS User that owns the CMI command script to be scheduled for execution from this drop-down list.</p> <p>Note: If you are not a CMI Administrator, your EMS User name appears and you will only be presented with your own CMI command scripts.</p>
Select Category Field	<p>Select the category of the CMI command script to be scheduled for execution. Selecting "All" will cause all CMI command scripts belonging to the EMS User identified in the Select Owner field to be presented in the Select Script field.</p>
Select Script Field	<p>Select the CMI command script to be scheduled for execution from this drop-down list. The CMI command scripts included in this list belong to the EMS User identified in the Select Owner field and the category identified in the Select Category field.</p> <p>When a CMI command script is selected from this field, a new line is added to the cron script in the Modify Cron pane.</p>
Modify Cron Pane	<p>This pane contains the actual cron script that is used to schedule the execution of the CMI command script identified in the Select Script field. Upon selecting a script, a new line is added to the cron script in the Modify Cron pane.</p> <p>That line has the following format:</p> <pre><minutes> <hours> <day of month> <month> <day of week> <EMSUserName>/<Category>/<ScriptName>.php</pre> <p>where</p> <ul style="list-style-type: none"> • <minutes> specifies the minute of the hour that the CMI command script should execute. Range: 1..60 • <hours> specifies the hour of day (using a 24-hour clock) that the CMI command script should be executed. "*" is interpreted to mean all hours of the day and is synonymous with entering 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,23,24 Range: 1..24 • <day of month> specifies the numerical day of the month that the script should be executed. "*" is interpreted to mean all days of the month and is synonymous with entering 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 Range: 1..31

Element	Description
	<ul style="list-style-type: none"> <month> specifies the month in which the CMI command script should be executed, with 1=January, 2=February, etc. Multiple months can be selected by separating those numbers with commas (no spaces). "*" is interpreted to mean all months of the year and is synonymous with entering 1,2,3,4,5,6,7,8,9,10,11,12 Range: 1..12 <day of week> specifies the weekdays that the CMI command script should be executed, with 1 signifying Monday, 2 signifying Tuesday, etc. Multiple days can be selected by separating those numbers with commas (no spaces). "*" is interpreted to mean all days of the week and is synonymous with entering 1,2,3,4,5,6,7 Range: 1..7 <EMSUserName> is your EMS User name <Category> is the category to which the CMI command script being scheduled is assigned <ScriptName> is the name of the CMI command script to be scheduled. <p>For example,</p> <pre>*15 15 * * 1,3,5 netboss/Test/testscript3.php</pre> <p>means that script called testscript3.php belonging to the EMS User called "netboss" in the category called "Test" should run every 15 minutes at 3pm every Monday, Wednesday, and Friday.</p> <p>To schedule the CMI command script for execution, remove the "#" at the beginning of the line that was added and replace the "*" characters as desired to execute that script according to the schedule prescribed.</p>
Update Cron Button	Clicking on this button causes the updated cron script to be saved. The CMI command script will be executed according to the schedule prescribed in the new line of the cron script in the Modify Cron pane.

View Cron

The **View Cron** page is accessed by clicking on a **View Cron** link in the main menu on the left side of the Command Manager Interface page. An example of this page is shown in [Figure 78: View Cron Page](#).

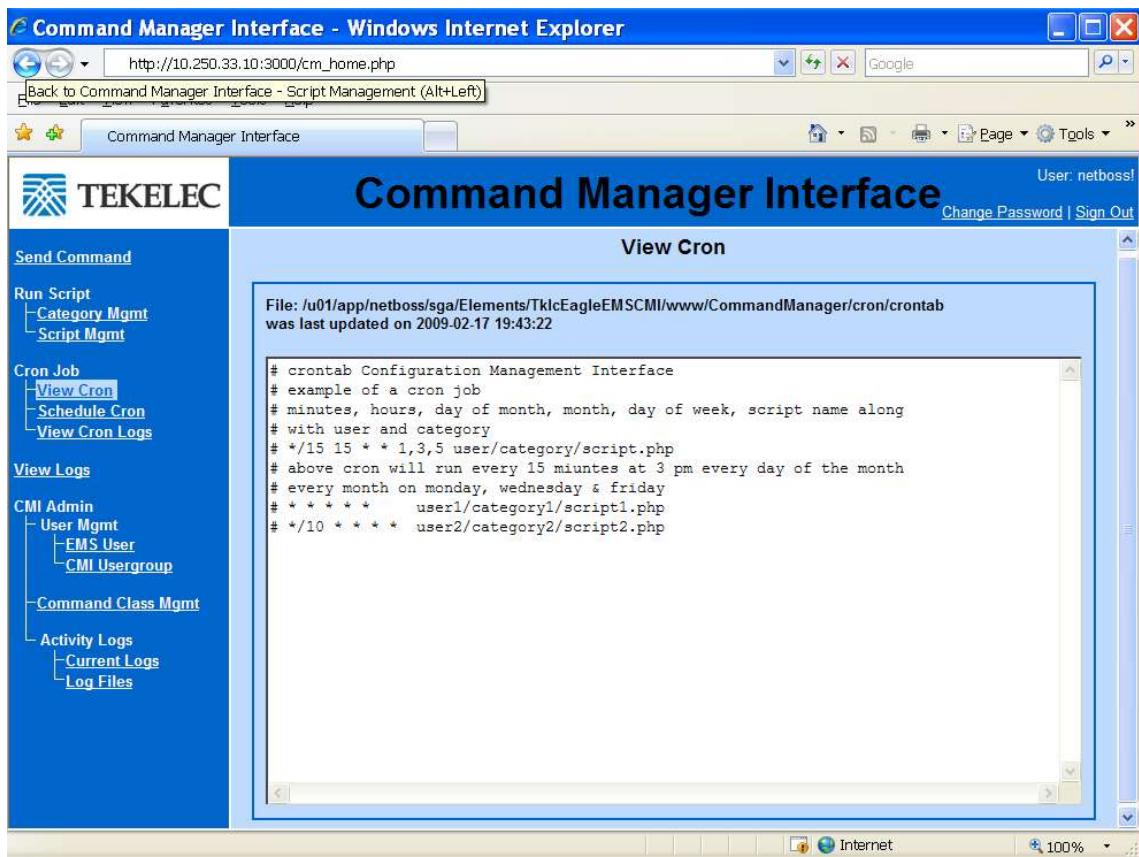


Figure 78: View Cron Page

This page is accessed while performing the following procedure: [Viewing a CMI Command Script Execution Schedule](#).

View Cron Page Elements

Element	Description
View Cron Pane	<p>This pane contains the cron script used to schedule CMI command scripts for execution.</p> <p>"Comment" lines in this script begin with the "#" character. Each line that actually schedules a CMI command script for execution has the following format:</p> <pre><minutes> <hours> <day of month> <month> <day of week> <EMSUserName>/<Category>/<ScriptName>.php</pre> <p>where</p> <ul style="list-style-type: none"> • <minutes> specifies the minute of the hour that the CMI command script should execute. Range: 1..60 • <hours> specifies the hour of day (using a 24-hour clock) that the CMI command script should be executed.

Element	Description
	<p>"*" is interpreted to mean all hours of the day and is synonymous with entering 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,23,24 Range: 1..24</p> <ul style="list-style-type: none"> <day of month> specifies the numerical day of the month that the script should be executed. "*" is interpreted to mean all days of the month and is synonymous with entering 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 Range: 1..31 <month> specifies the month in which the CMI command script should be executed, with 1=January, 2=February, etc. Multiple months can be selected by separating those numbers with commas (no spaces). "*" is interpreted to mean all months of the year and is synonymous with entering 1,2,3,4,5,6,7,8,9,10,11,12 Range: 1..12 <day of week> specifies the weekdays that the CMI command script should be executed, with 1 signifying Monday, 2 signifying Tuesday, etc. Multiple days can be selected by separating those numbers with commas (no spaces). "*" is interpreted to mean all days of the week and is synonymous with entering 1,2,3,4,5,6,7 Range: 1..7 <ul style="list-style-type: none"> <EMSUserName> is your EMS User name <Category> is the category to which the CMI command script being scheduled is assigned <ScriptName> is the name of the CMI command script to be scheduled. <p>For example,</p> <pre>* /15 15 * * 1,3,5 netboss/Test/testscript3.php</pre> <p>means that script called testscript3.php belonging to the EMS User called "netboss" in the category called "Test" should run every 15 minutes at 3pm every Monday, Wednesday, and Friday.</p>

View Cron Logs

The **View Cron Logs** page is accessed by clicking on the **View Cron Logs** link in the main menu on the left side of the page. An example of this page is shown in [Figure 79: View Cron Logs Page](#).

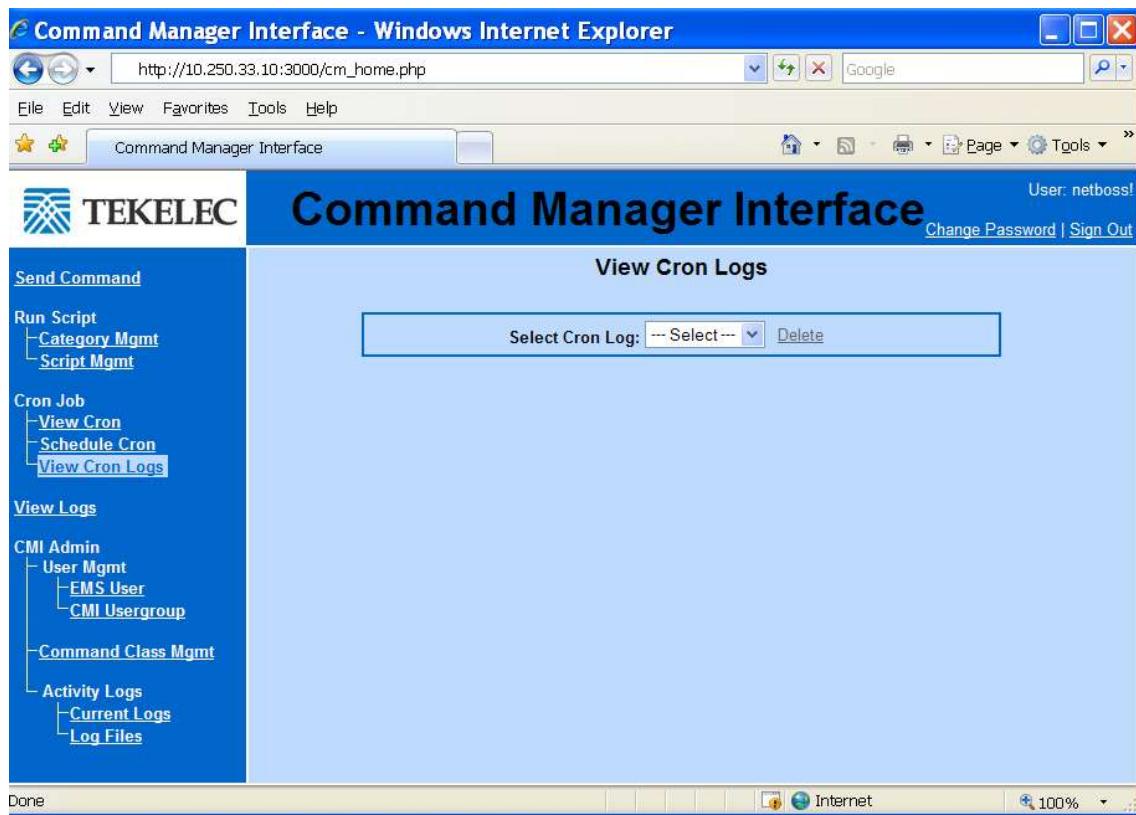


Figure 79: View Cron Logs Page

This page is accessed while performing the following procedure: [Viewing Cron Logs](#).

View Cron Logs Page Elements

Element	Description
Select Cron Log Field	Select the desired Cron Log from the drop-down list in this field. Cron Logs capture and record the results from the execution of commands within a CMI command script that were scheduled in a cron script.
Delete Button	Clicking on this button causes the Cron Log selected in the Select Cron Log field to be deleted.

View Logs

The **View Logs** page is accessed by clicking on the **View Logs** link in the main menu on the left side of the page. An example of this page is shown in [Figure 80: View Logs Page](#).

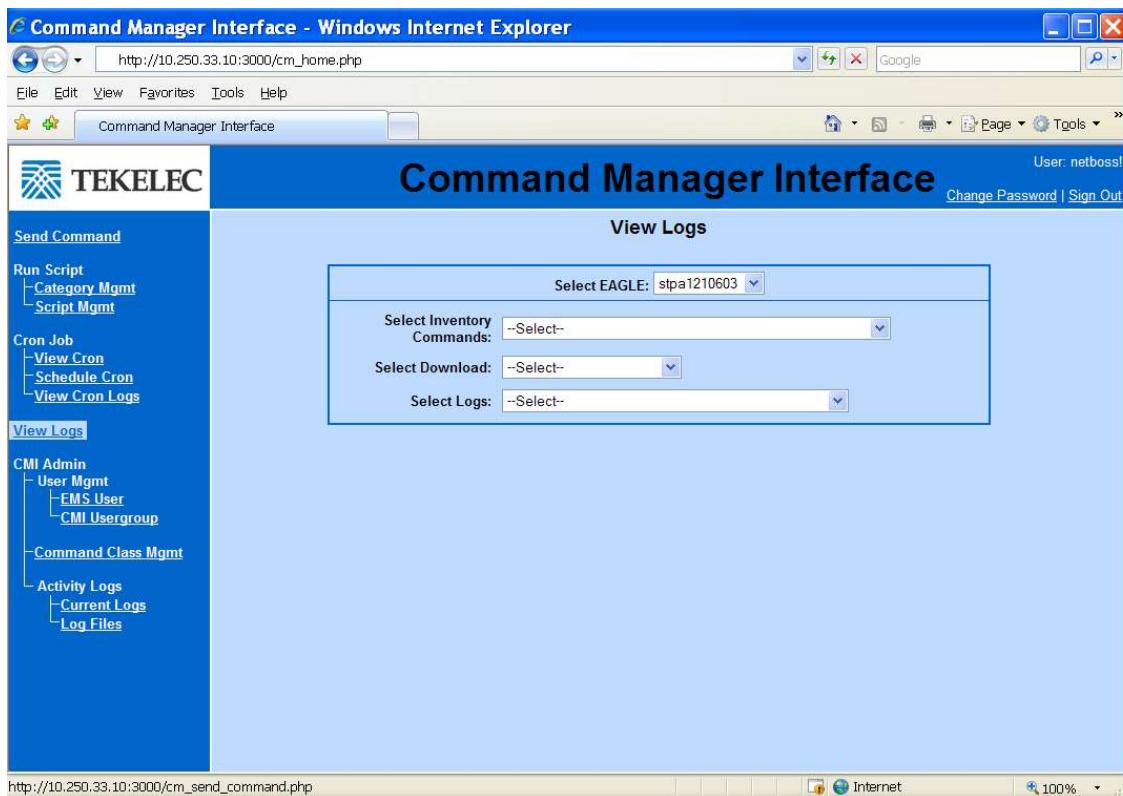


Figure 80: View Logs Page

This page is accessed while performing the following procedure: [Viewing Logs](#).

View Logs Page Elements

Element	Description
Select EAGLE Field	This field presents a drop-down list of the clli names of the EAGLE 5 systems for which logs are available. The list of EAGLE 5 systems presented in the drop-down list includes all EAGLE 5 systems that have been connected to the EAGLE EMS. Some of those systems may no longer be connected to or manageable from the EAGLE EMS, even though logs of previous management activity are accessible via this page.
Select Inventory Commands Field	This field contains a drop-down list of the log files that were generated when the "Update Inventory" process is executed in the EAGLE EMS Fault Management System. One log file is generated for each command executed during an "Update Inventory" process. These files are generated at the location /u01/app/netboss/local/STP/inventory/<clli name>, where <clli name> is the clli name of the EAGLE identified in the Select EAGLE field.
Select Download Field	This field contains a drop-down list of the download log files. These files contain the results of rtrv-log commands executed as part

Element	Description
	<p>of an "Update Inventory" process is executed in the Fault Management System. When a download log file is selected, the selected log file will appear in a separate application window and will take the form of a comma-separated-values (csv) file which can be imported to a spreadsheet application for viewing and/or manipulation.</p> <p>Note: You may need to explicitly allow the log to be downloaded in your browser.</p>
Select Logs Field	<p>This field contains a drop-down list of the SGA port logs. There is one SGA port log for each SGA port configured in the Probuilder component of the EAGLE EMS.</p> <p>The log names consist of the following, separated by "_"</p> <ul style="list-style-type: none"> • CLLI name • SGA port number • Port Types <p>Ports can be any of the following types:</p> <ul style="list-style-type: none"> • EMSALM • RESYNC • COMMAND • GENERAL • .log • The date of log in MMDDYYYY format is appended to the name following a "..". <p>An example SGA port log name is</p> <pre>tekelecstp_sgaPort5_EMPSALM.log.05232009</pre>
Log Pane	<p>The log pane contains the contents of the log selected in the Select Inventory Commands or Select Logs field. Logs selected from the Select Download field are displayed in a separate window.</p>

Current Logs

The **Current Logs** page is accessed by clicking on the **Current Logs** link in the main menu under "Activity Logs" on the left side of the page. An example of this page is shown in [Figure 81: Current Logs Page](#).

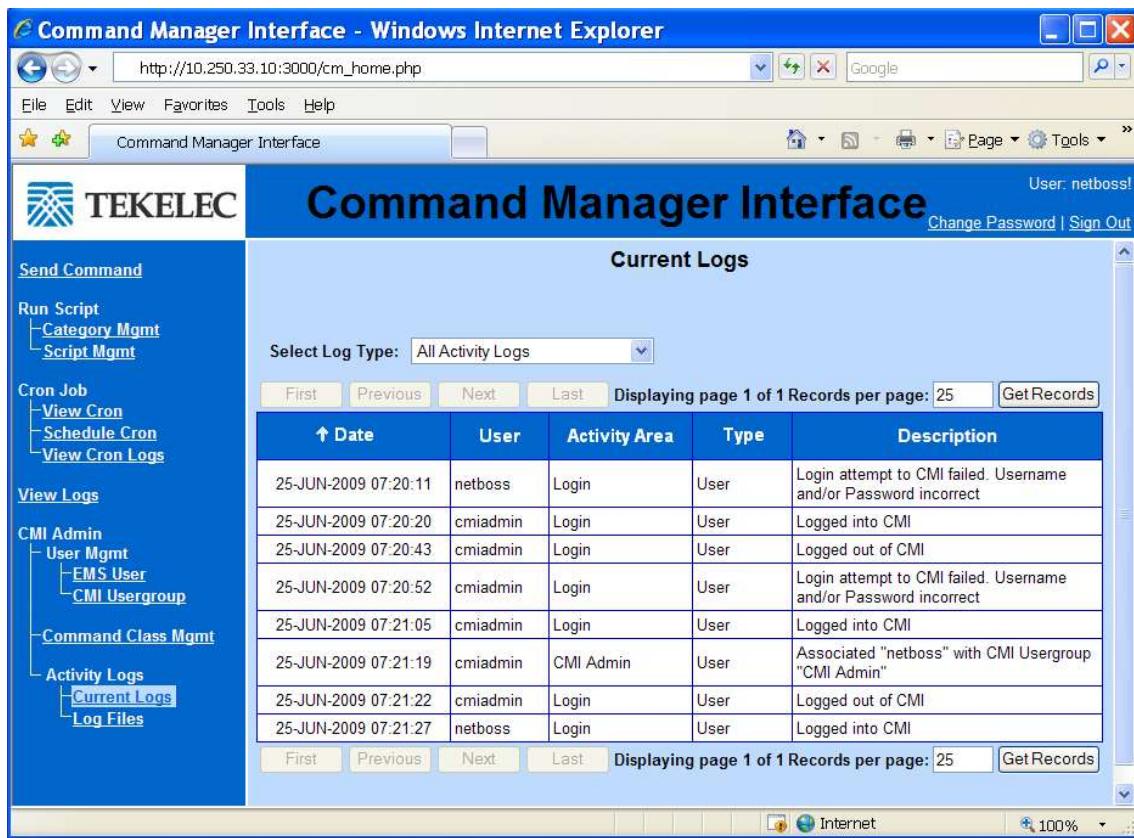


Figure 81: Current Logs Page

This page is accessed while performing the following procedure: [Viewing Current EMS User Activity Logs](#).

Current Logs Page Elements

Element	Description
Select Log Type Field	The type of recent EMS User activity to be presented is selected from the choices in this field as follows: <ul style="list-style-type: none"> All Activity Logs: Both Command Manager Interface and EAGLE Affecting EMS User activity records are displayed. User Action Logs: Only Command Manager Interface EMS User activity records are displayed. EAGLE Affecting Logs: Only EAGLE Affecting EMS User activity records are displayed.
First Button	Clicking on this button causes the first page worth of the type of EMS User activity records selected in Select Log Type field to be displayed. The EMS User activity records are sorted by clicking on the table column headings. The number of records displayed per page is determined by the Records per page field.

Element	Description
	Note: If there is only one page of EMS User activity records in the Current Logs, this button is disabled.
Previous Button	<p>Clicking on this button causes the previous page worth of the type of EMS User activity records selected in Select Log Type field to be displayed. The EMS User activity records are sorted by clicking on the table column headings. The number of records displayed per page is determined by the Records per page field.</p> <p>Note: If the first page of EMS User activity records is displayed, this button is disabled.</p>
Next Button	<p>Clicking on this button causes the next page worth of the type of EMS User activity records selected in Select Log Type field to be displayed. The EMS User activity records are sorted by clicking on the table column headings. The number of records displayed per page is determined by the Records per page field.</p> <p>Note: If the last page of EMS User activity records is displayed, this button is disabled.</p>
Last Button	<p>Clicking on this button causes the last page worth of the type of EMS User activity records selected in Select Log Type field to be displayed. The EMS User activity records are sorted by clicking on the table column headings. The number of records displayed per page is determined by the Records per page field.</p> <p>Note: If there is only one page of EMS User activity records in the Current Logs, this button is disabled.</p>
Records per page Field	<p>The number of EMS User activity records to be presented on each page is entered in this field. The value can range from 10 to 1000 records per page. The table will be updated when the Get Records button is clicked. The default number of records displayed is 25.</p> <p>Note: If there are fewer EMS User activity records than the number selected, they will all be displayed.</p>
Get Records Button	Clicking on this button causes the number of EMS User activity records selected in the Records per page field to be displayed.

Log Files

The **Log Files** page is accessed by clicking on the **Log Files** link under "Activity Logs" in the main menu on the left side of the page. An example of this page is shown in [Figure 82: Log Files Page](#).

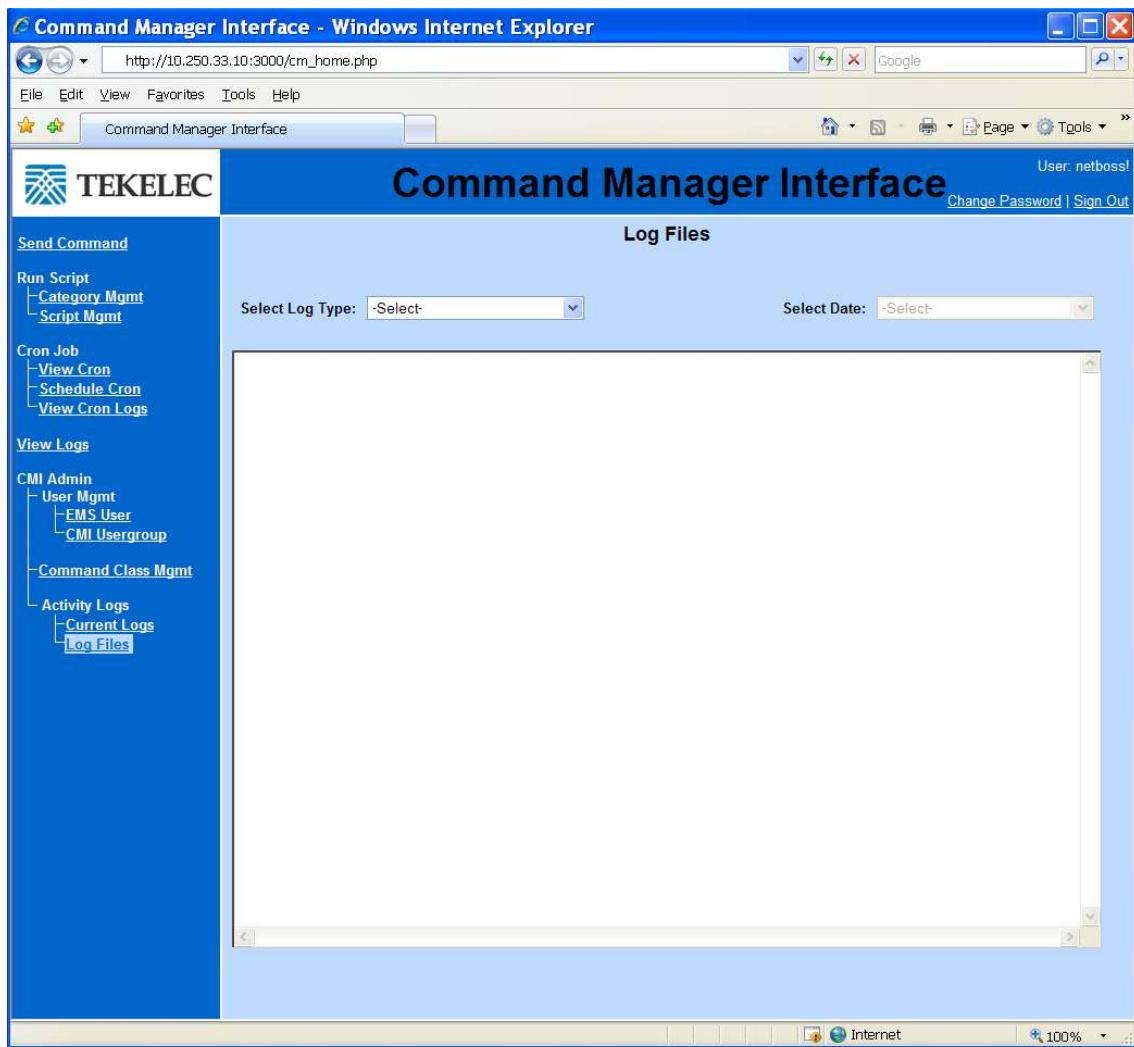


Figure 82: Log Files Page

This page is accessed while performing the following procedure: [Viewing EMS User Activity Log Files](#).

Log Files Page Elements

Element	Description
Select Log Type Field	<p>The type of Log File to be viewed is selected in this field as follows:</p> <ul style="list-style-type: none"> • User Action Logs Selecting User Action Logs results in the presentation of EMS User activities that are contained within the Command Manager Interface and do not affect EAGLE 5 systems. • EAGLE Affecting Logs Selecting EAGLE Affecting Logs results in the presentation of EMS User activities that directly affect EAGLE 5 systems.

Element	Description
Select Date Field	This field contains a drop-down list of the dates for which Log Files are available to be viewed. Selecting a particular date causes the Log File for that date of the type selected in the Select Log Type field to be displayed in the Log File pane.
Log File Pane	This pane is used to display the log selected by the values of the Select Log Type field and the Select Date field.

Category Management

The **Category Management** page is accessed by clicking on the link labeled **Category Mgmt** in the main menu on the left side of the Command Manager Interface page. EMS Users can manage their own CMI command script categories using the elements provided on this page. An example of this screen is shown in *Figure 83: Category Management Page*.

The screenshot shows the Command Manager Interface (CMI) running in a Windows Internet Explorer browser. The title bar reads "Command Manager Interface - Windows Internet Explorer". The address bar shows the URL "http://10.250.33.10:3000/cm_home.php". The main content area is titled "Command Manager Interface" and "Category Management". On the left, a sidebar menu lists various management functions: Send Comm, Run Script (with Category Mgmt and Script Mgmt), Cron Job (with View Cron, Schedule Cron, and View Cron Logs), View Logs, and CMI Admin (with User Mgmt, EMS User, CMI Usergroup, Command Class Mgmt, Activity Logs, Current Logs, and Log Files). The right panel displays a table of categories:

Category	Actions		
Default	View	Modify	Delete
test	View	Modify	Delete

A "Create Category" button is located at the bottom of the table. The status bar at the bottom right shows "100%".

Figure 83: Category Management Page

This screen is accessed in the execution of the following procedures:

- *Creating a CMI Command Script Category*

- [Viewing a CMI Command Script Category](#)
- [Modifying a CMI Command Script Category](#)
- [Deleting a CMI Command Script Category](#)

Category Management Page Elements

Element	Description
Category Column	This column contains entries for category "Default" and for each CMI command script category you have defined.
Actions Columns	<p>The following Actions can be performed for existing CMI command script categories:</p> <ul style="list-style-type: none"> • View Clicking on this link allows you to view the CMI command scripts associated with the category on this line. The View Category appears. • Modify Clicking on this link allows you to rename the category on this line. The Modify Category appears. • Delete Clicking on this link allows you to delete the category on this line. A confirmation dialog box is presented before deleting the category. <p>Note: All CMI command scripts associated with a category should be assigned to other categories before the category can be deleted. If a category that has associated CMI command scripts is deleted, all of its associated scripts are automatically assigned to the "Default" category. If one of those scripts has the same name as a script already assigned to the "Default" category, then the "Delete" operation fails and none of the CMI command scripts will have been reassigned to the "Default" category.</p>
Create Category Button	Clicking on this button allows you to create a new CMI command script category. The Create Category appears.

Create Category

The **Create Category** page is accessed by clicking on the **Create Category** button on the [Category Management](#). An example of this page is shown in [Figure 84: Create Category Page](#).

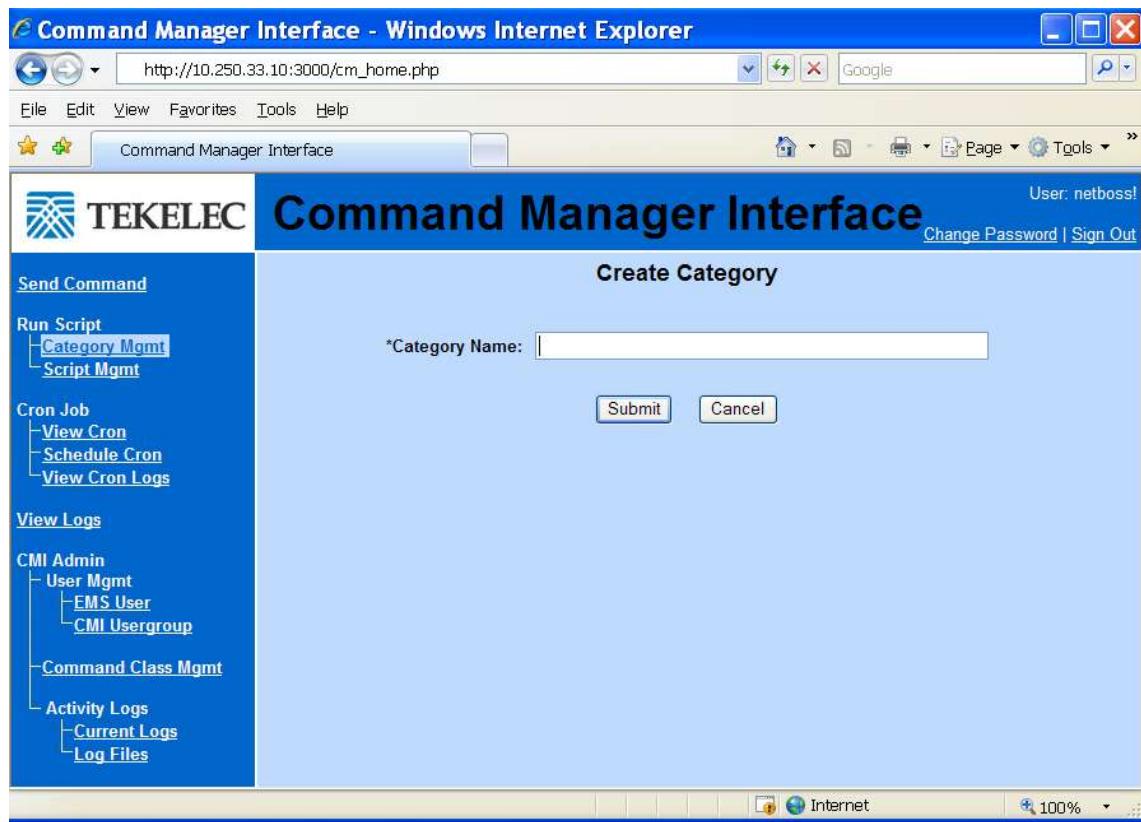


Figure 84: Create Category Page

This page is accessed while performing the following procedure: [Creating a CMI Command Script Category](#).

Create Category Page Elements

Element	Description
Category Name Field	Enter the name of the new CMI command script category to be created in this field. Category names must meet the following requirements: <ul style="list-style-type: none"> The category name must be unique for this EMS User. The Category name must have at least three characters. Only alpha-numeric characters (0-9, a-z, A-Z) are allowed.
Submit Button	Clicking on this button creates a new CMI command script category with the name entered in the Category name field. After clicking on the Submit button, the Category Management appears and the newly created CMI command script category is listed.
Cancel Button	Clicking on this button aborts the creation of the new CMI command script category and the Category Management appears again.

View Category

The View Category page is accessed by clicking on a View link on the *Category Management*. An example of this page is shown in *Figure 85: View Category Page*.

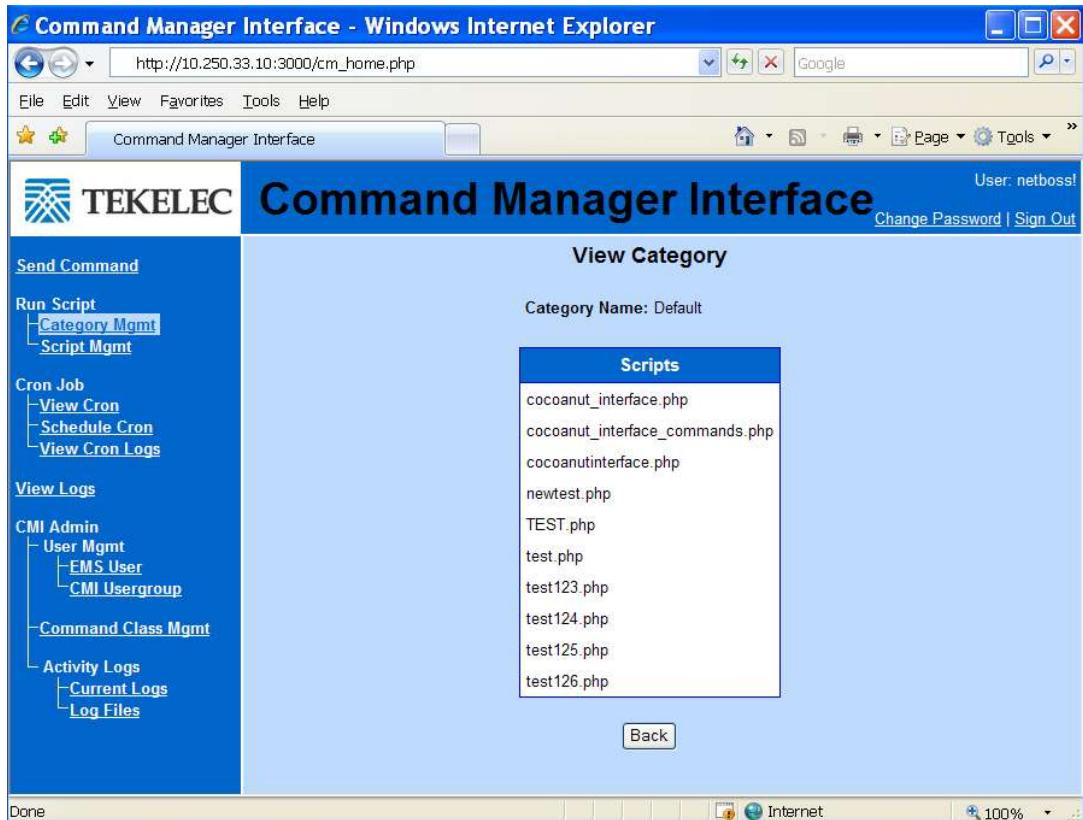


Figure 85: View Category Page

This page is accessed while performing the following procedure: *Viewing a CMI Command Script Category*.

View Category Page Elements

Element	Description
Category Name Field	This field contains the name of the CMI command script category for which information is displayed.
Scripts Pane	The CMI command scripts that are assigned to the category identified in the Category Name field are listed in this pane.
Back Button	Clicking on this button causes the <i>Category Management</i> to appear.

Modify Category

The **Modify Category** page is accessed by clicking on the **Modify Category** link on the *Category Management*. An example of this page is shown in *Figure 86: Modify Category Page*.

The screenshot shows a Windows Internet Explorer window titled "Command Manager Interface - Windows Internet Explorer". The URL in the address bar is "http://10.250.33.10:3000/cm_home.php". The browser menu bar includes File, Edit, View, Favorites, Tools, and Help. The toolbar includes Back, Forward, Stop, Refresh, Home, Page, and Tools. The title bar says "Command Manager Interface". The top right corner shows "User: netboss!", "Change Password", and "Sign Out". The main content area has a blue header "Command Manager Interface" and a sub-header "Modify Category". A text input field contains the value "test". Below it are two buttons: "Submit" and "Cancel". To the left of the main content is a sidebar with a blue background. It contains several navigation links: "Send Command", "Run Script" (with "Category Mgmt" and "Script Mgmt" underlined), "Cron Job" (with "View Cron", "Schedule Cron", and "View Cron Logs" underlined), "View Logs", "CMI Admin" (with "User Mgmt" (underlined), "EMS User", "CMI Usergroup", and "Command Class Mgmt" underlined), and "Activity Logs" (with "Current Logs" and "Log Files" underlined). The bottom right corner of the browser window shows "Internet" and "100%".

Figure 86: Modify Category Page

This page is accessed while performing the following procedure: *Modifying a CMI Command Script Category*.

Modify Category Page Elements

Element	Description
Category Name Field	Enter the new name for this CMI command script category in this field. Category names must meet the following requirements: <ul style="list-style-type: none"> • The category name must have at least three characters • Only alpha-numeric characters (0-9, a-z, A-Z) are allowed.
Submit Button	Clicking on this button changes the name of this CMI command script category with the name entered in the Category name field. After clicking on the Submit button, the <i>Category Management</i>

Element	Description
	<p>appears and the name change is reflected in the list of CMI command script categories is listed.</p> <p>Note: All CMI command scripts that were assigned to this CMI command script category will automatically be assigned to the renamed category.</p>
Cancel Button	Clicking on this button aborts the name change for this CMI command script category and the <i>Category Management</i> appears again.

CMI Functions

This appendix contains a list of the available CMI functions. These functions are used in CMI command scripts.

Available CMI Functions

Table 12: CMI Functions and Parameters lists the set of CMI functions and their parameters that are available for use in CMI command scripts.

Table 12: CMI Functions and Parameters

Function Name	Parameters	Description
send_command	<p>\$command - EAGLE 5 Command</p> <p>\$clli - EAGLE 5 Port Name used to send the command</p>	<p>The send_command function allows the CMI command script to issue commands to the specified EAGLE 5.</p> <p>It will return a state of the results-</p> <p style="padding-left: 20px;">true = success</p> <p style="padding-left: 20px;">false = failure</p> <p>It will also return what the EAGLE 5's response to the command.</p>
send_login	\$clli - EAGLE 5 Port Name of the desired EAGLE 5.	The send_login function logs the CMI into the EAGLE 5. Once the CMI is logged into the device, it is then able to use the send_command function to issue commands.
send_logout	\$clli - EAGLE 5 Port Name of the desired EAGLE 5.	The send_logout function logs the CMI out of the EAGLE 5. When this function is executed, other CMI command scripts can access to the EAGLE 5.

Function Name	Parameters	Description
get_parameter	\$question - Prompt that asks the user for information \$default - The default value of the parameter.	The get_parameter function is used in a CMI command script to get data from a user. When a CMI command script is run from the web, the function causes a prompt/popup window to appear. This prompt will ask the user for certain data. The question the prompt asks is supplied in the script. The function will return the user-supplied data to the CMI command script. If the user doesn't supply data, the function will time out and return the default value.
stop_program	None	Similar to the PHP exit command, the Stop_program function will cause the CMI command script to end. However, unlike the PHP exit command, this function issues cleanup commands in the CMI command script to allow for a clean end of the script.
pause_program	\$timeout - The wait time in seconds (number)	The pause_program function pauses the CMI command script for a the number of seconds specified by the value supplied in the \$timeout parameter.
send_indicator	\$resource - Which Graphical text indicator \$message - The message that will be displayed	The send_indicator function allows the script to send indicator messages to a Text box indicator inside of FMS. The CMI command script must provide a valid resource and a message for the function to work properly. This function returns a boolean value indicating the success or failure of the function, as well as the resource name, if it is a valid resource.
send_alarm	\$severity - (number) Between 1 and 5 following the Netboss severity conventions. \$resource - The name of the resource to send the alarm. \$message - The text message sent with the alarm.	The send_alarm function sends an alarm. The function returns a boolean value indicating the success or failure of the function, as well as the resource name, if it is a valid resource.
is_resource	\$resource	The is_resource function checks the value of the \$resource parameter to ensure it meets the Netboss resource naming convention. It does not check to see if the value of the \$resource parameter identifies an existing resource.

Function Name	Parameters	Description
is_port_valid	\$portname - Name of the EAGLE 5 Port	The is_port_valid function is used to determine whether the port identified by the value of the \$portname parameter is currently running. This function returns a boolean value indicating the success or failure of this function, as follows: true: port is valid (running) false: port is not valid (not running)
is_clli_valid	\$clli - Name of the EAGLE 5 CLLI	The is_clli_valid function is used to determine if the clli identified by the value of the \$clli parameter is valid. This function is similar to is_port_valid(). This function returns a boolean value indicating the success or failure of this function, as follows: true: clli is valid false: clli is not valid
is_port_running	\$port_num_val (number) - The port number.	The is_port_running function is used to determine whether the port identified by the value of the \$port_num_val parameter is currently running. This function returns a boolean value indicating the success or failure of this function, as follows: true: EAGLE 5 port is valid (running) false: EAGLE 5 port is not valid (not running) This function is similar to the is_port_valid function except that the port number is used to identify the port, rather than the port name.
Execute	\$sql - An SQL statement	The execute() function executes the SQL statement contained in the \$sql parameter and returns a result set.
FetchNum	None	The FetchNum function, when used before an execute () function, causes the execute () function to return result sets that are accessible by numbers.
FetchAssoc	None	The FetchAssoc function, when used before an execute () function, causes the execute () function to return result sets that are accessible by the name of the columns.

Function Name	Parameters	Description
write_results	\$content - What to write 'values' - File extension	<p>The write_results function allows a user to write information to files. All files are written to the u01/app/netboss/local/STP/results directory.</p> <p>Each file has the format of</p> <p style="text-align: center;"><Script Start in seconds>. <Extension></p> <p>The \$values parameter supplies the file extensions. Special extensions state - Content appears on the top box of the send page. value - Content appears on the bottom box of the send page. The following extensions should NOT be used:</p> <ul style="list-style-type: none"> .com .pid <p>For best results end the content with "\n".</p>

Table 13: Returned CMI Function Data presents the type and semantics of the data returned from the execution of each of the commands listed in *Table 12: CMI Functions and Parameters*.

Table 13: Returned CMI Function Data

Function Name	Data Return
send_command	<p>Return type: Associative Array</p> <p>Array index:</p> <ul style="list-style-type: none"> <i>state</i> - Boolean(true for success, false for failure) <i>result</i> - String(command results) <p>Example of use:</p> <pre>\$array= send_command("rept-stat-card", 'stpa1210603'); if(\$array["state"]) { print \$array["result"]; }</pre>
send_login	<p>Return type: Associative Array</p> <p>Array index:</p> <ul style="list-style-type: none"> <i>state</i> - Boolean(true for success, false for failure) <i>result</i> - String(command results)

Function Name	Data Return
	<p>Example of use:</p> <pre>\$array= send_login ('stpal210603'); if(\$array["state"] == false) { print \$array["result"]; exit; }</pre>
send_logout	<p>Return type: Associative Array</p> <p>Array index:</p> <p><i>state</i> - Boolean(true for success, false for failure) <i>result</i> - String(command results)</p> <p>Example of use:</p> <pre>\$array= send_logout ('stpal210603'); if(\$array["state"] == true) { #Logged out success print \$array["result"]; exit; }</pre>
get_parameter	<p>Return type: Associative Array</p> <p>Array index:</p> <p><i>state</i> - Boolean(true for success, false for failure) <i>result</i> - String(parameter value)</p> <p>Example of use:</p> <pre>\$array= get_parameter(\$question, \$default); if(\$array["state"]) { print "User entered data"; } \$myResults = \$array["result"];</pre>
Stop_program	<p>Return type: none</p> <p>Example of use:</p> <pre>stop_program(); \$timeout</pre>
pause_program	<p>Return type: Associative Array</p> <p>Array index:</p> <p><i>state</i>- Boolean(true for success, false for failure) <i>result</i>- String(command results)</p>

Function Name	Data Return
	Example of use: <pre>\$array= pause_program(\$timeout);</pre>
send_indicator	Return type: Associative Array Array index: <i>state</i> - Boolean(true for success, false for failure) <i>result</i> - String(resource name) Example of use: <pre>\$array = send_indicator (\$resource, \$message); if(\$array["state"] ==false) { print "\$array['result'] is an invalid resource.";</pre>
send_alarm	Return type: Associative Array Array index: <i>state</i> - Boolean(true for success, false for failure) <i>result</i> - String(resource name) Example of use: <pre>\$array = send_alarm(\$severity, \$resource, \$message); if(\$array["state"] ==false) { print "\$array['result'] is an invalid resource." ;</pre>
is_resource	Return type: Associative Array Array index: <i>state</i> - Boolean(true for success, false for failure) <i>result</i> - String(resource name) Example of use: <pre>\$array= is_resource(\$resource); if(\$array["state"]) { print "\$array['result'] is a valid resource";</pre>
is_port_valid	Return type: Associative Array Array index: <i>state</i> - Boolean(true for success, false for failure) <i>result</i> - String(Port Number)

Function Name	Data Return
	<p>Example of use:</p> <pre>\$array= is_port_valid(\$portname); if(\$array["state"]) { print "The port number is \$array['result']"; }</pre>
is_clli_valid	<p>Return type: Associative Array</p> <p>Array index:</p> <ul style="list-style-type: none"> <i>state</i> - Boolean(true for success, false for failure) <i>result</i> - String(Port Number) <p>Example of use:</p> <pre>\$array= is_clli_valid('stpal210603'); if(\$array["state"]) { print "The clli number is \$array['result']"; }</pre>
is_port_running	<p>Return type: Associative Array</p> <p>Array index:</p> <ul style="list-style-type: none"> <i>state</i> - Boolean(true for success, false for failure) <i>result</i> - String(Port Number) <p>Example of use:</p> <pre>\$array= is_port_running(\$port_num_val); if(\$array["state"]) { print "The port number \$array['result'] is currently running"; }</pre>
Execute	<p>Return type: Result set</p> <p>For details of use, go to http://phplens.com/lens/adodb/docs-adodb.htm</p> <p>Example of use: \$</p> <pre>rs = Execute(); if (\$rs) while (\$arr = \$rs->FetchRow()) { # process \$arr }</pre>
FetchNum	<p>Return type: None</p> <p>Sets fetch type of the Execute() result set to number array</p>

Function Name	Data Return
	<p>Example of use:</p> <pre>FetchNum(); \$rs = Execute(); if (\$rs) while (\$arr = \$rs->FetchRow()) { # process \$arr print \$arr[0]; }</pre>
FetchAssoc	<p>Return type: None</p> <p>Sets fetch type of the Execute() result set to associative array</p> <p>Example of use:</p> <pre>FetchAssoc(); \$rs = Execute(); if (\$rs) while (\$arr = \$rs->FetchRow()) { # process \$arr print \$arr["COLUMN_NAME"]; }</pre>
write_results	<p>Return type: Associative Array</p> <p>Array index:</p> <ul style="list-style-type: none"> <i>state</i> - Boolean(true for success, false for failure) <i>result</i> - String(resource name) <p>Example of use:</p> <pre>\$array = write_results(\$content, \$extension); if(\$array["state"] ==true) { print "Wrote to the file \$session_id" ;</pre>

Commands Not Supported in the Command Manager Interface

EAGLE 5 commands which require a password and "debug" commands are not supported by the Command Manager Interface. The following table lists the EAGLE 5 commands not supported by the Command Manager Interface.

Un-Supported Commands

Table 14: Un-supported Commands

"Password" Commands	"Debug" Commands	Logout
• act-user	• act-upgrade	• logout

"Password" Commands	"Debug" Commands	Logout
<ul style="list-style-type: none"> • chg-ftp-serv (login parameter) • chg-pid • chg-user (pid parameter) • ent-ftp-serv • ent-user • login • unlock 	<ul style="list-style-type: none"> • cdu • chg-bip-flld • chg-bip-rec • chg-lnp-refnum • cht-tbl • clr-disk-stats • copy-tbl • disp-bip • disp-bp • disp-disk-dir • disp-disk-stats • disp-lba • disp-mem • dlt-bp • ent-bp • ent-trace • rtrv-data-rtdb • send-msg • set-mem • vfy-lnp-refnum 	

Chapter 4

Fault Management

Topics:

- *Features.....168*
- *Operation of the Fault/Communication Agent.170*
- *Connectivity Issues and Related Behavior.....178*
- *Graphical Representation of the EAGLE 5 Product Family.....180*
- *Sample EAGLE 5 Alarms.....185*

This chapter provides descriptions of the functions provided by the EAGLE EMS Fault/Communication Agent.

Features

EAGLE 5 Communications

The Fault/Communication Agent manages all required communication between EAGLE 5 systems and the EAGLE EMS system. Multiple IP connections exist between the EAGLE EMS and each EAGLE 5 system. Each EAGLE 5 system supports the following types of communication ports:

- 16 man-machine interface (MMI) serial I/O ports.

These ports are supported using a terminal server as illustrated in [Figure 87: EMS Connectivity Using MMI Ports](#).

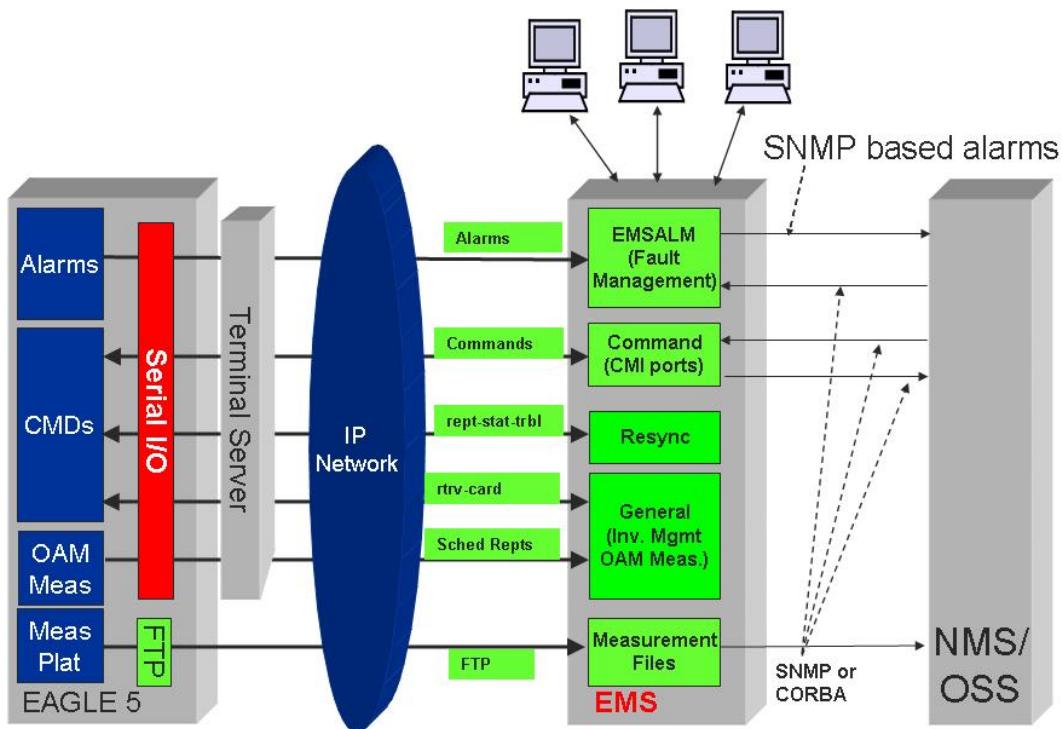


Figure 87: EMS Connectivity Using MMI Ports

- Up to 3 IP Service Module (IPSM) cards, each supporting 8 Telnet sessions.

These ports are supported through TCP/IP and through secure SSL connections as illustrated in [Figure 88: EMS Connectivity Using IPSM Card](#).

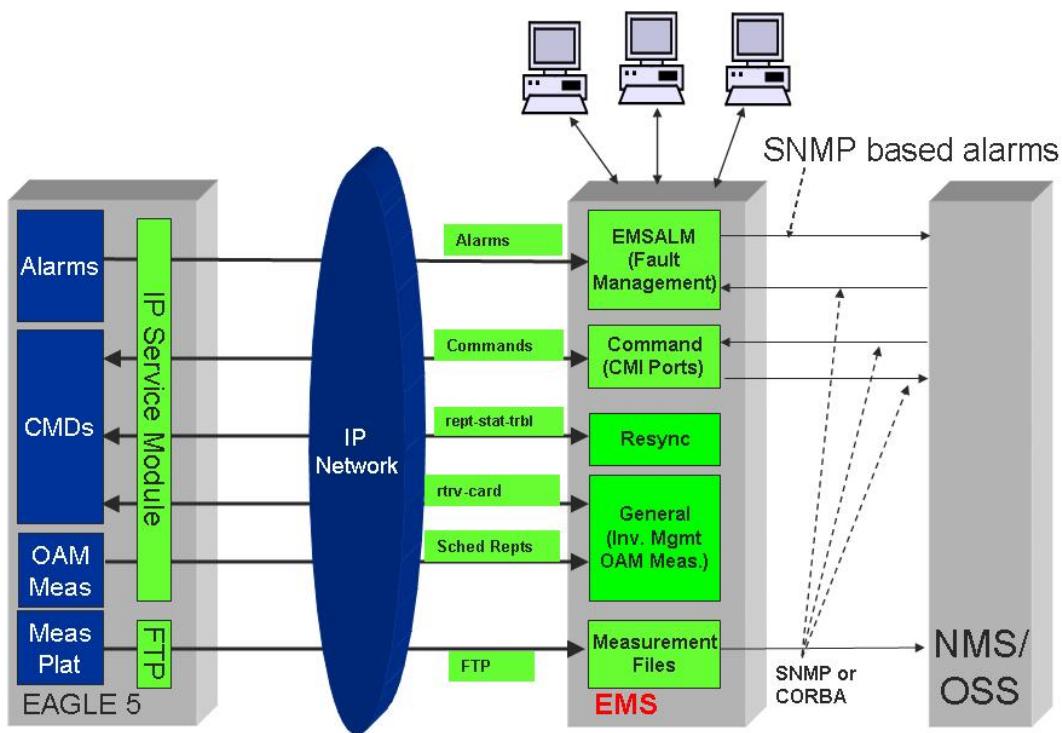


Figure 88: EMS Connectivity Using IPSM Card

Note: Telnet sessions require the use of the Telnet (IP User Interface) feature (Tekelec part number 893005701).

EAGLE 5 systems have a terminal type specifically for EMS alarm monitoring, known as EMSALM.

Monitor EAGLE 5 Alarms

EAGLE EMS monitors alarms originating from EAGLE 5 systems using the Event Viewer and Fault Management System (FMS) applications. Graphical displays are updated in real-time and depict the current status of EAGLE 5 components, in addition to providing detailed alarm information to EAGLE EMS Users.

By examining the message text presented, a detailed description of the alarm can be obtained from the raw output. It is generally useful to review the actual raw logs in conjunction with the Alerts generated by the EAGLE EMS on critical faults in order to expedite problem resolution.

View History of EAGLE 5 Alarms

By default, EAGLE EMS tracks EAGLE 5 alarm history for two weeks. This history is stored in the EAGLE EMS database, and EAGLE 5 session data is logged in an ASCII text file. With EAGLE EMS Reporter, which is part of EAGLE EMS³, it is possible to generate reports based on EAGLE 5 alarms from the database. The ASCII text files can be examined by network administrators to view the all data exchanged between EAGLE 5 systems and EAGLE EMS.

³ See the NetBoss Reporter manual in the Harris Stratex NetBoss documentation for a description of how to use the EMS Reporter.

Dynamic Graphics Represent Installed EAGLE 5 Systems

EAGLE EMS queries the EAGLE 5 system to find current installed card types and applications, and displays graphical representations of the cards based on this information. Graphics for EAGLE 5 supported card types are represented and drawn in the location for each shelf.

Command Cut-Through

A demand button is available on the graphic scene of each EAGLE 5 system which provides easy access to a command terminal interface on the EAGLE 5. Using this cut-through, users can authenticate and run commands on the EAGLE 5 system.

Refresh Inventory

An on-demand button ("**Update Inventory**") is available on the graphic scene of each EAGLE 5 system which enables the EMS User to refresh the configuration information for that system. Clicking on this button causes the EAGLE EMS to query the EAGLE 5 system for information about itself and its constituent shelves and cards. The updated information is used to refresh the graphic representation and detailed information for the resources currently in use on the EAGLE 5 system.

Redundant Network Paths

This EAGLE EMS Fault/Communication Management Agent has backup paths configured in case of primary path failure. All port types can have a backup path configured. It is important that the hardware connecting EAGLE EMS to the EAGLE 5 system does not have a single point of failure if redundant network paths are being used.

Operation of the Fault/Communication Agent

Using the Fault/Communication Agent, EMS users can view EAGLE 5 alarms, log EAGLE EMS activity by SGA port, examine "debug" files containing information about the EAGLE EMS interpretation of EAGLE 5 data, and store raw OA&M reports received from EAGLE 5 systems, as described in the [Viewing EAGLE 5 Alarms](#) section.

Viewing EAGLE 5 Alarms

EAGLE 5 alarms and alarm history are presented using three different applications in the EAGLE EMS application suite, as described in the following sections:

- [EAGLE EMS Fault Management System](#)
- [EAGLE EMS Event Viewer](#)
- [EAGLE EMS Historical Event Viewer](#)

EAGLE 5 Unsolicited Alarm Messages (UAMs) are represented by "Alerts" in the EAGLE EMS.

EAGLE EMS Fault Management System

The Fault Management System (FMS) application displays a graphical representation of EAGLE 5 alarms using a series of graphical depictions of the managed systems. EMS Users can "drill down" from a high-level map depicting the entire managed geography such as the one shown in [Figure 89: EAGLE EMS Graphical Example of a Managed Geography](#) down to the card level.

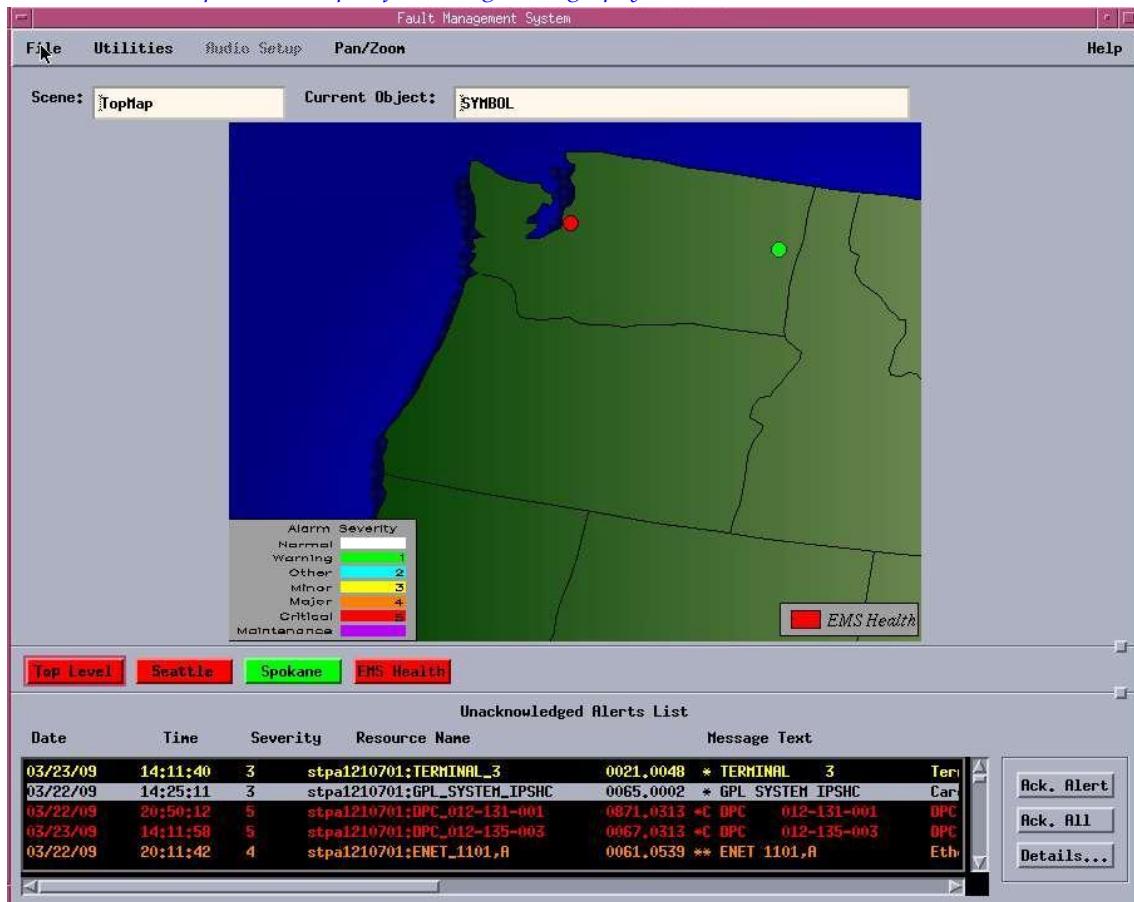


Figure 89: EAGLE EMS Graphical Example of a Managed Geography

The color-coded icon (dot in the figure) indicates the location and status of a managed resource (e.g., EAGLE 5 system). The color of the icon is derived from alarm data received from the EAGLE 5 system(s) in a UAM. If an alarm is outstanding for any resource or contained sub-resource represented by the icon on the map, the icon reflects that alarm status.

The Unacknowledged Alerts List at the bottom of the page shows all of the outstanding Alerts known to the EAGLE EMS. Alerts are color-coded according to the severity level of the corresponding UAM.

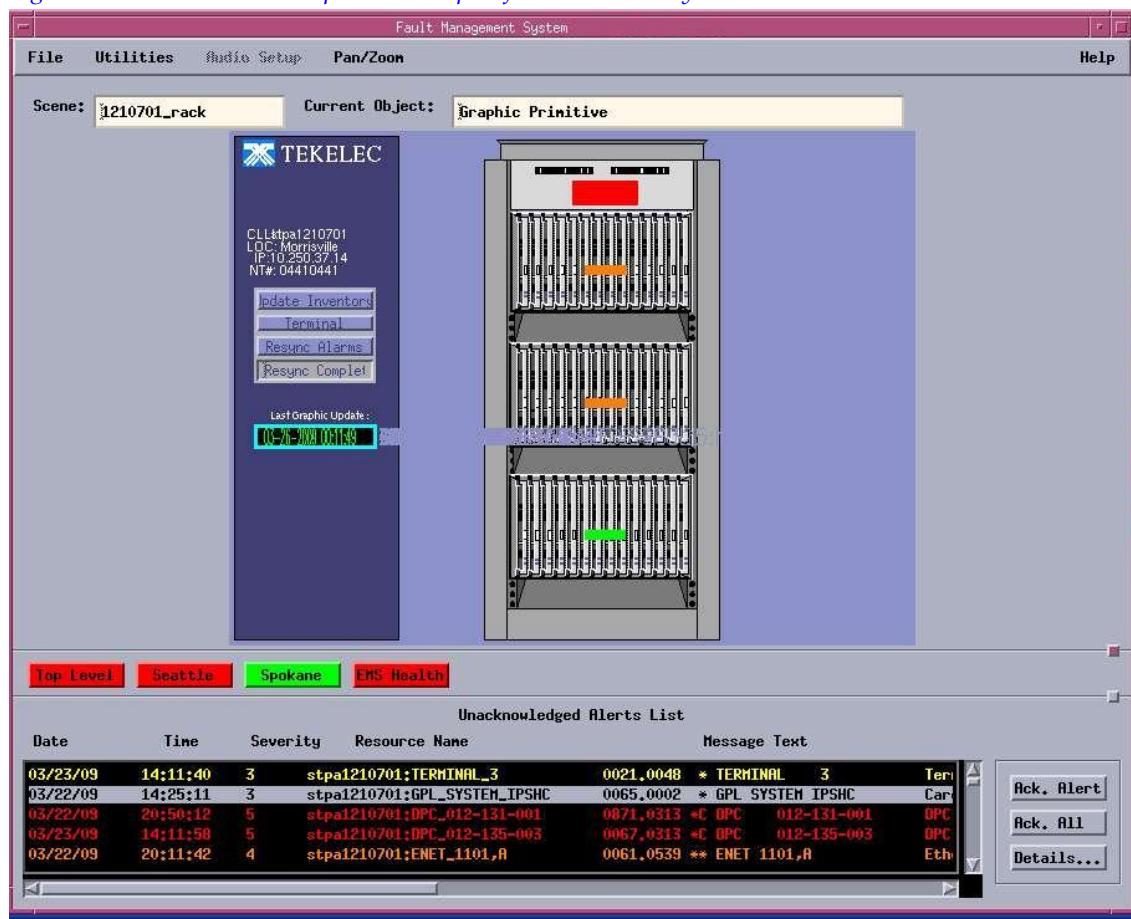
By selecting an Alert and then clicking on the Details... button, additional information about the resource to which the Alert applies is displayed, along with information about its previous state. Alerts can be individually or collectively acknowledged by clicking on the Ack. Alert or Ack. All buttons.

Each resource in the graphic has a status that is represented with a color-coded object. While color settings are adjustable within EAGLE EMS, it is recommended that the semantic associations shown in the following table are used. The mapping of EAGLE 5 UAM alarm levels to EAGLE EMS severity levels is shown in [Table 15: UAM Severity and Color Associations](#).

Table 15: UAM Severity and Color Associations

Text in "Alarm Level" Field in UAM	EAGLE EMS Severity Level	Recommended Resource Status Color
*	Minor Alarm, Severity 3	Yellow
**	Major Alarm, Severity 4	Orange
*C	Critical Alarm, Severity 5	Red
	Clear Alarm, Severity 1	Green

By clicking with the left mouse button on one of the icons on the map, a graphic showing a finer level of detail is displayed. For example, when the red dot is clicked in the example shown in *Figure 89: EAGLE EMS Graphical Example of a Managed Geography*, an EAGLE 5 System is displayed, as shown in *Figure 90: EAGLE EMS Graphical Example of an EAGLE 5 System*.

**Figure 90: EAGLE EMS Graphical Example of an EAGLE 5 System**

The color displayed at the top of the frame graphic reflects the most severe alarm condition outstanding for the frame itself or any of its constituent sub-resources (shelves and cards). The color shown on each shelf reflects the most severe alarm condition outstanding on any of its constituent cards.

EMS users can refresh inventory information and update the dynamic graphics, access an EAGLE 5 command line via a terminal session, or trigger an alarm resync on the EAGLE EMS using the buttons shown on the pane to the left of the EAGLE frame graphic in [Figure 90: EAGLE EMS Graphical Example of an EAGLE 5 System](#).

Clicking with the left mouse button on a shelf within the frame displays a graphical representation of the EAGLE 5 shelf, populated with cards, as exemplified in [Figure 91: EAGLE EMS Graphical Example of a Shelf](#).

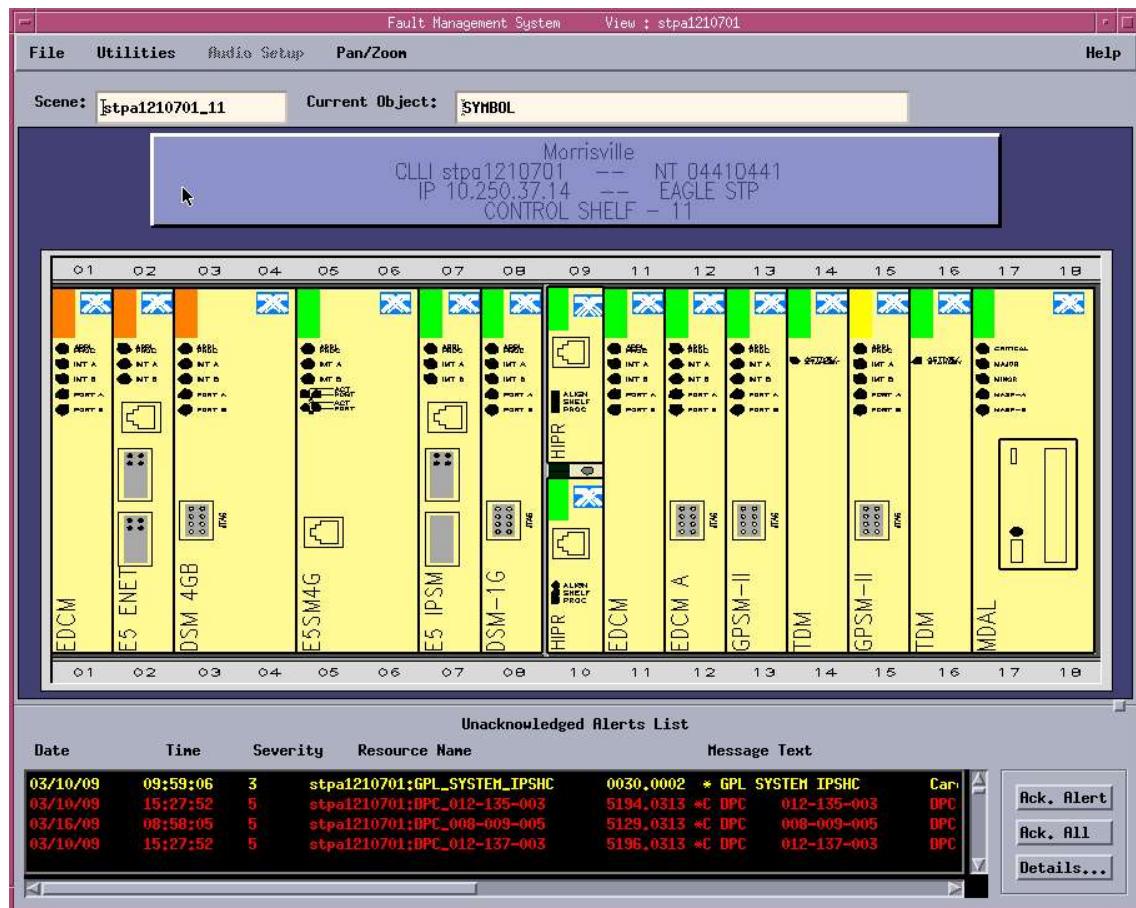


Figure 91: EAGLE EMS Graphical Example of a Shelf

Clicking with the middle mouse button on any resource (at any level) will present a menu of additional management functions that can be performed on that resource. These functions may include:

- View Detailed Information about the resource, including recent management activity involving the resource and the status of its sub-resources.
- Put the resource into or out of maintenance mode. This causes alarms originating from that resource to be suppressed. All alarms are cleared once the resource is taken out of maintenance mode.
- Graph Alerts involving this resource according to time. Multiple graph types are presented.
- Display detailed configuration information about the resource, including model/serial number, location of resource, and warranty information.
- View or edit a management journal for the resource.

Note: In case there is no middle mouse button, the left and right mouse buttons can be clicked simultaneously to simulate a middle-mouse button click.

Clicking with the right mouse button anywhere on the graphical display in the Fault Management System displays the higher-level resource graphic. For example, if the shelf graphic is displayed and the right mouse button is clicked inside that graphic, the graphic for the EAGLE 5 system that contains that shelf appears.

EAGLE EMS Event Viewer

The Event Viewer EMS application shows all current Alerts in text format as exemplified in [Figure 92: Event Viewer Page](#).

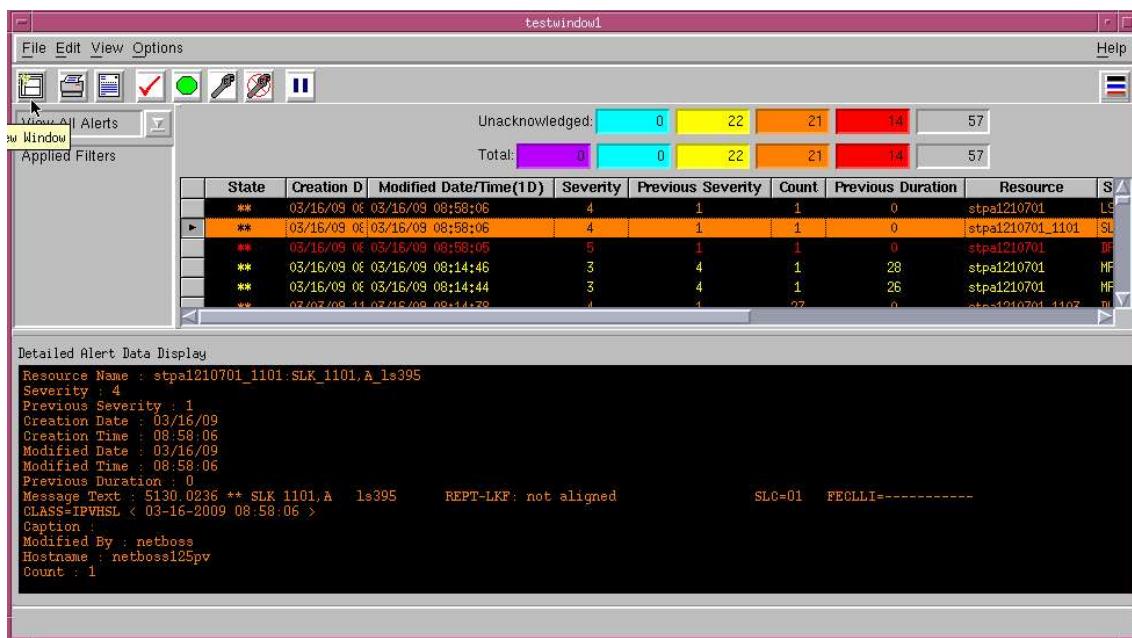


Figure 92: Event Viewer Page

The list of Alerts presented in the EAGLE EMS Event Viewer application can be filtered using user-defined filters as described in the *NetBoss® Event Viewer* manual in the Harris Stratex NetBoss documentation.

When a specific Alert is selected by clicking on it with the left mouse button, more information is presented about that Alert in the **Detailed Alert Data Display** at the bottom of the Event Viewer page. When the Alert is selected with a right mouse-button click, a menu is presented to allow the Alert to be acknowledged, cleared, or placed into or out of maintenance mode. Acknowledged Alerts remain in the table of **Outstanding Alerts**. When an Alert is cleared, it disappears from the list of **Outstanding Alerts**. The right mouse-button click also allows notes to be viewed or manually entered into a journal entry to track activity on that particular alert.

EAGLE EMS Historical Event Viewer

The Historical Event Viewer also present a history of Alerts. [Figure 93: Historical Event Viewer Page](#) shows an example Historical Event Viewer page.

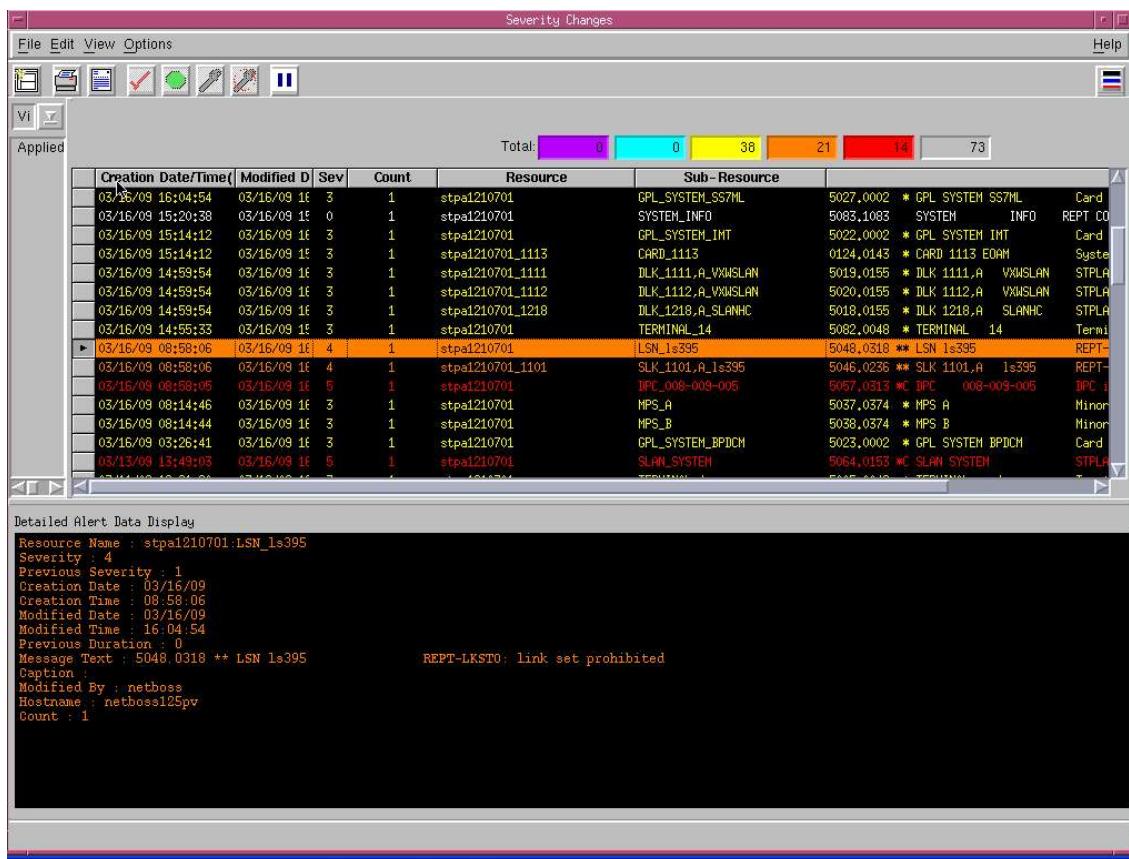


Figure 93: Historical Event Viewer Page

The Historical Event Viewer looks and operates just like the Event Viewer application except for the following:

- Alerts are not acknowledged or cleared from the Historical Event Viewer.
- The Historical Event Viewer also displays severity 0 (informational) messages and severity 1 ("clearing" alarms).
- When an Alert is cleared, the initial Alert is removed from the Event Viewer but in the Historical Event Viewer, both the initial Alert and the "clear" Alert messages are displayed.

As with the Event Viewer application, filters can be applied to the the list of Alerts, as described in the *NetBoss® Event Viewer* manual in the Harris Stratex NetBoss documentation. By default, Alerts are maintained for two weeks before being archived.

Note: The EAGLE EMS Reporter can also be used to view a history of Alerts. See the *NetBoss Reporter* manual in the Harris Stratex NetBoss documentation for a description of how to use and configure the EAGLE EMS Reporter.

Alarm Synchronization

The Fault/Communication Agent matches all current alarms on EAGLE 5 systems with alarms in the EAGLE EMS system. To maintain a current view of alarms, the Fault/Communication Agent has a synchronize function that retrieves a list of open alarms on the EAGLE 5 system using an `rept-stat-trbl` command. The synchronize function gathers the EAGLE timestamp for each alarm

condition, includes the timestamp in the alarm message text presented by EAGLE EMS, and compares the collected alarm information to the alarms stored in EAGLE EMS.

The synchronize function is performed in all of the following conditions:

- When the EAGLE EMS Fault/Communication Management Agent starts
- After a loss of connection with an EAGLE 5 system
- When selected from the **Resync Alarms** button in the Fault Management System window, as illustrated in *Figure 94: Resync Alarms in Fault Management System*.

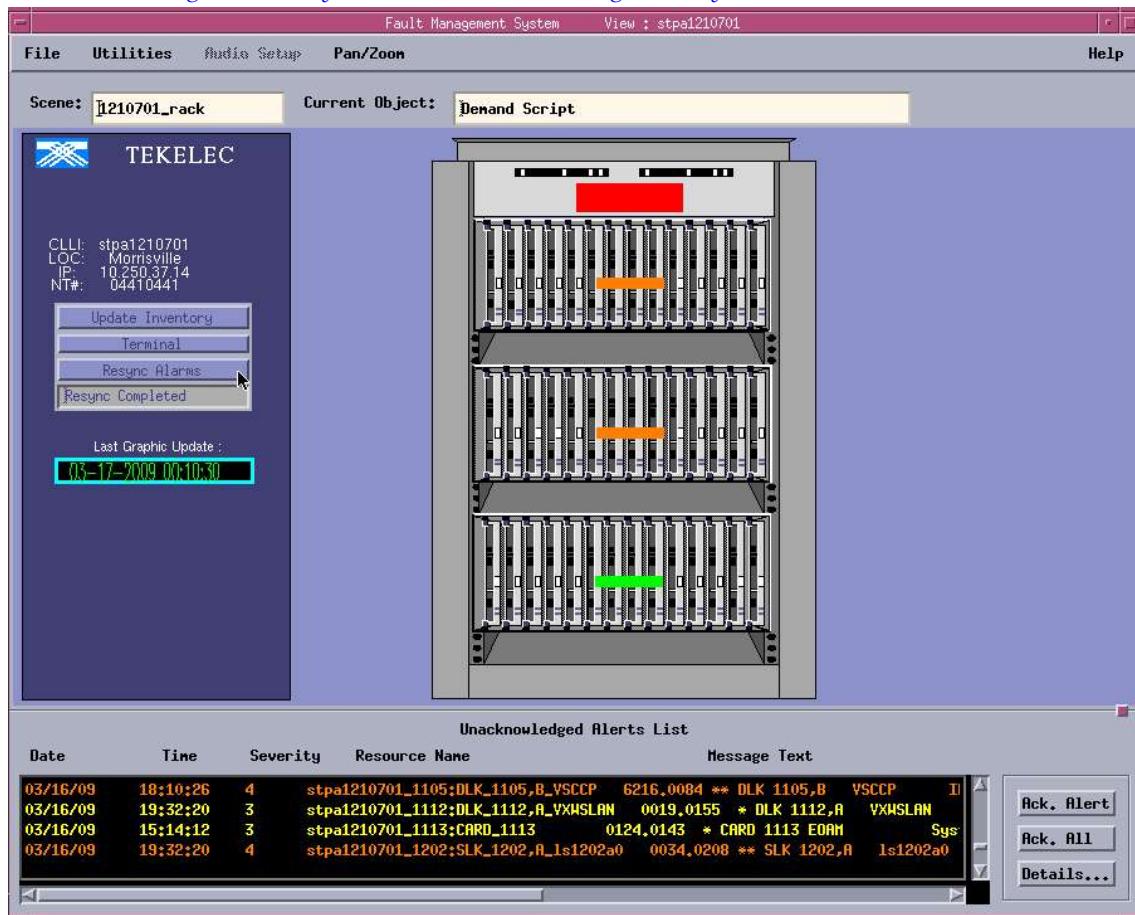


Figure 94: Resync Alarms in Fault Management System

EAGLE 5 Generated Resource Types

The Resource Type of a UAM message is determined by contents of the text alarm. The following alarm types are specifically parsed in the EAGLE EMS Fault/Communication Agent:

- CARD
- DCM
- DLK
- DSM
- E1PORT
- EPAP

- IPMX
- MCPM
- SLK
- T1PORT

Each of these resource types is depicted in the FMS to the CARD level, with the following resource identifier of "{CLLI}_{CARD}:SUBRES".

EAGLE EMS Fault/Communication Agent Parameters

Configuration parameters that are used to control the behavior of the EAGLE EMS Fault/Communication Agent can be set using the EAGLE EMS ProBuilder application as shown in [Figure 95: EAGLE EMS Fault/Communication Agent Parameters in ProBuilder](#). See the NetBoss ProBuilder document in the Harris Stratex NetBoss documentation for details on setting EAGLE EMS configuration parameters.

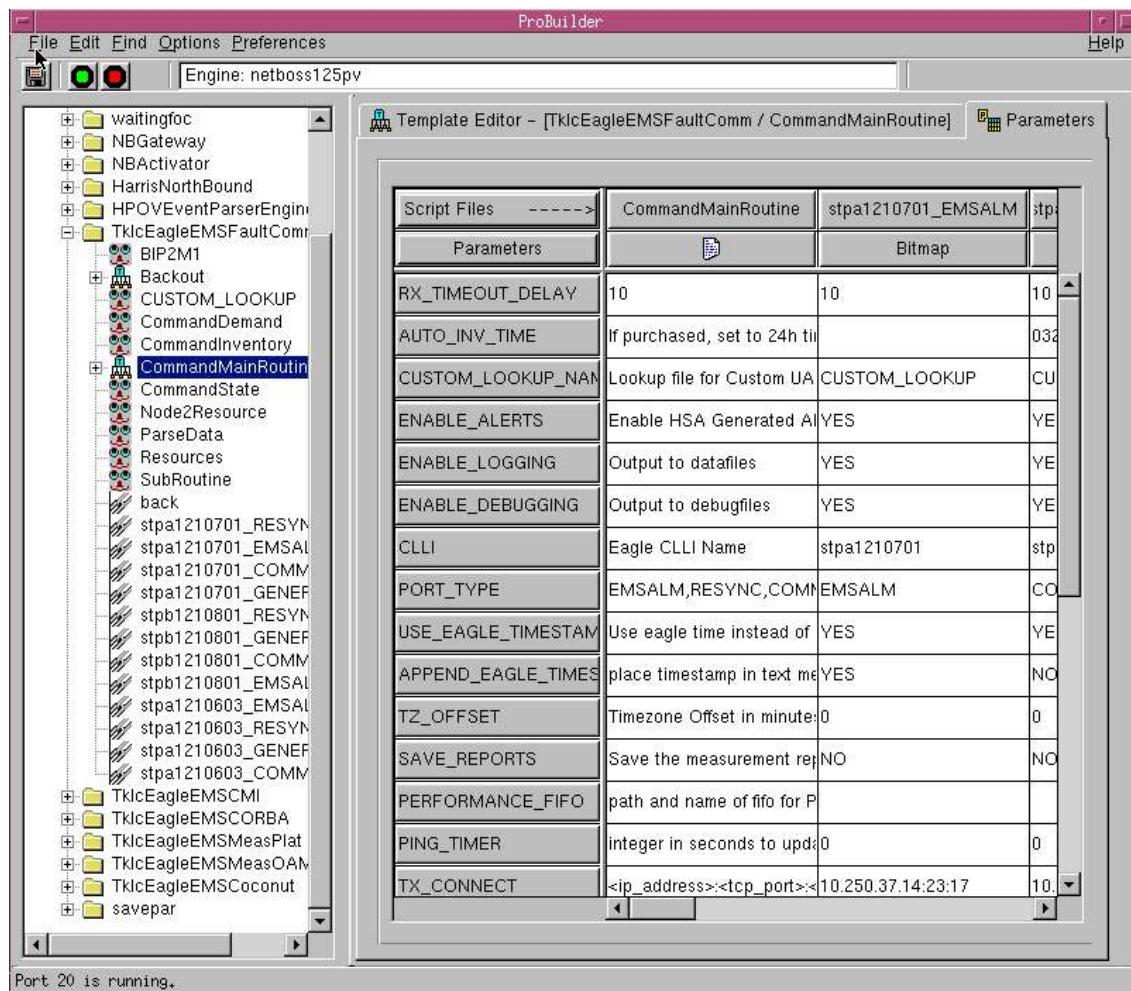


Figure 95: EAGLE EMS Fault/Communication Agent Parameters in ProBuilder

Connectivity Issues and Related Behavior

The EAGLE EMS detects and reports problems with connectivity between itself and an EAGLE 5 system via alarms, as described in the following sections:

- [Generated Alarms](#)
- [CheckConnect](#)

Generated Alarms

The EAGLE EMS Fault/Communication Management Agent generates alarms based on the status of the connection to the EAGLE 5 systems. These alarms may indicate the loss of connection, an improper password, or an incorrect configuration. The names of resources in alarms generated from the Fault/Communication Management Agent in support of the EAGLE 5 communication have the following format:

{CLLI}:sgaPort{##}_{PortType}_{Condition}

Table 16: EAGLE EMS Communication Alarms lists information about the alarms generated by the EAGLE EMS that relate to the health of its connection with an EAGLE 5 system.

Table 16: EAGLE EMS Communication Alarms

Condition	Alarm Description	Severity
connecting	IPSM Detected IPSM Card in 'Server Busy' mode No terminals available on IPSM card IPSM not responding	1 5 5 5
ipsmconnect	IPSM Terminal not available Connection established on terminal	5 1
checkconnect (see CheckConnect)	Timed Out waiting for response	5
username	Received password prompt Login rejected Timed Out waiting for Password prompt	1 5 5
password	Must change password Completed Login User already logged in on another terminal	1 1 5

Condition	Alarm Description	Severity
	Password Rejected Timed Out waiting for Password prompt	5 5
changepassword	Completed Login User already logged in on another terminal New Password Rejected Timed Out waiting for Verify Password prompt	1 5 5 5
verifypassword	Changed Password and Completed Login User already logged in on another terminal New Password Rejected Timed Out waiting for Accepted Password	1 5 5 5
stopinventory	Command Executed Timed Out waiting for Command Prompt	1 5
resynccommand	Command Accepted Command Rejected Timed Out waiting for command response	1 5 5
resyncrx	Parsing output Receiving results Timed Out waiting for command response	1 1 5
status	Standby Interface OFFLINE	1

CheckConnect

The EAGLE EMS Fault/Communication Agent polls an EAGLE 5 system when unsolicited data has not been received for five minutes. The five minute timer is reset when data is received by the Fault/Communication Agent. This CheckConnect function performs one of the following two actions, depending on the Fault/Communication Agent parameters.

- For OAM terminals 1-16, the checkconnect routine transmits a "checkconnect" command to verify that the EAGLE EMS is still connected. If a Cmd Rej message is returned, the EAGLE EMS is still connected to the EAGLE 5. If no response is received, the Fault/Communication Agent Issues a CheckConnect alarm and attempts to reconnect to the EAGLE 5.
- For IPSM terminals 17-40, the checkconnect routine will transmit the F8 character to solicit for "Scroll Lock ON" and "Scroll Lock OFF" responses. If the Fault/Communication Agent does not

receive a response to the F8 character, it issues a CheckConnect alarm and attempts to reconnect to the EAGLE 5 system.

It is normal for the CheckConnect function to run once every five minutes on idle RESYNC and COMMAND port types to ensure that the connection to the EAGLE 5 system is still operational.

Note: It is not normal for the CheckConnect function to run on EMSALM and GENERAL port types. If the heartbeat UIM is not being generated on EMSALM port, CheckConnect will signal for an alarm resync to occur every five minutes. This condition would be caused by incorrect EAGLE 5 terminal configuration. More information about configuring EAGLE 5 terminals can be found in the *EAGLE 5 Commands Manual*.

Graphical Representation of the EAGLE 5 Product Family

Available Scene Templates

Two compiled templates are required in order to properly build graphical views of an EAGLE 5 system. By using scenes and their associated parameter files, multiple views can be quickly created for use with the graphical capabilities of EAGLE EMS. The following sections describe the scenes available in Scene Builder:

- *Scene Name: Tem_EAGLE_STP_1RACK*
- *Scene Name: Tem_EAGLE_STP_2RACK*
- *Scene Name: Tem_EAGLE_STP_3RACK*
- *Scene Name: Tem_EAGLE_STP_6RACK*
- *Scene Name: Tem_EAGLE_STP_SHELF*

Scene Name: Tem_EAGLE_STP_1RACK

This template can be used whenever a scene with a single EAGLE 5 frame is required.



Figure 96: Single EAGLE 5 Frame Scene

Scene Name: Tem_EAGLE_STP_2RACK

This template can be used whenever a scene with two EAGLE 5 frames is required.

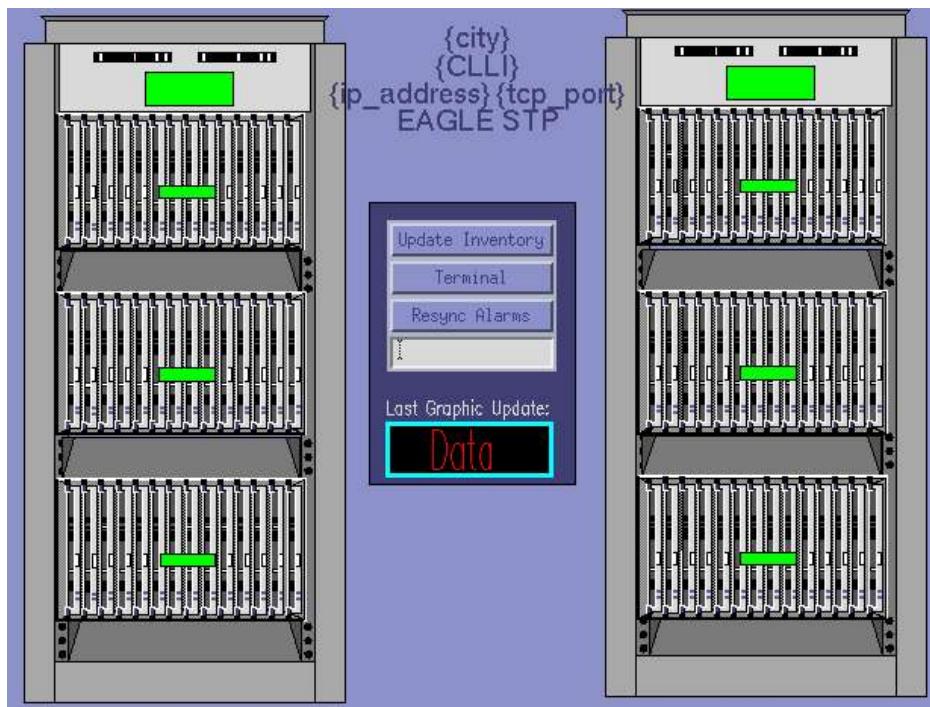


Figure 97: Two EAGLE 5 Frame Scene

Scene Name: Tem_EAGLE_STP_3RACK

This template can be used whenever a scene with three EAGLE 5 frames is required.

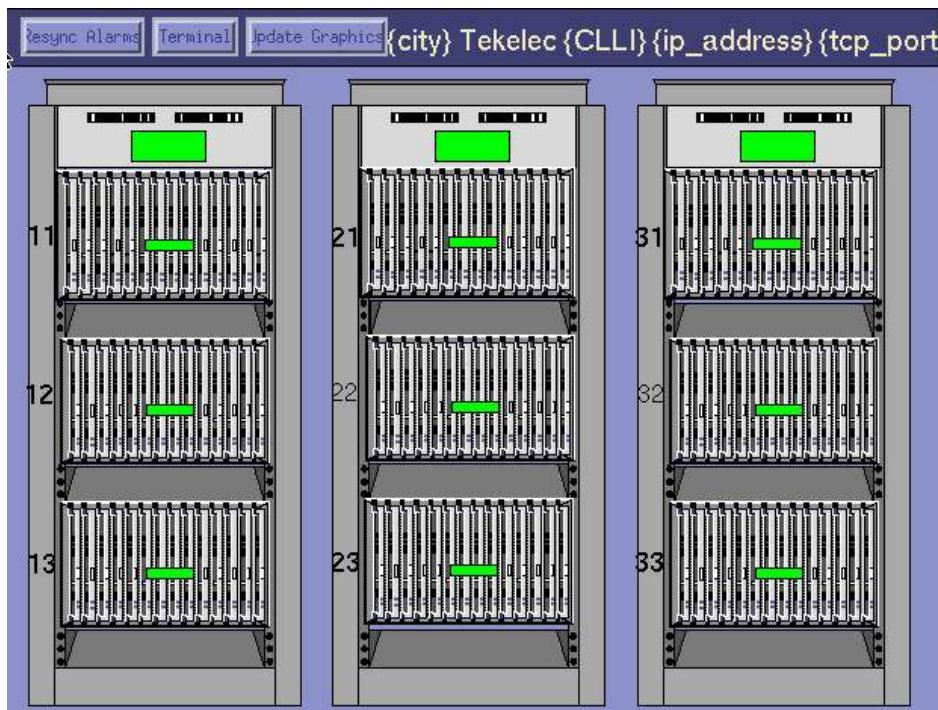


Figure 98: Three EAGLE 5 Frame Scene

Scene Name: Tem_EAGLE_STP_6RACK

This template can be used whenever a scene with six EAGLE 5 frames is required. The EPAP servers in the Tem_EAGLE_STP_6RACK graphic are represented by the MPS device alarms from the EAGLE 5 system.

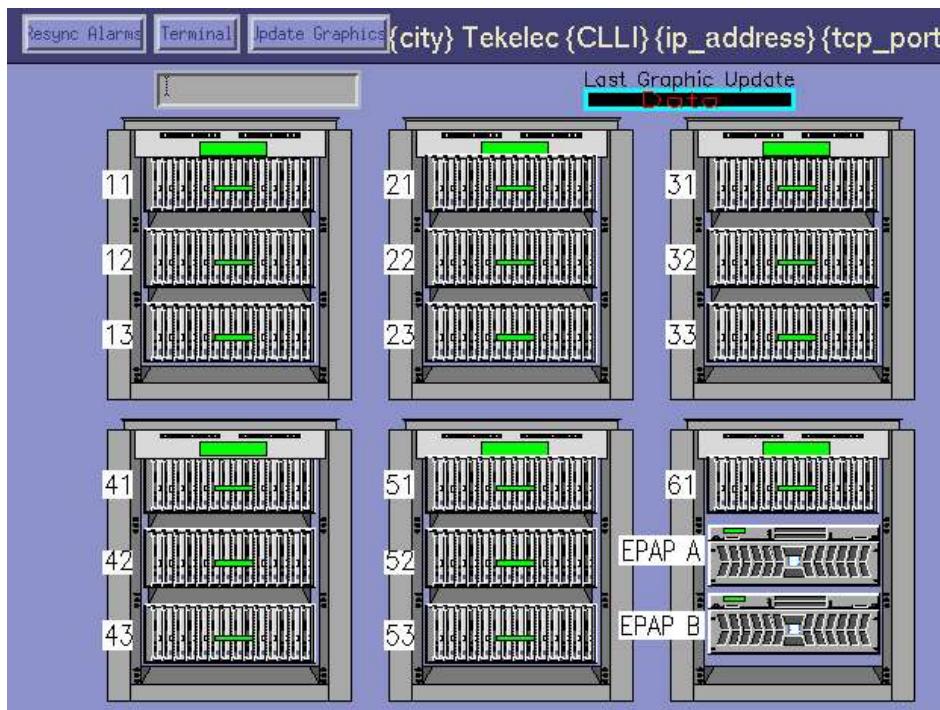


Figure 99: Six EAGLE 5 Frame Scene

Scene Name: Tem_EAGLE_STP_SHELF

This template can be used to create all shelf-level scenes. It can be used to represent either a control shelf or an extension shelf.

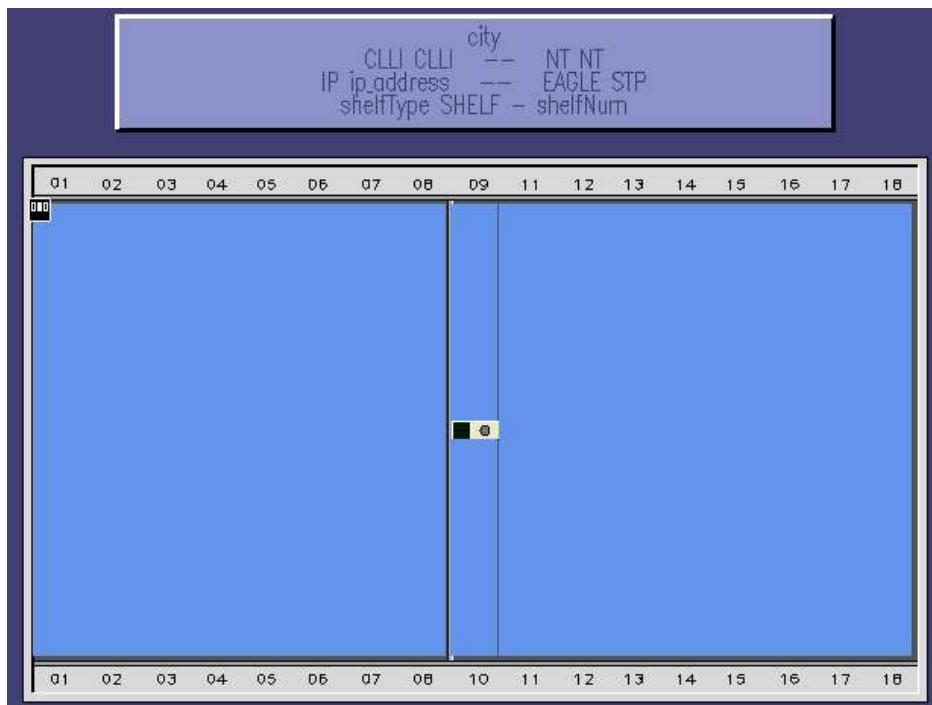


Figure 100: EAGLE 5 Shelf Scene

Sample EAGLE 5 Alarms

Card-Level Alarm

Fault as Displayed

```
RLGHNXA21W 94-02-07 12:01:43 EST EAGLE 35.0.0
** 0014.0001 ** CARD 1113 OAM Card has reset
```

- **EAGLE EMS Resource:** RLGHNXA21W_1113_OAM
- **Severity:** 4
- **Message Text:** 0014.0001 ** CARD 1113 OAM Card has reset

Port-Level Alarm

Fault as Displayed

```
RLGHNXA21W 00-02-07 12:01:43 EST EAGLE 35.0.0
0014.0401 SLK 1205,A SS7ANSI Alarm cleared by deleting SLK
FECLLI=A1234567890 SLC=01
```

- **EAGLE EMS Resource:** RLGHNXA21W_1205,A SS7ANSI
- **Severity:** 1
- **Message Text:** 0014.0401 SLK 1205,A SS7ANSI Alarm cleared by deleting SLK

SLC=01 FECLLI=A1234567890

Frame-Level Alarm

Fault as Displayed

```
RLGHNCXA21W 96:07:02 11:02:30 EST EAGLE 35.0.0 *C 0100.0063 *C CLOCK  
Critical holdover clock trbl detected
```

- **EAGLE EMS Resource:** RLGHNCXA21W:CLOCK
- **Severity:** 5
- **Message Text:** 0100.0063 *C CLOCK Critical holdover clock trbl detected

Fault as Displayed

```
RLGHNCXA21W 00-02-07 11:02:30 EST EAGLE 35.0.0 ** 0100.0342 ** SEAS OAP B  
SEAS UAL unavailable
```

- **EAGLE EMS Resource:** RLGHNCXA21W:SEASOAP_B
- **Severity:** 4
- **Message Text:** 0100.0342 ** SEAS OAP B SEAS UAL unavailable

Chapter

5

Inventory Monitoring Interface

Topics:

- *Functional Description.....188*
- *Inventory Commands.....188*
- *Viewing Inventory Information.....189*
- *Stop Inventory.....195*
- *Inventory Reports.....195*

This chapter provides information about the EAGLE EMS Inventory Monitoring Interface.

Functional Description

The EAGLE EMS Inventory Monitoring Interface performs a scheduled inventory of the configuration and status of all EAGLE 5 hardware, software, and databases. The inventory of all EAGLE 5 information is kept in a central EAGLE EMS database, which allows viewing of the inventory objects and status information without having to connect to and query the EAGLE 5. The responses from the retrieves are made available even if the EAGLE is offline.

Crystal Reports for card status are included with the Inventory module. Contact Tekelec Customer Care Center for availability of additional reports.

Note: The Inventory interface must be installed on the EAGLE EMS server for the Auto-Inventory function to be valid. Refer to the *EAGLE EMS Administration Guide*.

Inventory Commands

Table 17: Inventory Commands lists the commands that are run in the scheduled inventory for each EAGLE 5 system.

Table 17: Inventory Commands

For Each EAGLE 5 System
rtrv-shlf
rept-stat-card
rtrv-map
rtrv-scr-aftpc
rtrv-scr-blkdpc
rtrv-scr-blkopc
rtrv-scr-cdpa
rtrv-scr-cgpa
rtrv-scr-destfld
rtrv-scr-dpc
rtrv-scr-isup
rtrv-scr-opc
rtrv-scr-tt
rtrv-scr-sio
rtrv-scr-scrset
rept_stat_db

For Each EAGLE 5 System
rtrv-gpl
rtrv-card
rept-stat-rte
rept-stat-ls
rept-stat-slk
rept-stat-gpl
rtrv-slk
rtrv-tbl-capacity
rept-meas
rtrv-log
rtrv-bip
rept
rept-stat-card:mode=full

Viewing Inventory Information

This procedure describes how to view inventory information about each EAGLE 5 system to which the EAGLE EMS is connected.

The FMS EAGLE Shelf page (refer to [Viewing EAGLE 5 Alarms](#)) must be displayed.

1. To view inventory data for a card, on the EAGLE Shelf Page graphic, middle-click on the card or to view the Non-card specific inventory files, middle click on the border of the rack.

A page similar to [Figure 101: FMS EAGLE Shelf Page](#) appears showing an **Options** sub-menu (see [Figure 102: Options Sub-menu](#)).

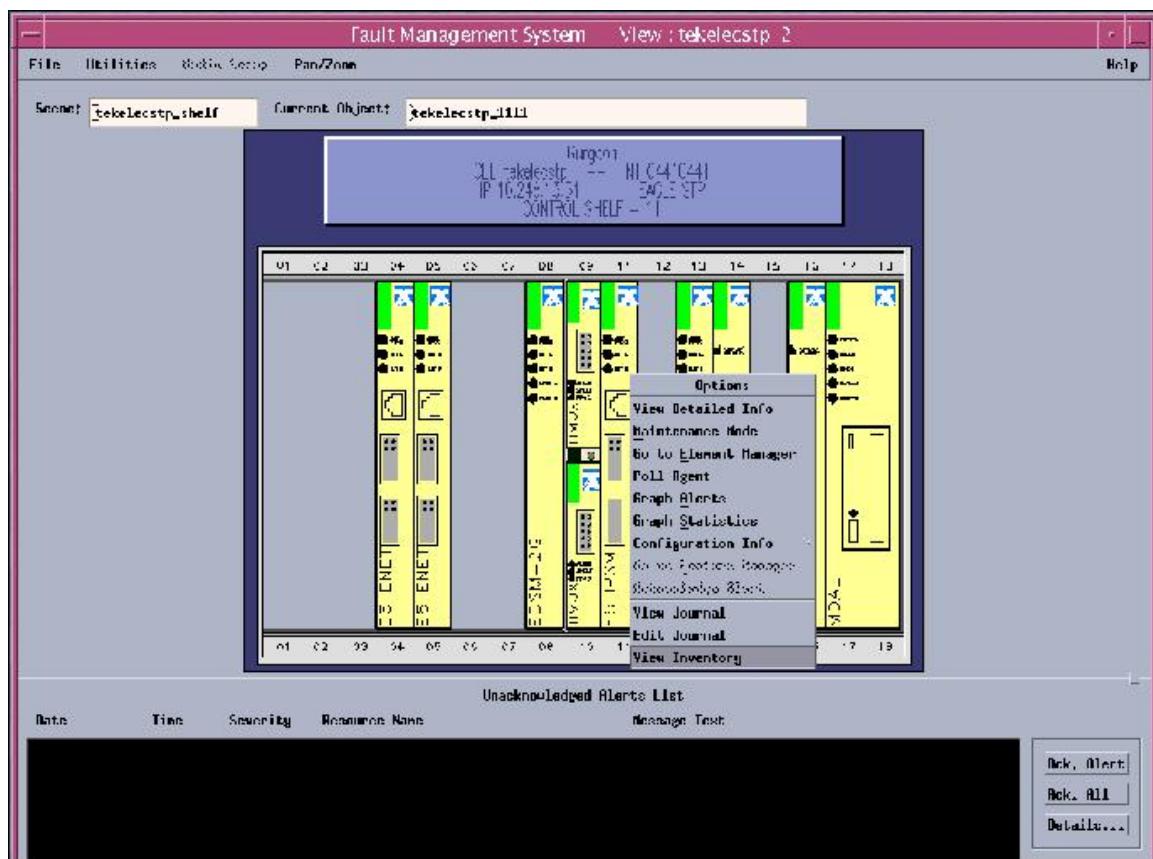


Figure 101: FMS EAGLE Shelf Page

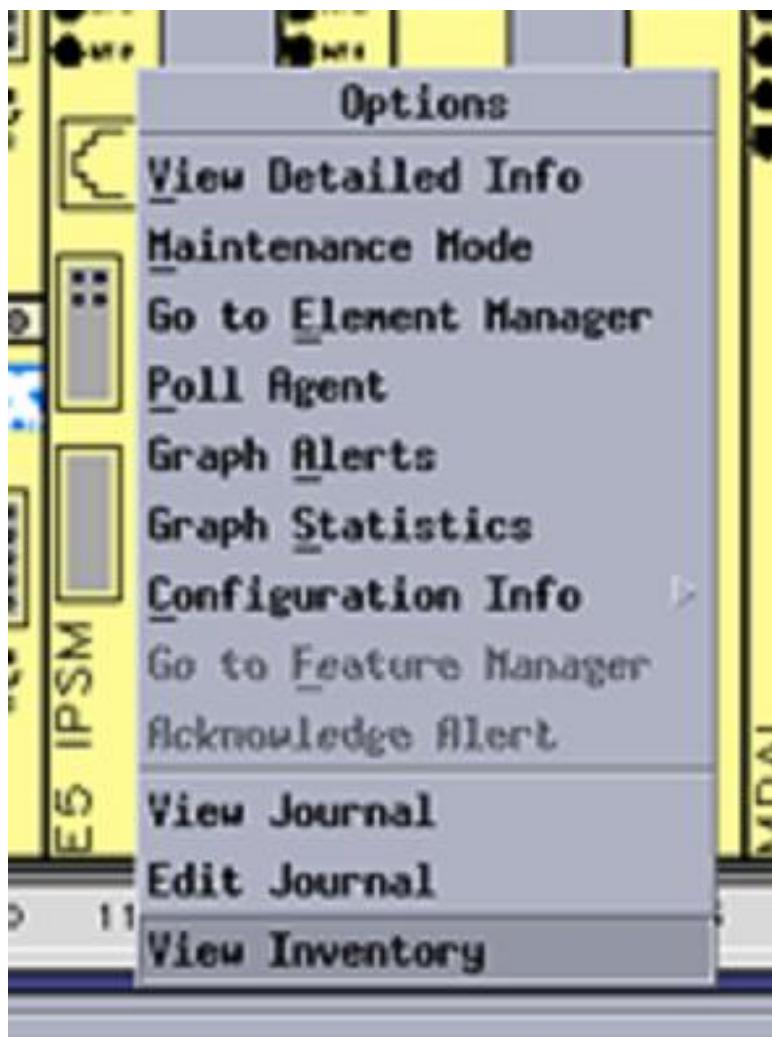


Figure 102: Options Sub-menu

2. Click on **View Inventory Info**.

A page similar to the one shown in *Figure 103: Inventory Data Page* appears.

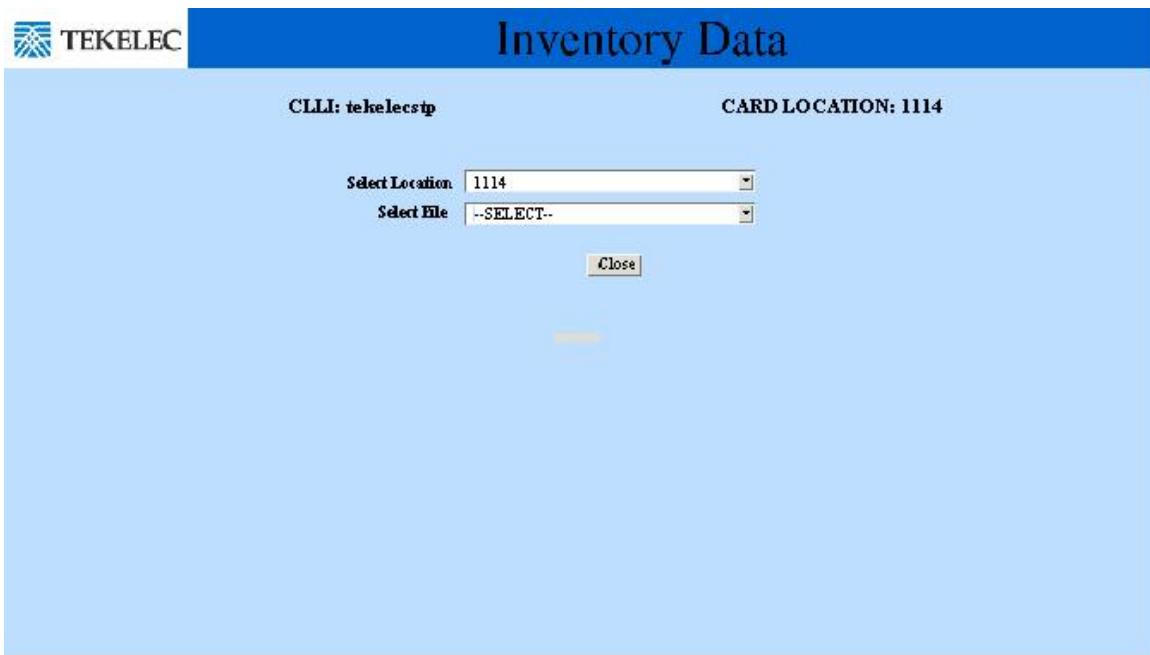


Figure 103: Inventory Data Page

- If an invalid CLLI name (CLLI name that does not exist in the database) is passed to 'Inventory Data' page by FMS GUI, an error message "CLLI name '<CLLI Name>' is invalid!" will be displayed on the page. The 'Select Location' and 'Select File' drop downs will not be displayed on the page.
- If a valid CLLI name (CLLI name that does exist in the database) but an invalid card location (for which no inventory file exists) is passed to 'Inventory Data' page by FMS GUI, an error message "Card location '<Card Location>' is invalid!" will be displayed on the page. However, 'Select Location' drop down will list all the card locations for which inventory files are available and value '-- Select --' will be selected in it by default. Also, 'Select File' drop down will not be visible on the page.
- If a valid CLLI name as well as valid card location is passed to 'Inventory Data' page by FMS GUI but no inventory files exist for any card, an error message "Inventory data is not available for CLLI '<CLLI Name>'" will be displayed on the page.

The Inventory Data page provides the following:

- **Select Location:** used to select a card location.
- **Select File:** used to select an inventory file.
- : clicking on this button will close this page and return you to the FMS EAGLE Shelf page.

3. Click on the **Select Location** drop down list.

Select Location: drop down list options are:

- -- SELECT -- (the default setting)

If this option is chosen, the 'Select File' drop down will disappear and a message '**Not selected!**' will be displayed (see [Figure 104: Location Not Valid](#)). A valid card location must be selected.

- **ALL**

If this option is chosen, the ‘Select File’ drop down will be populated with names of all available inventory files (as mentioned in section 2.2) for all cards.

Click on the desired file in ‘Select File’ drop down to view its contents (see [Step 4](#)).

- A listing of all card locations for which one or more inventory files are available (see [Figure 105: Inventory File List](#))

Click on the desired card location to populate the ‘Select File’ drop down list with names of all available inventory files for that card.

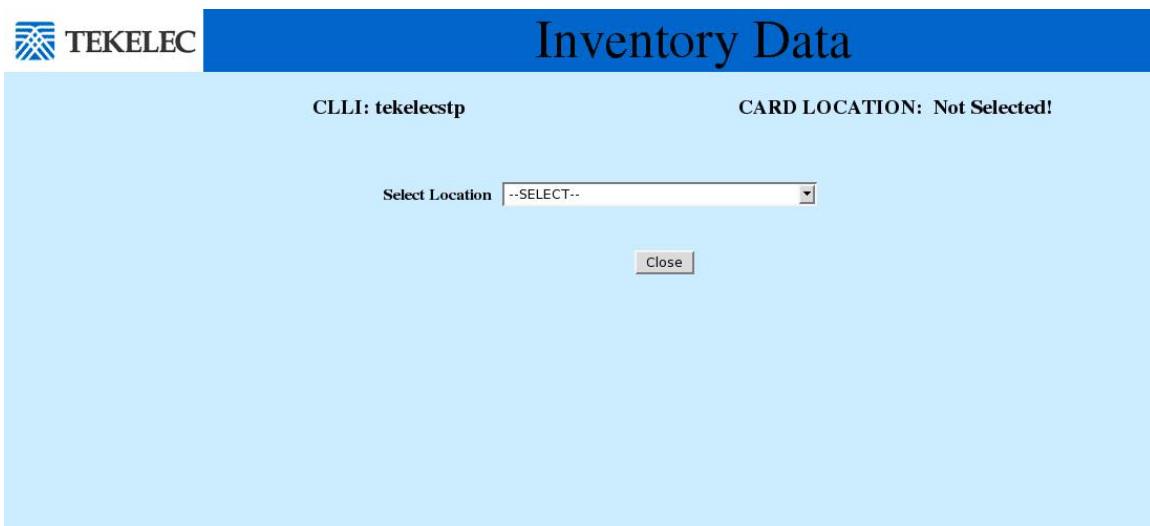


Figure 104: Location Not Valid

4. Click on the **Select File** drop down list.

- -- SELECT -- (the default setting)

If this option is chosen, the ‘Select File’ drop down will disappear and a message ‘Not selected!’ will be displayed. A valid card location must be selected.

- A listing of all inventory files that are available

Click on the desired inventory file name to view the file contents (see [Figure 106: Inventory File Contents](#)).

The inventory files available are:

- RTRV-BIP:LOC=<Card Location>:TYPE=mbd
- REPT-STAT-CARD:LOC=<Card Location>:MODE=FULL

Note: After inventory is executed on an EAGLE, the files are stored on the EAGLE EMS server.

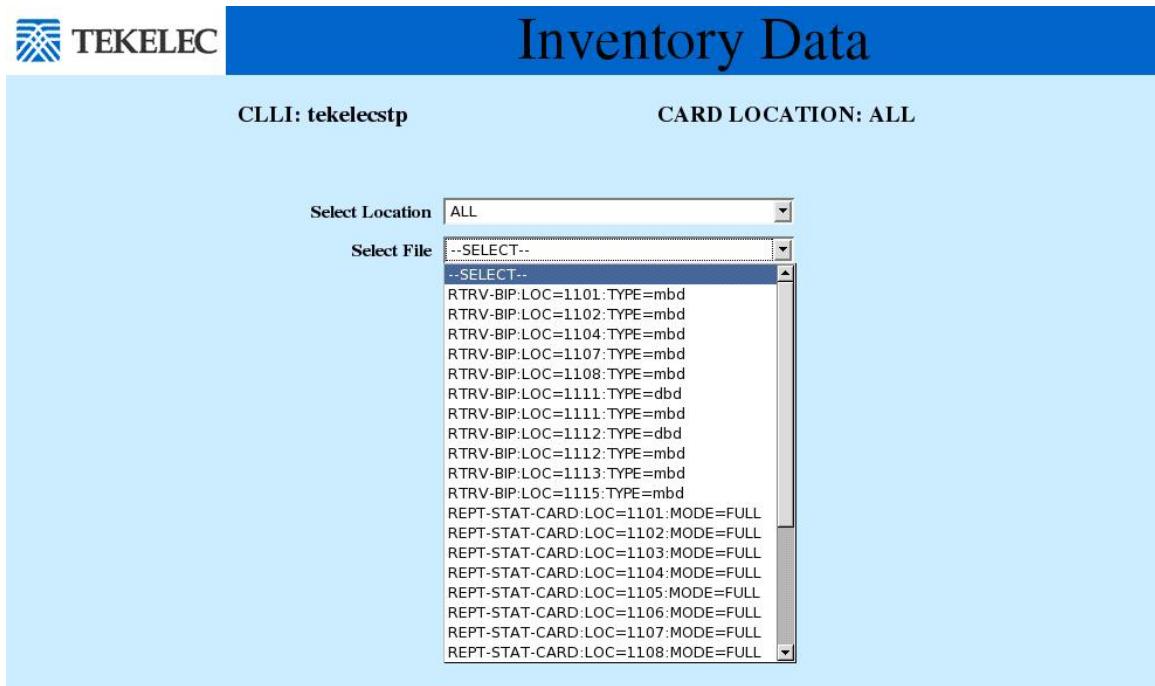


Figure 105: Inventory File List

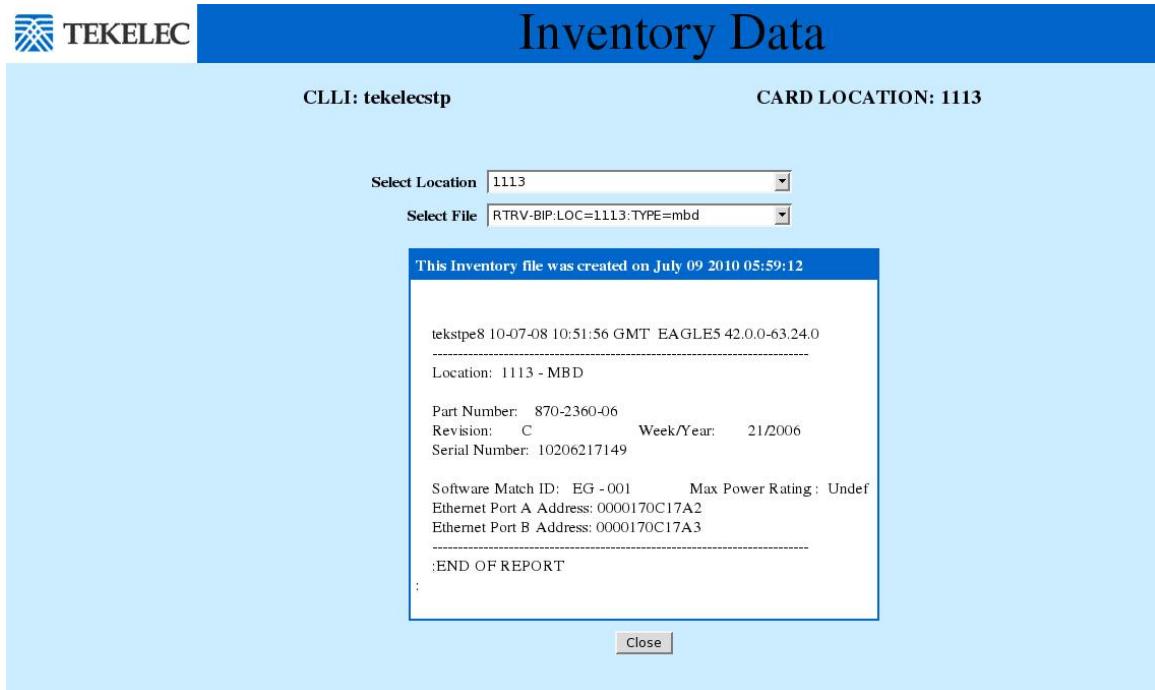


Figure 106: Inventory File Contents

Stop Inventory

A complete inventory of a fully populated EAGLE 5 can take a few hours. During execution of some reporting commands, the EAGLE 5 database cannot be modified. If the EAGLE 5 must be modified during inventory execution, the inventory must be stopped. A demand script is available that can cut through into the EAGLE EMS Fault/Communication Management Agent and stop the inventory process. where {prob_port} is the SGA EAGLE 5 COMMAND port.

Inventory Reports

Supported Inventory reports that are valid for a standalone EAGLE 5 system include the following:

- | | |
|------------------------|---|
| Card Report | Status and revision levels of all of the different card types. |
| OOS Card Report | Identifies only those cards that are out of service, both automatic and manual. |

Note: Contact the [Customer Care Center](#) if additional reports are required.

Example EAGLE 5_CardReport

Report Date : 2005-08-10 (11:39:25)			
Melbourne FL, Tekelec STP tekelecstp		Card Report	
Card	Card Type	Card Status	Card Revision
1101	IPSM	IS-NR	123-046-000
1102	EDSM	IS-NR	123-046-000
1104	TSM	IS-NR	123-046-000
1106	TSM	IS-NR	123-046-000
1107	EDSM	IS-NR	123-046-000
1109	HMUX	IS-NR	118-020-000
1110	HMUX	IS-NR	118-020-000
1113	GPSM	IS-NR	123-046-001
1114	TDM	Active	-----
1115	GPSM	IS-NR	123-046-001
1116	TDM	Active	-----
1117	MDAL	Active	-----

Example EAGLE 5_OOSCardReport

Report Date : 2005-08-10 (08:04:07)			
Melbourne FL, Tekelec STP		Card OOS Report	Out of Service Card Report
tekelecstp2			
Card	Card Type	Card Status	Card Revision
1201	LIMDS0	OOS-MT-DSBLD	-----
1202	LIMDS0	OOS-MT-DSBLD	-----
1203	LIMDS0	OOS-MT-DSBLD	-----
1204	LIMDS0	OOS-MT-DSBLD	-----
1205	LIMDS0	OOS-MT-DSBLD	-----
1206	LIMDS0	OOS-MT-DSBLD	-----
1207	LIMDS0	OOS-MT-DSBLD	-----
1208	LIMDS0	OOS-MT-DSBLD	-----
1211	LIMDS0	OOS-MT-DSBLD	-----
1214	LIMDS0	OOS-MT-DSBLD	-----
1306	LIMDS0	OOS-MT-DSBLD	-----
1307	LIMDS0	OOS-MT-DSBLD	-----
1314	LIMDS0	OOS-MT-DSBLD	-----
1317	LIMDS0	OOS-MT-DSBLD	-----

Chapter 6

Link Utilization Interface

Topics:

- *Overview.....198*
- *Link Data.....198*
- *Polling.....203*
- *Viewing LUI Logs.....206*
- *Crystal Reports.....207*
- *Link Capacity Reference Table.....214*

The Link Utilization Interface provides a mechanism for configuring capacity information in the EAGLE EMS for links in EAGLE 5 systems to which the EAGLE EMS is connected.

Overview

The Link Utilization Interface supplements the Measurements Platform Agent by providing capacity data for each EAGLE EMS link and utilization formulas that can be used by rendering processes such as Crystal Reports. This supplemental information provides context to the various peg counts associated with links and link-sets and supports operational monitoring and control of STPs on the domain.

The Link Utilization Interface gathers the EAGLE configuration data, creating polling scripts corresponding to all EAGLEs configured, and parses the result files and puts the data into EMS database tables. The interface extracts link capacity data as configured on EAGLE for each link and stores it in an EMS database table to help create more informative Measurement Reports regarding the link utilization on EAGLEs.

The Link Utilization Interface is accessed via the Command Manager Interface. Before the Link Utilization Interface can be used, the Command Manager Interface and the EAGLE EMS Measurements Platform Agent must be installed on the EAGLE EMS. If the Measurements Platform Agent is uninstalled subsequent to the installation of the Link Utilization Feature, the link that accesses the GUI to enter link capacity values is disabled as follows:

- If an authorized EMS User launches the Command Manager Interface after the Measurements Platform Agent is un-installed, the link to the Link Utilization Interface is disabled for the duration of that CMI user session, even if the the Measurements Platform Agent is re-installed during that user session.
- If an authorized EMS User launches the Command Manager Interface before the Measurements Platform Agent is un-installed, the link to the Link Utilization GUI remains enabled for the duration of that CMI user session, even while the Measurements Platform Agent is un-installed. In this case, the link capacity values in the Link Utilization Interface may differ from those in the EAGLE, causing EAGLE EMS reports to be erroneous.

Link Data

Link utilization data can be useful to network planners and operations personnel.

Link capacity values vary depending on the type of link involved. IP link capacity is measured in Transactions Per Second (TPS), whereas non-IP high/low speed links are measured in Bits Per Second (BPS).

The Link Utilization Interface supports two types of capacity information for EAGLE 5 links.

- The configured link capacity data is periodically extracted directly from each managed EAGLE 5 system using the `rtrv-slk`, `rept-stat-iptps`, and `rept-stat-card` commands. This feature provides for the automatic collection of this information from all EAGLE 5 systems to which the EAGLE EMS is connected using CMI command scripts. The time and frequency of execution of the CMI command scripts can be configured by authorized EMS Users.
- CMI provides authorized EMS Users a mechanism to manually enter a hypothetical link capacity values for each link. The link capacity values are not changed for the EAGLE 5 links. These values can be used to evaluate the effect of increasing or decreasing actual link capacity values for the purpose of network planning.

- After adding this information to the EAGLE EMS database, link utilization reports can be generated using both the actual and hypothetical link capacity values.

Note: The actual link capacity value on EAGLE(s) remains unaffected by the setting of hypothetical capacity values.

Viewing Link Information

This procedure describes how to view information about each Link supported by an EAGLE 5 system to which the EAGLE EMS is connected. The information presented includes the identity and type of the link as well as the provisioned capacity for the link.

Before performing this procedure, you must be logged into the Command Manager interface and must be associated with a CMI Usergroup that is authorized to use the **Link Utilization** function, as described in [Command Manager Interface \(CMI\)](#).

Note: The Commands Manager Interface and the Measurement platform agent must be installed prior to performing this procedure.

1. Under the Link Utilization heading in the main menu on the left side of the Command Manager Interface page, click the **Link Data** link.

A page similar to the one shown in [Figure 107: Link Data Page](#) appears.

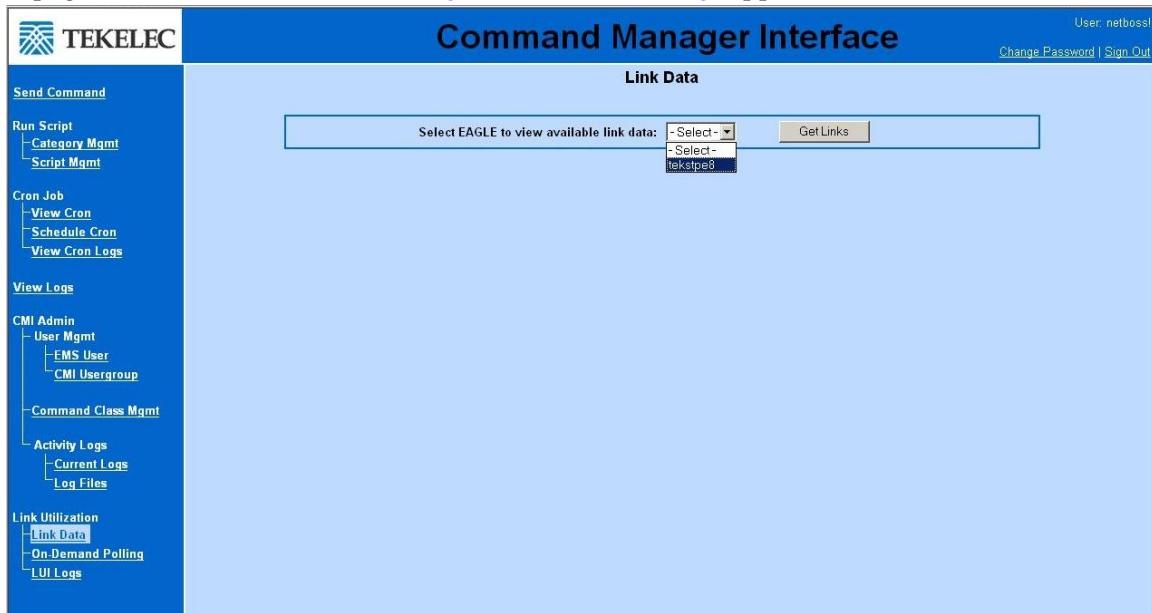


Figure 107: Link Data Page

The Link Data page provides the following:

- **Select EAGLE to view the available link data:** This field contains a drop-down list of the EAGLE 5 systems to which the EAGLE EMS is connected for which the polled Link Data is present in the EAGLE EMS database.
- **Get Links button:** Clicking the **Get Links** button selects the EAGLE 5 system for which link information is desired.

2. Select the EAGLE 5 system that contains a link for which information is to be viewed from the drop-down list in the **Select EAGLE to view the available link data** field and click the **Get Links** button.

Note: Only the EAGLE 5 systems to which the EAGLE EMS is connected for which the Link data has been polled using the polling script and data has been parsed successfully to EMS database are presented in the drop-down list.

A page similar to the one shown in *Figure 108: Link Data Information Page* appears.

LOC	LINK	LSN	TYPE	USER DEFINED CAPACITY	LINK CAPACITY
1101	A	ls1101atm	SAAL	1544000	1544000
1102	A	ls1102a	MTP2	56000	56000
1102	A1	ls1102a	MTP2	56000	56000
1102	A2	ls1102a	MTP2	56000	56000
1102	A3	ls1102a	MTP2	56000	56000
1102	B	ls1102a	MTP2	64000	64000
1102	B1	ls1102a	MTP2	64000	64000
1102	B2	ls1102a	MTP2	64000	64000
1102	B3	ls1102a	MTP2	64000	64000
1104	A	ls1104a	IPVLGW		
1106	A	ls1106a	IPVLGW		
1107	A	ls1107a	MTP2	56000	56000
1107	A1	ls1107a	MTP2	56000	56000
1107	A2	ls1107a	MTP2	56000	56000
1107	A3	ls1107a	MTP2	56000	56000

Figure 108: Link Data Information Page

The Link Data Information page provides the following:

- **Select EAGLE to view the available link data:** This field contains a drop-down list of the EAGLE 5 systems to which the EAGLE EMS is connected. The EAGLE name that was selected is displayed.
- **Get Links button:** Clicking the **Get Links** button selects the EAGLE 5 system for which link information is desired.
- **Reset User Defined Capacity button:** clicking the **Reset User Defined Capacity** button causes a confirmation box with message “**This will set the user defined capacity values of all links for this EAGLE to configured link capacity. Are you sure you want to proceed?**” to be displayed. On clicking the ‘Ok’ button, link capacity values (BPS/SLKTPS) for all links under the ‘USER DEFINED CAPACITY’ column will be set to the configured link capacity values.
- The link data is displayed in columnar format and provides:
 - **LOC:** the location of the card on which the link resides.
 - **Link:** identifies the signaling link within the linkset identified in **LSN**.
 - **LSN:** the name of the linkset that contains the link.

- **Type:** the type of the link.
- **USER DEFINED CAPACITY:** hypothetical capacity of the link (BPS value for Non-IP link and SLKTPS value for IP link) that can be modified by the user.
- **LINK CAPACITY:** link capacity value as configured on the EAGLE or calculated by LUI agent based on the available information from EAGLE polling.

The link data in the table can be sorted in ascending or descending order by clicking on any column header. An arrow symbol adjacent to a column header indicates the column on which the sort was performed.

- An upward arrow indicates that data is sorted in ascending order by that column.
- A downward arrow indicates that data is sorted in descending order by that column.
- Clicking on a column header, which is already sorted, will sort the data in reverse order by that column.
- By default, link data is sorted by ‘LOC’ in ascending order.

The link data is displayed on the GUI in a paged manner with minimum 10 and maximum 1000 records per page. By default 25 records per page is displayed. The number of records displayed per page can be set by entering the desired value in the ‘Records per page’ text area (provided at the top and bottom of the table) and then either clicking the ‘Get Records’ button or pressing the ‘Enter’ key.

- Entering a value less than 10 for ‘Records per page’ displays a confirmation box stating that the minimum number of records per page is 10.
- Entering a value greater than 1000 for ‘Records per page’ displays a confirmation box stating that the maximum number of records per page is 1000.
- On clicking ‘Ok’, the number of records per page is set to the entered value and the requested number of records per page is displayed.
- On clicking ‘Cancel’, the number of records per page will not be changed and the previous setting (or the default setting of 25) number of records per page is displayed.

Buttons at the top and bottom of each record page provide navigation through the available record pages.

- **First:** clicking on this button will display records of the first page. This button will be disabled if first page is being displayed on GUI.
- **Previous:** clicking on this button will display records of previous page. This button will be disabled if first page is being displayed on GUI.
- **Next:** clicking on this button will display records of next page. This button will be disabled if last page is being displayed on GUI.
- **Last:** clicking on this button will display records of the last page. This button will be disabled if last page is being displayed on GUI.

If the total records are less than or equal to the number of records per page, all the records will be displayed on one page and LUI capacity paging navigation buttons will be disabled.

Modifying Link Capacity

This procedure describes how to manually change the hypothetical, user-defined link capacity information associated with a link in a selected EAGLE 5 system to which the EAGLE EMS is connected. This information is stored in the EAGLE EMS, not in the EAGLE 5 system.

Before performing this procedure, you must be logged into the Command Manager interface and must be associated with a CMI Usergroup that is authorized to use the **Link Utilization** function, as described in [Command Manager Interface \(CMI\)](#).

Note: The Commands Manager Interface and the Measurement platform agent must be installed prior to performing this procedure.

- With the *Link Data Information Page* displayed (see [Figure 108: Link Data Information Page](#) and refer to [Viewing Link Information](#)), click on the **User Defined Capacity** value for which the link capacity is to be modified.

A window similar to the one shown in [Figure 109: Modify Link Capacity Window](#) appears.

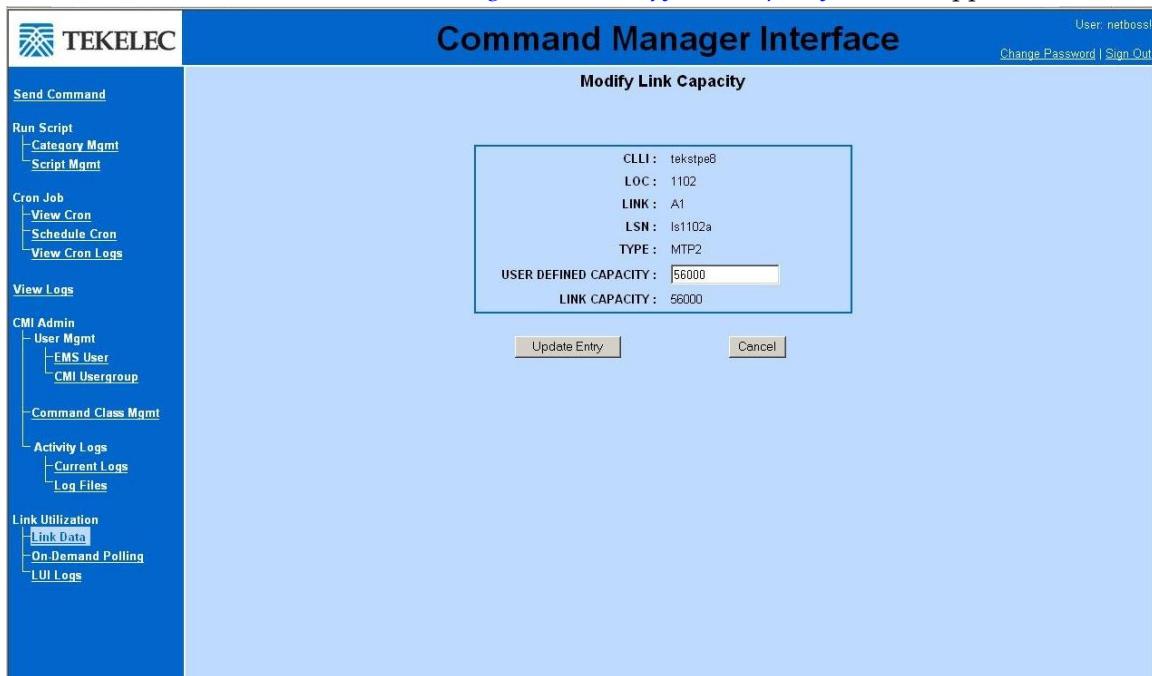


Figure 109: Modify Link Capacity Window

This window provides:

- CLLI:** The identity of the EAGLE containing the link for which the hypothetical capacity value is to be modified.
- LOC:** the location of the card on which the link resides.
- Link:** identifies the signaling link within the linkset identified in **LSN**.
- LSN:** the name of the linkset that contains the link.
- Type:** the type of the link.
- USER DEFINED CAPACITY:** the hypothetical capacity value of the link (BPS value for Non-IP link and SLKTPS value for IP link) that can be modified by the user.
- LINK CAPACITY:** link capacity value as configured on the EAGLE or calculated by LUI agent based on the available information from EAGLE polling.

- Enter the new hypothetical capacity value into the **USER DEFINED CAPACITY** field.
 - The textbox must not be blank.
 - Value entered in the textbox must be a positive non-zero integer.

- Value entered in the textbox must be of maximum 14 digits.

If the user enters a valid integer value starting with zero(s) in the **User Defined Capacity** field, then the integer value following the zero(s) is updated as the new user capacity value in the table. For example, if the user enters capacity value as "0001200" then this will be updated as 1200.

3. Click on '**Cancel**' button to cancel the changes in the hypothetical capacity value for the link. The 'Link Data' page will be displayed.
4. Click on the **Update Entry** button to save the new hypothetical capacity value in the EMS database. The 'Link Data' page will be displayed with updated link data table.

All links with modified hypothetical capacity values will be displayed in yellow colored rows. If the new capacity value provided does not follow the restrictions in [Step 2](#), appropriate error messages will be displayed as follows:

- If the capacity field is blank the message displayed is **USER DEFINED CAPACITY field is blank! Please provide a valid value for the field.**
- If the capacity value provided by user is not a positive integer the message displayed is **Capacity value provided for USER DEFINED CAPACITY field is not valid! Please provide only positive non-zero integer value (maximum 14 digits) for this field.**
- If the capacity value provided by user is of more than 14 digits, not starting with 0, the message displayed is **USER DEFINED CAPACITY value is more than 14 digits!**

Polling

When the Link Utilization Interface is initially installed, it creates a polling script for each EAGLE 5 system to which the EAGLE EMS is connected. See the *EAGLE EMS Fault/Communication Agent User Guide* for additional information. Subsequently, the Link Utilization Interface scans the port configuration every 30 minutes to detect any new EAGLE 5 systems in its domain. When a new EAGLE is detected, the LUI creates a polling script to collect link capacity data from that new EAGLE.

Polling Scripts

By default, polling of EAGLEs is done by executing polling scripts that are scheduled using the CMI script scheduling feature. Each polling script contains commands to be sent to an EAGLE 5 system in order to retrieve link configuration data. Each script has the name `slk-poller-instance.<CLLI>.php`, where `<CLLI>` is the CLLI associated with the EAGLE 5 system being polled by that script.

The polling scripts are scheduled for regular execution, as described in the [Scheduling a CMI Command Script](#). The timing and frequency of those script executions is configurable. To change the time of execution or to stop further execution of EAGLE polling scripts, see [Modifying Polling Script Execution Schedule](#).

Modifying Polling Script Execution Schedule

This procedure describes how to modify the schedule of execution for the Link Utilization Interface polling script. Link Utilization Interface polling scripts are described in [Polling Scripts](#).

Before performing this procedure, you must be logged into the Command Manager interface.

1. Determine the EAGLE 5 system for which a polling script execution schedule is to be changed.
2. Use the procedure in [Scheduling a CMI Command Script](#) to change the time and/or frequency schedule for the script with the following name:

slk-poller-instance.<CLLI>.php

where <CLLI> is the CLLI associated with the EAGLE identified in [Step 1](#).

Note: To disable the execution of a polling script completely, the scheduling entry for that script can be commented out by prefixing that line with a # character as described in the [Scheduling a CMI Command Script](#).

The procedure for scheduling a script is described in the [Scheduling a CMI Command Script](#).

On Demand Polling

Link Utilization Interface provides on-demand execution for EAGLE polling scripts. On-Demand Polling retrieves link capacity information for all the EAGLEs for which polling scripts were created and saved.

Before polling the EAGLE(s), a check is made for any other instance of the same EAGLE polling script is running (either by CMI cron or manual by another user) for the selected EAGLE(s). If another instance of the EAGLE polling scripts is found running for the selected EAGLE(s), on-demand execution of the corresponding scripts is aborted and an information message “**An instance of polling script for EAGLE <CLLI> is already running. Please try later.**” will be displayed on GUI.

1. On the left side of the Command Manager Interface page, under the Link Utilization heading in the main menu, click the **On-Demand Polling** link.

A page similar to the one shown in [Figure 110: On-Demand Polling Page](#) appears.

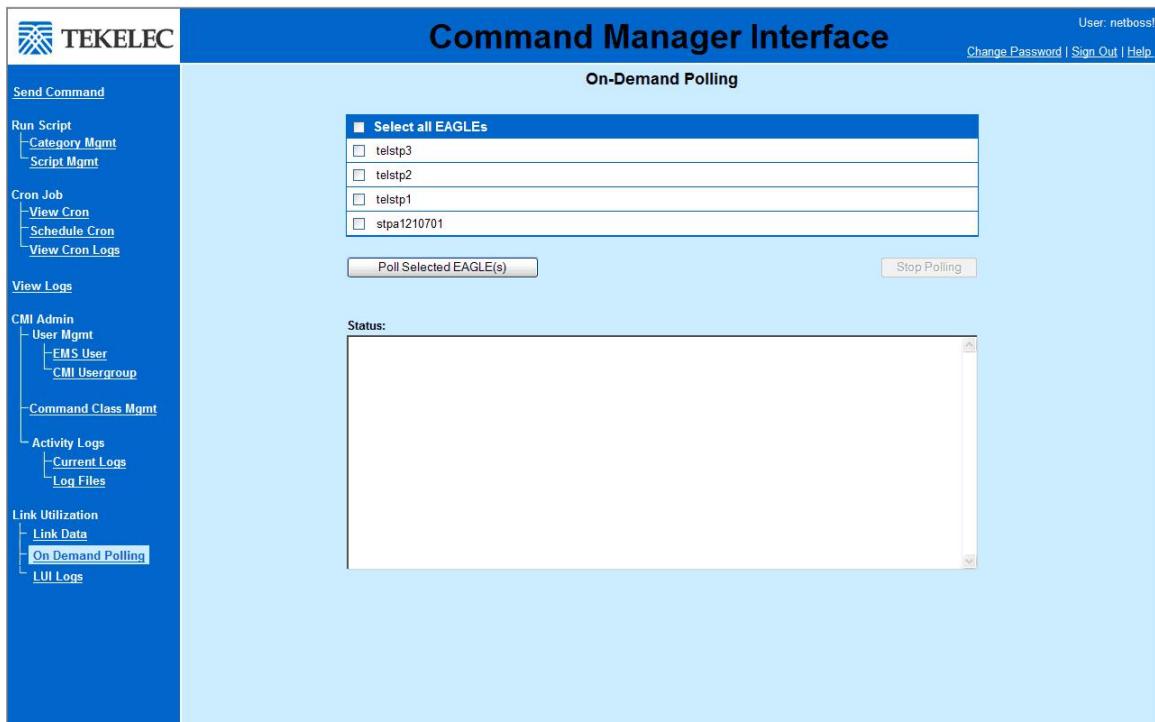


Figure 110: On-Demand Polling Page

2. Select the EAGLE 5 system for which on-demand polling is to be performed.
A single, multiple, or all connected EAGLEs may be selected.
3. Click on the **Poll Selected EAGLE(s)** button to begin polling.
 - The real-time status of EAGLE polling script execution is displayed in the **Status** pane.
 - While the on-demand execution for selected EAGLE(s) is in progress, all checkboxes and '**Poll Selected EAGLE(s)**' button are disabled.
 - If the CMI scheduling function starts execution of a scheduled EAGLE polling script while the EAGLE is being polled via an on-demand request, the scheduled script will not execute.
 - The polling process is immediately stopped if the on-demand polling page is closed (either to another page or you log out of CMI). An alert window will be displayed stating that "**Polling of <EAGLE CLLI> is being stopped. Link Capacity for this EAGLE may be incorrect.**"
 - Once the polling of selected EAGLE(s) is completed, the checkboxes and the **Poll Selected EAGLE(s)** button will be enabled.
 - If no polling script is found, then instead of '**Select all EAGLEs**' checkbox, "**No Polling scripts available!**" message will be displayed on the GUI and both '**Poll Selected EAGLE(s)**' and '**Stop Polling**' buttons will be disabled.

4. Click the '**Stop Polling**' button to stop execution of EAGLE polling scripts immediately and the login session with the EAGLE will be terminated on the EAGLE on which polling is in progress at that time.

The information message "**Stopped On-Demand polling of EAGLE(s).**" will be displayed on GUI. The '**Poll Selected EAGLE(s)**' button, '**Stop Polling**' button and all the checkboxes will remain disabled till the on-demand polling is being stopped.

Viewing LUI Logs

Logging for all the LUI Agent activities is recorded via a rolling log file, which saves log data for the whole day.

- Log files less than 15 days old will be available via the CMI GUI for user viewing.
- Log files older than 15 days will be deleted from the file system.

This procedure allows you to view these logs.

Before performing this procedure, you must be logged into the Command Manager interface and must be associated with a CMI Usergroup that is authorized to use the **Link Utilization** function, as described in *Command Manager Interface (CMI)*.

Note: The Link Utilization Interface and the Measurements Platform Agent must be installed prior to performing this procedure.

1. Click the **LUI Logs** link in the main menu on the left side of the Command Manager Interface page. A page similar to the one shown in *Figure 111: LUI Logs Page* is displayed.

```

01:10:26,192 INFO FileReadingMessageSource:105 - Created message: [[Payload=/u01/app/netboss/loc...
01:10:26,202 INFO GroovyReptStatCardFileTransformer:? - Transforming file 20100727011001829.tekst...
01:10:26,285 INFO GroovyReptStatCardFileTransformer:? - tekstpe8 has 30 entries from rept-stat-ca...
01:10:35,111 INFO FileReadingMessageSource:105 - Created message: [[Payload=/u01/app/netboss/loc...
01:10:35,115 INFO GroovyFileTransformer:? - Transforming file 20100727011001829.tekstpe8.rtrv-sl...
01:10:35,637 INFO GroovyFileTransformer:? - tekstpe8 has 130 entries from rtrv-slk command
09:00:12,930 INFO SimpleTaskScheduler:103 - stopped org.springframework.context.support....
09:00:12,940 INFO SimpleTaskScheduler:165 - stopped org.springframework.integration.scheduling.S...
09:00:12,941 INFO SimpleMessagingGateway:103 - stopped org.springframework.integration.gateway.S...
09:00:12,945 INFO GatewayProxyFactoryBean:103 - stopped exceptionHelper
09:00:12,945 INFO SimpleMessagingGateway:103 - stopped org.springframework.integration.gateway.S...
09:00:12,946 INFO SimpleMessagingGateway:103 - stopped nbAlertService
09:00:12,946 INFO SimpleMessagingGateway:103 - stopped org.springframework.integration.gateway.S...
09:00:12,946 INFO GatewayProxyFactoryBean:103 - stopped commandPortHandler
09:00:12,947 INFO SimpleMessagingGateway:103 - stopped org.springframework.integration.gateway.S...
09:00:12,947 INFO GatewayProxyFactoryBean:103 - stopped httpsCommandListHandler
09:00:12,947 INFO QuartzScheduler:496 - Scheduler scanJobScheduler_$_NON_CLUSTERED paused.
09:00:12,948 INFO DefaultListableBeanFactory:421 - Destroying singletons in org.springframework.k...
09:00:12,951 INFO SchedulerFactoryBean:728 - Shutting down Quartz Scheduler
09:00:12,952 INFO QuartzScheduler:570 - Scheduler scanJobScheduler_$_NON_CLUSTERED shutting down.
09:00:12,952 INFO QuartzScheduler:496 Scheduler scanJobScheduler_$_NON_CLUSTERED paused.
09:00:12,953 INFO QuartzScheduler:621 - Scheduler scanJobScheduler_$_NON_CLUSTERED shutdown comp...
09:00:12,955 INFO ThreadPoolTaskExecutor:349 - Shutting down ThreadPoolExecutor 'fullmodePool'
09:00:12,959 INFO ThreadPoolTaskExecutor:349 - Shutting down ThreadPoolExecutor 'cardPool'
09:00:12,963 INFO ThreadPoolTaskExecutor:349 - Shutting down ThreadPoolExecutor 'iptpsPool'
09:00:12,965 INFO ThreadPoolTaskExecutor:349 - Shutting down ThreadPoolExecutor 'fPool'
09:00:12,973 INFO LocalSessionFactoryBean:246 - Closing Hibernate SessionFactory
09:00:12,973 INFO SessionFactoryImpl:805 - closing
09:00:12,979 INFO SimpleTaskScheduler:184 - shutting down TaskExecutor
09:00:12,979 INFO ThreadPoolTaskExecutor:349 - Shutting down ThreadPoolExecutor
09:00:12,984 INFO ThreadPoolTaskExecutor:349 - Shutting down ThreadPoolExecutor 'dPool'

```

Figure 111: LUI Logs Page

2. Select the date of the log history for which information is to be viewed from the drop-down list in the **Select Date** field.

The Select Date field lists up to the last 15 days.

By default, ‘current’ is initially selected in the drop-down list and log entries in the log file of the current date are displayed.

The format of log entries will be:

```
<TIME (absolute)> <LEVEL> <FILE_NAME>:<LINE_NUM> - <LOG_MSG>
```

3. Changing the selection in ‘Select Date’ will display the log in the text area. The name of the log file being viewed, will also be displayed on GUI.

Crystal Reports

The Link Utilization feature uses Crystal Reports to create reports about the utilization of EAGLE links, linksets, and cards.

Formulas

The Link Utilization feature analyzes the utilization of EAGLE links, linksets, and cards using the formulas presented in [Table 18: Link Report Formulas](#), [Table 19: Linkset Report Formulas](#) and [Table 20: Card Report Formulas](#).

Table 18: Link Report Formulas

Term	Description
Capacity	‘Link Capacity’ as displayed on ‘Link Data’ page in LUI
Erlang	<p>Calculation for ‘Erlang’ for a link is as per formulae mentioned below:</p> <p>IP LINKS:</p> $Tx = (\text{MSGSTRAN}/\text{LNKAVAIL})/\text{Capacity}$ $Rx = (\text{MSGSRCVD}/\text{LNKAVAIL})/\text{Capacity}$ <p>NON-IP LINKS:</p> <ul style="list-style-type: none"> • MTP2 $Tx = ((\text{MOCTTRAN} \times 8)/\text{LNKAVAIL})/\text{Capacity}$ $Rx = ((\text{MOCTRCD} \times 8)/\text{LNKAVAIL})/\text{Capacity}$ <ul style="list-style-type: none"> • SAAL $Tx = ((\text{INT}(((\text{MOCTTRAN}/\text{MSGSTRAN})+12)/48)+1)) * \text{MSGSTRAN}/\text{Capacity}$ $Rx = ((\text{INT}(((\text{MOCTRCD}/\text{MSGSRCVD})+12)/48)+1)) * \text{MSGSRCVD}/\text{Capacity}$ <p>Note: Max of ‘Tx’ or ‘Rx’ is considered as ‘Erlang’ for both IP and Non-IP links.</p>
%Utilization	Erlang *100
UserCapacity	‘User Defined Capacity’ as displayed on ‘Link Data’ page in LUI.
UserErlang	Calculation for ‘UserErlang’ for a link is as per formulae mentioned below:

Term	Description
	<p>IP LINKS:</p> $Tx = (\text{MSGSTRAN}/\text{LNKAVAIL})/\text{UserCapacity}$ $Rx = (\text{MSGSRCVD}/\text{LNKAVAIL})/\text{UserCapacity}$ <p>NON-IP LINKS:</p> <ul style="list-style-type: none"> • MTP2 $Tx = ((\text{MOCTTRAN} * 8)/\text{LNKAVAIL})/\text{UserCapacity}$ $Rx = ((\text{MOCTRCD} * 8)/\text{LNKAVAIL})/\text{UserCapacity}$ <ul style="list-style-type: none"> • SAAL $Tx = ((\text{INT}(((\text{MOCTTRAN}/\text{MSGSTRAN}) + 12)/48) + 1)) * \text{MSGSTRAN}/\text{UserCapacity}$ $Rx = ((\text{INT}(((\text{MOCTRCD}/\text{MSGSRCVD}) + 12)/48) + 1)) * \text{MSGSRCVD}/\text{UserCapacity}$ <p>Note: Max of 'Tx' or 'Rx' is considered as 'Erlang' for both IP and Non-IP links</p>
%UserUtilization	UserErlang *100

Table 19: Linkset Report Formulas

Term	Description
Capacity	Linkset capacity is aggregate of 'Link Capacity' as displayed on 'Link Data' page in LUI for the linkset with 'IPLIMI' and 'IPLHC' as exceptions. For 'IPLIMI' the linkset capacity will be '2000' and for 'IPLHC' will be '4000'. In case a linkset is spread across multiple cards with 'IPLIMI' and 'IPLHC' as GPLs, then linkset capacity will be considered as '2000'.
Erlang	'Erlang' for a linkset is calculated as: $\text{Max}(\text{Avg. of Tx, Avg of Rx})$ for all the links in a linkset with 'IPLIMI' and 'IPLHC' as exceptions in which case it is calculated as: $\text{Max}(\text{Sum of Tx, Sum of Rx})$
%Utilization	Erlang *100
UserCapacity	User linkset capacity is aggregate of 'User Defined Capacity' as displayed on 'Link Data' page in LUI for the linkset with 'IPLIMI' and 'IPLHC' as exceptions. For 'IPLIMI' and for 'IPLHC', user linkset capacity will be average of 'User Defined Capacity' for all the links in the linkset.
UserErlang	'UserErlang' for a linkset is calculated as: $\text{Max}(\text{Avg. of Tx, Avg of Rx})$

Term	Description
	for all the links in a linkset with 'IPLIMI' and 'IPLHC' as exceptions in which case it is calculated as: Max(Sum of Tx, Sum of Rx)
%UserUtilization	UserErlang *100

Table 20: Card Report Formulas

Term	Description
Capacity	Card capacity is aggregate of 'Link Capacity' as displayed on 'Link Data' page in LUI for the card location with 'IPLIMI' and 'IPLHC' as exceptions. For 'IPLIMI' the linkset capacity will be '2000' and for 'IPLHC' will be '4000'
Erlang	'Erlang' for a Card is calculated as: Max(Avg. of Tx, Avg of Rx) for all the links on the Card with 'IPLIMI' and 'IPLHC' as exceptions in which case it is calculated as: Max(Sum of Tx, Sum of Rx)
%Utilization	Erlang *100
UserCapacity	User card capacity is aggregate of 'User Defined Capacity' as displayed on 'Link Data' page in LUI for the card location with 'IPLIMI' and 'IPLHC' as exceptions. For 'IPLIMI' and for 'IPLHC', user card capacity will be average of 'User Defined Capacity' for all the links on the card.
UserErlang	'UserErlang' for a Card is calculated as: Max(Avg. of Tx, Avg of Rx) for all the links on the Card with 'IPLIMI' and 'IPLHC' as exceptions in which case it is calculated as: Max(Sum of Tx, Sum of Rx)
%UserUtilization	UserErlang *100

Reports

The following sections describe additions to the current measurements reports. The **Field Addition** and **Description** column provides name of each new report field and the semantics associated with information to be included within that field. The reports associated with Link Utilization are:

- Link Utilization Report
- Linkset Utilization Report

- Card Utilization Report

Link Utilization Report

This report, is derived from the **comp-link** daily template that provides link throughput and utilization values across multiple time reports for a day.

The Link Utilization Report provides the following information for each specified EAGLE link:

- Interval over which the report applies
- Throughput counts (transmit and receive) – as sent by the EAGLE
 - These counts are received from the EAGLE and are described in the *EAGLE Measurements Guide* (910-5885-001).
- Capacity
 - This is the configured link capacity, as retrieved from the EAGLE.
- Erlang (using actual throughput counts and configured capacity data)
 - For IP links, this is the actual maximum number of MSUs that were either transmitted or received per second during the time interval, divided by the configured link capacity.
 - For non-IP links, this is the actual maximum number octets that were either transmitted or received per second during the time interval, divided by the configured link capacity.
- % Utilization (using actual throughput counts and configured capacity data)

This indicates the percentage of the link capacity that was used on this link during the interval and is calculated by converting the Erlang value to a percentage.

- User Capacity
 - This is the hypothetical link capacity that was entered by a user as described in [Modifying Link Capacity](#).
- User Erlang (using actual throughput counts and hypothetical, user-defined capacity data)
 - For IP links, this is the maximum number of MSUs that were either transmitted or received per second, divided by the user-defined hypothetical link capacity.
 - For non-IP links, this is the maximum number of octets that were either transmitted or received per second, divided by the User Capacity.
- % User Utilization (using actual throughput counts and user-defined capacity data)

This indicates the percentage of the hypothetical User Capacity that was used on this link during the interval and is calculated by converting the Erlang value to a percentage.

See [Figure 112: Link Report With Erlang and Percent Utilization](#) for an example of Link Utilization report.

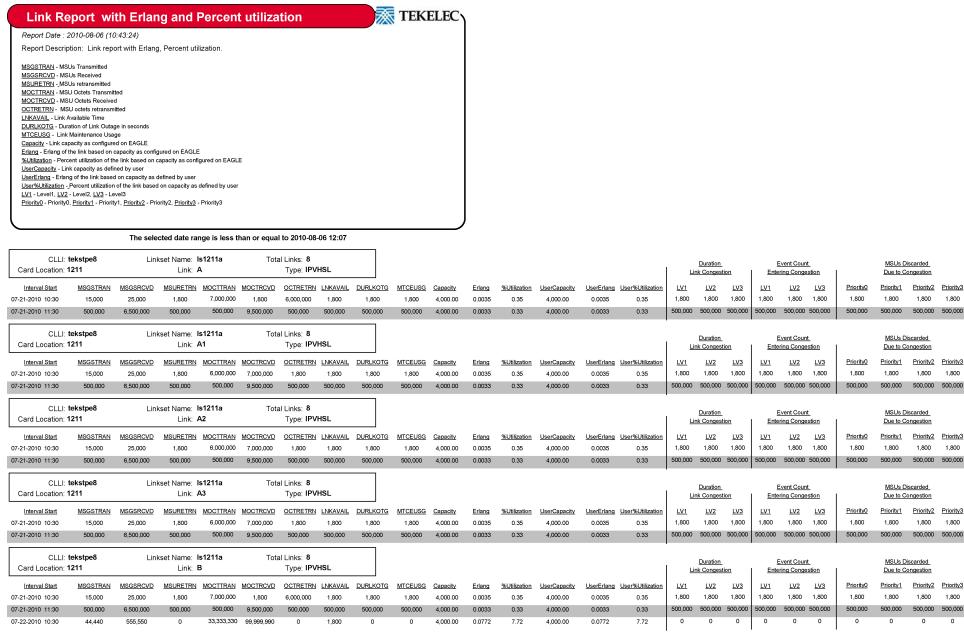


Figure 112: Link Report With Erlang and Percent Utilization

Linkset Utilization Report

This report is derived from the **comp-link** daily template and provides linkset throughput and utilization changes across multiple time reports for a day.

The Linkset Utilization Report provides the following information for each specified EAGLE linkset:

- Interval over which the report applies
- Link Count This is the number of links that comprise this linkset.
- Throughput counts (transmit and receive)

These counts are received from the EAGLE and are described in the *EAGLE Measurements Guide* (910-5885-001).

- Capacity

This is the sum of the capacities of the linkset's constituent links, except in the case of IPLIMI and IPLHC linksets, for which the following linkset capacities are assigned:

- For IPLIMI linksets, the linkset Capacity is considered to be 2000.
- For IPLHC linksets, the Capacity is considered to be 4000.

Note: For linksets that span multiple cards with IPLIMI or IPLHC GPLs, the linkset Capacity is considered to be 2000.

- Erlang
 - For IPLIMI and IPLHC linksets, this is the maximum number of MSUs that were either transmitted or received per second for all links in the linkset during the time interval, divided by the configured linkset Capacity.

- For all other linkset types, this is the maximum of the average number of octets that were either transmitted or received per second for all links in the linkset during the time interval, divided by the linkset Capacity.
- % Utilization
This indicates the percentage of the linkset Capacity that was used by the links in this linkset during the interval and is calculated by converting the linkset Erlang value to a percentage.
- User Capacity
This is the sum of the hypothetical capacities of the linkset's constituent links, as entered by a user (see [Modifying Link Capacity](#)), except in the case of IPLIMI and IPLHC linksets, for which the User Capacity is considered to be the average of the hypothetical capacities of the linkset's constituent links.
- User Erlang
 - For IPLIMI and IPLHC linksets, this is the maximum number of MSUs that were either transmitted or received per second for all links in the linkset during the time interval, divided by the User Capacity.
 - For all other linkset types, this is the maximum of the average number of octets that were either transmitted or received per second for all links in the linkset during the time interval, divided by the User Capacity.
- % User Utilization
This indicates the percentage of the hypothetical User Capacity that was used by the links in this linkset during the interval and is calculated by converting the Erlang value to a percentage.

See [Figure 113: Linkset Report With Erlang and Percent Utilization](#) for an example of Linkset Utilization report.

Linkset Report with Erlang and Percent utilization											
Report Date : 2010-08-06 (12.34.43)											
Report Description: Linkset report with Erlang, Percent utilization, total number of links in a linkset											
<small>LinkCount - Link count for each linkset MSGSTRAN - MSUs Transmitted MSGSRCVD - MSUs Received MOCCTRAN - MSU Octets Transmitted MOCCTRCVD - MSU Octets Received Capacity - Linkset capacity as defined on EAGLE Erlang - Erlang of the linkset based on capacity as configured on EAGLE %Utilization - Percent utilization of the linkset based on capacity as defined on EAGLE UserCapacity - Linkset capacity as defined by user UserErlang - Erlang of the linkset based on capacity as defined by user User%Utilization - Percent utilization of the linkset based on capacity as defined by user</small>											
<small>The selected date range is less than or equal to 2010-08-06 14:01</small>											
CLLI: tekstpe8	Linkset: ls1102a	Linkset Type: MTP2									
Interval Start	Link Count	MSGSTRAN	MSGSRCVD	MOCCTRAN	MOCCTRCVD	Capacity	Erlang	%Utilization	UserCapacity	UserErlang	%UserUtilization
7/21/2010 10:30:00AM	8	120,000	200,000	48,000,000	56,000,000	480,000	0.5208	52.033	400,000	0.5208	52.033
7/21/2010 11:30:00AM	8	4,000,000	52,000,000	4,000,000	76,000,000	480,000	0.0025	0.2545	400,000	0.0025	0.2545
8/6/2010 12:00:00PM	8	4,444,440	4,444,440	4,444,440	4,444,440	480,000	0.0001	0.0134	400,000	0.0001	0.0134
CLLI: tekstpe8	Linkset: ls1104a	Linkset Type: IPVGLW									
Interval Start	Link Count	MSGSTRAN	MSGSRCVD	MOCCTRAN	MOCCTRCVD	Capacity	Erlang	%Utilization	UserCapacity	UserErlang	%UserUtilization
7/21/2010 10:30:00AM	1	15,000	25,000	6,000,000	7,000,000	2,000	0.0069	0.6944	2,000	0.0069	0.6944
7/21/2010 11:30:00AM	1	500,000	6,500,000	500,000	9,500,000	2,000	1.8056	180.556	2,000	1.8056	180.556
8/6/2010 12:00:00PM	1	555,555	555,555	555,555	555,555	2,000	0.0005	0.0005	2,000	0.0005	0.0005

Figure 113: Linkset Report With Erlang and Percent Utilization

Card Utilization Report

This report is derived from the **comp=-link** template and provides card throughput and utilization changes across multiple time reports for a day.

The Card Utilization Report provides the following information for each specified EAGLE card:

- Interval over which the report applies
- Link Count

This is the number of links that are resident on this card.

- Throughput counts (transmit and receive)

These counts apply to the links on this card and are received from the EAGLE. They are described fully in the *EAGLE Measurements Guide* (910-5885-001).

- Capacity

This is the sum of the capacities of the card's constituent links, except in the case where the links belong to IPLIMI or IPLHC linksets, for which the following card Capacities are assigned as follows:

- For IPLIMI linksets, the card Capacity is considered to be 2000.
- For IPLHC linksets, the card Capacity is considered to be 4000.
- Erlang
 - For cards supporting IPLIMI and IPLHC linksets, this is the maximum number of MSUs that were either transmitted or received per second for all links on the card during the time interval, divided by the card Capacity.
 - For cards supporting all other linkset types, this is the maximum of the average number of octets that were either transmitted or received per second for all links on the card during the time interval, divided by the card Capacity.
- % Utilization

This indicates the percentage of the card Capacity that was used by the links on this card during the interval and is calculated by converting the card Erlang value to a percentage.

- User Capacity

This is the sum of the hypothetical capacities of the card's constituent links, as entered by a user (see [Modifying Link Capacity](#)), except in the case where the links belong to IPLIMI or IPLHC linksets, for which the User Capacity is set to the average of the hypothetical capacities of the card's constituent links.

- User Erlang

- For cards supporting IPLIMI and IPLHC linksets, this is the maximum number of MSUs that were either transmitted or received per second for all links on the card during the time interval, divided by the User Capacity.
- For cards supporting all other linkset types, this is the maximum of the average number of octets that were either transmitted or received per second for all links on the card during the time interval, divided by the User Capacity.

- % User Utilization

This indicates the percentage of the hypothetical User Capacity that was used by the links on this card during the interval and is calculated by converting the card User Erlang value to a percentage.

See [Figure 114: Card Utilization Report](#) for an example of Card Utilization report.

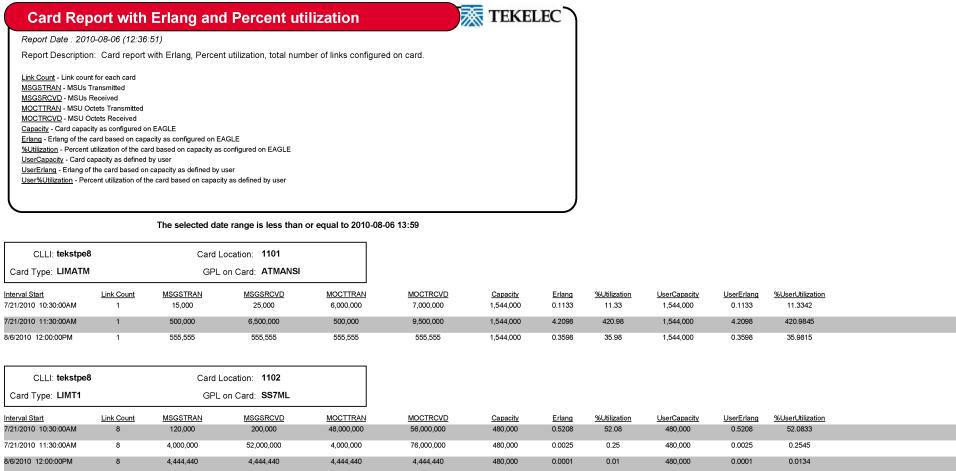


Figure 114: Card Utilization Report

Link Capacity Reference Table

Type	APPL	COMP-LINK Report Label	Protocol Note	Maximum Commercial Performance
LIM-DS0	SS7ANSI	MTP2	SS7 Low Speed Link	56,000 bits/sec per DS0 link
LIM-E1*	SS7ANSI	MTP2	SS7 Low Speed Link	56,000 bits/sec per E1channel
LIM-E1*	CCS7ITU	MTP2	SS7 Low Speed Link	64,000 bits/sec per E1 channel ***
LIM-E1*	CCS7ITU	MTP2	SE-HSL	1,984,000 bits/sec per UE1/SE-HSL ***
LIM-T1	SS7ANSI	MTP2	SS7 Low Speed Link	56,000 bits/sec per T1
LIM-T1	CCS7ITU	MTP2	SS7 Low Speed Link	64,000 bits/sec per T1
LIM-CH	SS7ANSI	MTP2	SS7 Low Speed Link	56,000 bits/sec per channel
LIM-CH	CCS7ITU	MTP2	SS7 Low Speed Link	64,000 bits/sec per channel
LIM-ATM	ATMANSI	SAAL	SS7 ATM Link	1,536,000 bits/sec per ATM link**

Type	APPL	COMP-LINK Report Label	Protocol Note	Maximum Commercial Performance
LIM-E1ATM	ATMITU	SAAL	SS7 ATM Link	2,048,000 bits/sec bi-directional per ATM link**
ENET	IPSG	IPVL	Adapter = M3UA	5,000 MSU/sec bi-directional (ANSI /ITU)****
ENET	IPSG	IPVHSL	Adapter = M2PA	5,000 MSU/sec bi-directional (ANSI/ITU)****
DCM or SSEDCM	IPLIM	IPVHSL	M2PA	2,000 MSU/sec bi-directional (ANSI)****
DCM or SSEDCM	IPLIMI	IPVHSL	M2PA	2,000 MSU/sec bi-directional (ITU)****
DCM (E5ENET)	SS7IPGW	IPVHSL	M3UA/SUA	4,000 MSU/sec bi-directional (ANSI/ITU)****
DCM (E5ENET)	IPLIM	IPVHSL	M2PA	4,000 MSU/sec bi-directional (ANSI/ITU)****
DCM or SSEDCM	SS7IPGW	IPVLGW	M3UA	2,000 MSU/sec bi-directional (ANSI)****
DCM or SSEDCM	IPGW	IPVLGW	M3UA	2,000 MSU/sec bi-directional (ITU)****

Legend

- * LIM E1 card type also applies to E1T1 MIM and E5E1/T1 and HC MIM cards.
- ** Using 53-byte ATM cells.
- *** To determine whether the LIM-E1 is 64K or 2Mbit/sec, use the rtrv-slk results.
- **** The Advertised Capacity of the IP signalling applications varies, depending on the nature of the traffic, the feature set in use, and the network configuration. Refer to TR005007: Engineering Rules for Determining SIGTRAN Application Throughput.

Chapter 7

Measurements Platform

Topics:

- *EAGLE EMS Reporter Graphs and Charts.....217*
- *Scope.....217*
- *Operation.....217*
- *Generated Alarms.....217*

The EAGLE EMS Measurements Platform Agent parses the performance data from the EAGLE 5 ISS Measurement Platform and places this data into the EAGLE EMS database.

EAGLE EMS Reporter Graphs and Charts

The performance script saves name/value pairs to the EAGLE EMS database. Example Crystal Reports® are available to report off of the EAGLE EMS database specifically for the EAGLE 5 performance data.

Scope

The EAGLE EMS Measurements Platform Agent parses the .csv files created by the EAGLE 5 Measurements Platform that are sent to EAGLE EMS via FTP.

The following report types will be parsed:

- STP SYSTEM TOTAL MEASUREMENTS
- COMPONENT MEASUREMENTS
- NETWORK MANAGEMENT MEASUREMENTS
- DAILY AVAILABILITY MEASUREMENTS
- AVAILABILITY MEASUREMENTS
- DAILY MAINTENANCE MEASUREMENTS
- HOURLY MAINTENANCE MEASUREMENTS
- GATEWAY MEASUREMENTS

These measurement reports received from an EAGLE MCPM port. They can be created in intervals from 5 minutes to daily intervals, as defined by the EAGLE 5 configuration. The .csv files are sent via FTP or SFTP to the EAGLE EMS for the EAGLE EMS Measurements Platform Agent.

Operation

The EAGLE EMS Measurements Platform Agent will read measurement report data from the .csv files, and discern the elements of the report into a database table named "TEKELEC_MEAS_DATA".

The table contents are utilized by Crystal Reports to provide a clear view of performance aspects of EAGLE 5 systems.

Generated Alarms

The EAGLE EMS Measurements Platform Agent will generate alarms based on the status of the running script. The resource name is based on the ERROR_RESOURCE parameter. The Condition in [Table 21: Alarm Behavior](#) describes the Sub-Resource of the alarm.

Table 21: Alarm Behavior

Condition	Alarm Description	Severity
MaxNumFiles	Max Number of Files not violated. Number of Measurements Platform Files is %d. Max Number of %d violated.	1 4
MeasPlatIdleTimeout	Received Performance File Idle Timeout of %s minutes reached without receiving Performance files	1 5
DBError	Database Opened Successfully Database Not Open, Error Status: %d Line(s) %s caused DBINSERT errors. Line(s) %s had Incomplete Intervals. Line(s) %s were not current. Line(s) %s did not have the correct number of columns.	1 ? 2 2 2 2
GetFilesSubroutine	GetFiles Subroutine run successfully GeneralFailure calling Subroutine 'GetFiles' Could not find Subroutine 'GetFiles'	1 5 5
ParseDataSubroutine	ParseData Subroutine run successfully GeneralFailure calling Subroutine 'ParseData' Could not find Subroutine 'ParseData'	1 5 5
{MP FILENAME}	File successfully parsed and placed into DB	1
{MP FILENAME}	Error: File %s, STATUS heading not found Error: File %s, CLLI heading not found Error: File %s, no data in file.	5 5 0

Chapter 8

OA&M Measurements

Topics:

- *Equipment Tested.....220*
- *Features.....220*
- *Detailed EAGLE EMS Reporter Operation.....220*
- *Detailed Metrica Operation.....221*
- *Thresholding Capabilities.....222*
- *Alarm Formats.....223*

The EAGLE EMS OA&M Measurements Agent collects periodic measurements reports from the EAGLE 5 and stores that data in the EAGLE EMS database. Crystal Reports® is used to present this performance data to EMS Users in a meaningful way.

Equipment Tested

The OA&M Measurements reports must be output from an EAGLE 5 MMI or IPSM port. These reports can be created in 30 minute, one hour, and daily intervals, as defined by the EAGLE 5 configuration. The EAGLE EMS OA&M Measurements Agent has a GENERAL port set up to listen for and write reports. Reports are written to a FIFO.

The EAGLE EMS OA&M Measurements Agent has been tested for EAGLE 5 Release 30.2 and EAGLE 5 ISS Release 31.6.

Features

EAGLE EMS Reporter Graphs and Charts

The EAGLE EMS OA&M Measurements Agent saves name/value pairs to the EAGLE EMS database. Four (4) Crystal Reports are available that report on the gathered EAGLE 5 performance data that is stored in the EAGLE EMS database. These reports include:

1. Link Component
2. Linkset Component
3. Linkset Maintenance Daily
4. System Totals

Output Files for Use with Metrica

The EAGLE EMS OA&M Measurements Agent can produce output data in Metrica-compatible format. These ASCII files are designed to be sent to Metrica for processing.

Detailed EAGLE EMS Reporter Operation

The EAGLE EMS OA&M Measurements Agent will read measurement report data from a FIFO and parse the data elements of the report into an EAGLE EMS database table named "TEKELEC_MEASUREMENTS". The table contents are used by Crystal Reports to provide a clear view of performance aspects of the EAGLE 5.

Database maintenance must be performed manually to clean the TEKELEC_MEASUREMENTS report table. If this table is not maintained, the database has a possibility of filling up over time. The format of this table follows:

```
create table tekelec_measurements (
    timestamp date,
    clli varchar(32),
    loc varchar(32),
    port varchar(32),
    tt varchar(32),
    lsn varchar(32),
    measurement_name varchar(32),
```

```
    measurement_value number
);
```

Table 22: EAGLE EMS Reporter Measurements

Timestamp	Date and Time from Report
CLLI	EAGLE 5 Name
Report_Name	Identifier of Report Type
Loc	Card Location used in LINK-COMP and LINK-MTCD reports
Port	Port Location used in LINK-COMP and LINK-MTCD reports
TT	Translation Type used in TT-SYSTOT report
LSN	LSN used in LINK-COMP, LINK-MTCD, LNKSET-COMP, and LNKSET-MTCD reports
Measurement_Name	Value Type being stored
Measurement_Value	Numerical

Detailed Metrica Operation

The EAGLE EMS OA&M Measurements Agent can read measurement report data from a FIFO, parse it, and place this data into Metrica formatted reports.

The following is a sample raw Linkset Maintenance Daily report that would be fed into the FIFO to be translated into the Metrica format:

```
tekelecstp 05-07-11 00:02:16 WET TEKELEC EAGLE ISS 31.3.4-53.25.53
TYPE OF REPORT:DAILY MAINTENANCE MEASUREMENTS ON LINKSET
REPORT PERIOD:LAST
REPORT INTERVAL: 05-07-10 THRU 23:59:59

LNKSET-MTCD MEASUREMENTS: hlrvtb1

ZTTMAPO =      0 , ZTTMAPI =      0
;

hlrvtb2 05-07-11 00:02:17 WET TEKELEC EAGLE ISS 31.3.4-53.25.53
LNKSET-MTCD MEASUREMENTS:hlrv2

ZTTMAPO =      0 , ZTTMAPI =      0
;

hlrvtb2 05-07-11 00:02:17 WET TEKELEC EAGLE ISS 31.3.4-53.25.53
LNKSET-MTCD MEASUREMENTS:hlrv3

ZTTMAPO =      0 , ZTTMAPI =      0
;

hlrvtb2 05-07-11 00:02:17 WET TEKELEC EAGLE ISS 31.3.4-53.25.53
LNKSET-MTCD MEASUREMENTS:hlrv4

ZTTMAPO =      0 , ZTTMAPI =      0
;
```

The output file will be a parsed Linkset Maintenance Daily report that would look like the following:

```
%npr: Tekelec TEKELEC EAGLE 5 ISS parsed output
#Source file:tekelecstp_LNKSET-MTCD_10_07_05.log
{
COLLECT_DATE 050710
COUNT_PERIOD 1440
TIMESTART 00:00:00
TIMEEND 00:00:00
TEKELEC EAGLE 5 ISS tekelecstp
LINKSET-MTCD
{
    LSN hlr1v1
    ZTTMAPO 0
    ZTTMAPI 0
}
LINKSET-MTCD
{
    LSN hlr1v2
    ZTTMAPO 0
    ZTTMAPI 0
}
LINKSET-MTCD
{
    LSN hlr1v3
    ZTTMAPO 0
    ZTTMAPI 0
}
LINKSET-MTCD
{
    LSN hlr1v4
    ZTTMAPO 0
    ZTTMAPI 0
}
```

Thresholding Capabilities

The threshold settings utilized by the EAGLE EMS Measurements Agent are configurable and are located in the \$ANMDIR/sga/Elements/<interface_dir>/EagleThresholds.cfg file. The format of this file follows:

```
<MEASUREMENT_NAME> <THRESHOLD_TYPE> <THRESHOLD_VALUE> <TIMEFRAME (OPT)>
<MEASUREMENT_NAME> ...
```

Each line will contain one threshold definition.

- The <MEASUREMENT_NAME> is as contained in the first column of the database, such as 'MSUDSCRDS', etc.
- The <THRESHOLD_TYPE> will be one of the following

HIGH Means that an alert is set if the measurement value stays above this value for the threshold time frame. If the threshold time frame is not present, a single instance will set an alert. The alert is cleared if the measurement value goes below this value.

LOW Means that an alert is set if the measurement value stays below this value for the threshold time frame. If the threshold time frame is not present, a single instance will set an alert. The alert is cleared if the measurement value goes below this value.

H_AVG	Means that an alert is set if average of the measurement value stays above this value for the threshold time frame. The threshold time frame must be present. The alert is cleared if the measurement value goes below this value for the most recent threshold time frame.
L_AVG	Means that an alert is set if average of the measurement value stays below this value for the threshold time frame. The threshold time frame must be present. The alert is cleared if the measurement value goes above this value for the most recent threshold time frame.
<ul style="list-style-type: none">• The <THRESHOLD_VALUE> will be the desired value for a threshold alarm to be set.• The <TIMEFRAME> will be the desired time frame (in minutes) over which the condition must endure for an alarm to be set.	

Alarm Formats

If any of the LOC, PORT, or LSN fields are populated, they must be in the Sub-Resource. Alarm formats will be:

```
<clli>:<measurement_name>_<threshold_type>_<threshold_value>  
or  
<clli>:<loc><port>_<measurement_name>_<threshold_type>_<threshold_value>  
or  
<clli>:<lsn>_<measurement_name>_<threshold_type>_<threshold_value>
```

Chapter 9

Enhanced SNMP Northbound Interface (NBI)

Topics:

- *Overview.....225*
- *Enhanced SNMP Northbound Interface Functions.....225*
- *NMS SNMP Trap Management.....226*
- *Operating the Enhanced SNMP Northbound Interface.....231*
- *EAGLE 5 EMS NBI Error Codes.....233*
- *EAGLE 5 EMS NBI GUI Error Codes.....234*
- *EAGLE 5 EMS NBI Management Information Base (MIB) Definition.....238*
- *EAGLE 5 EMS NBI Common Objects Management Information Base (MIB) Definition.....242*
- *EAGLE EMS and SNMP NBI Operational Strategies and Limitations.....246*

The EAGLE EMS Enhanced SNMP Northbound Interface selectively forwards alarms from EAGLE 5 systems and the EAGLE EMS itself to one or more northbound Network Management Systems.

Overview

The EAGLE EMS SNMP North Bound Interface (NBI) receives events from managed Network Elements (NEs) on the Tekelec Signaling Domain (Tekelec products operating in the signaling network). Managed NEs are those Network Elements for which the EAGLE EMS has installed agents. Events may originate from the EAGLE EMS itself, be received from EAGLE 5 systems (in ASCII format), or be received as SNMP traps from SNMP-enabled devices (such as TekServer, SCS, T3300, etc.).

Enhanced SNMP Northbound Interface Functions

The Enhanced SNMP Northbound Interface processes alarms received by the EAGLE EMS as well as alarms generated within the EAGLE EMS, and selectively forwards those alarms to up to 10 registered Network Management Systems as SNMPv2 (Simple Network Management Protocol, version 2) alert traps.

Alarm Matching and Filtering

The Enhanced SNMP Northbound Interface provides a filter mechanism which determines which alarms are to be forwarded to each registered Network Management System. Two mechanisms are defined for each Network Management System to which the Enhanced SNMP Northbound Interface is configured to forward alarms:

- Matching Patterns

These filters are used to determine which alarms are to be forwarded to Network Management Systems with filtering parameters Resource, Sub-resource, Severity, and Acknowledge Mode , allowing for wildcards. Alarms that match this filter are forwarded to the Network Management System.

- Filtering Patterns

These filters are used to determine which alarms are to be blocked from forwarding to Network Management Systems with filtering parameters Resource, Sub-resource, Severity, and Acknowledge Mode, allowing for wildcards. Alarms that match this filter are not forwarded to the Network Management System.

Note: Alarms that match both a matching pattern and a filtering pattern will **not** be forwarded to the Network Management System as SNMP alert traps.

Resynchronization of Alarms between EAGLE EMS and Network Management Systems

A mechanism is provided for resynchronizing all open alarms in the EAGLE EMS with the SNMP alerts in the Network Management System upon receipt of a resynchronization request from the Network Management System.

Upon receiving a resynchronization request in the form of an SNMP "set" command from a Network Management System, EAGLE EMS will:

1. Confirm that no resynchronization process with that Network Management System is already in progress. If it is, send a reject alert trap, error code 2, 3, or 4 (see [EAGLE 5 EMS NBI Error Codes](#)), to the requesting Network Management System.
2. If the limit for the maximum number of resync processes has been met, a resync reject trap, error code 2, 3, or 4 (see [EAGLE 5 EMS NBI Error Codes](#)), is sent to the NMS.
3. Halt normal forwarding of alarms to the requesting Network Management System and queue all incoming alarms for later forwarding.
4. Send an alert trap indicating the start of the resynchronization process.
5. After receipt of resyncStartTrap, latest instance of all alarms on a unique combination of resource and sub-resource will be sent.
6. Forward alarms that were queued beginning in Step 2.
7. Send an alert trap indicating that the resynchronization is complete and then resume normal alarm forwarding.

Enhanced SNMP Northbound Interface Performance

The expected throughput of the Enhanced SNMP Northbound Interface, based on the number of EAGLE 5 systems, is presented in [Table 23: Enhanced SNMP Northbound Interface Expected Load](#).

Table 23: Enhanced SNMP Northbound Interface Expected Load

EMS Tier	Number of EAGLE 5 Pairs	Forwarding Throughput (Alarms/Second)
1	Up to 2 pair	16
2	Up to 6 pair	48
3	Up to 10 pair	80
4	Up to 14 pair	112

NMS SNMP Trap Management

The Enhanced SNMP Northbound Interface can be configured to forward SNMP alert traps to up to 10 northbound Network Management Systems.

- A new trap host must be added for each SNMP manager to receive EAGLE EMS traps.
- Any new addition, modification or deletion of trap host will be picked up by NBI core processes during runtime.

Use this procedure to configure, modify, or delete the SNMP alert traps from an EAGLE EMS to a Network Management System. Multiple SNMP trap destinations can be added by performing this procedure for each destination.

The Enhanced SNMP Northbound Interface must be installed prior to performing this procedure. You should be logged in the EAGLE EMS as a NetBoss administrator (user name = *netboss*), and not logged in as "root".

No SNMP Trap hosts are configured by default.

1. Start the Network Management System(NMS) Configuration program for the Enhanced SNMP Northbound Interface.
 - a) From the **NetBoss Menu > Applications > xterm** menu, open an xterm window.
 - b) On the command line, type `nbi` and press **Enter**.

A page similar to [Figure 115: NMS List Page](#) appears.

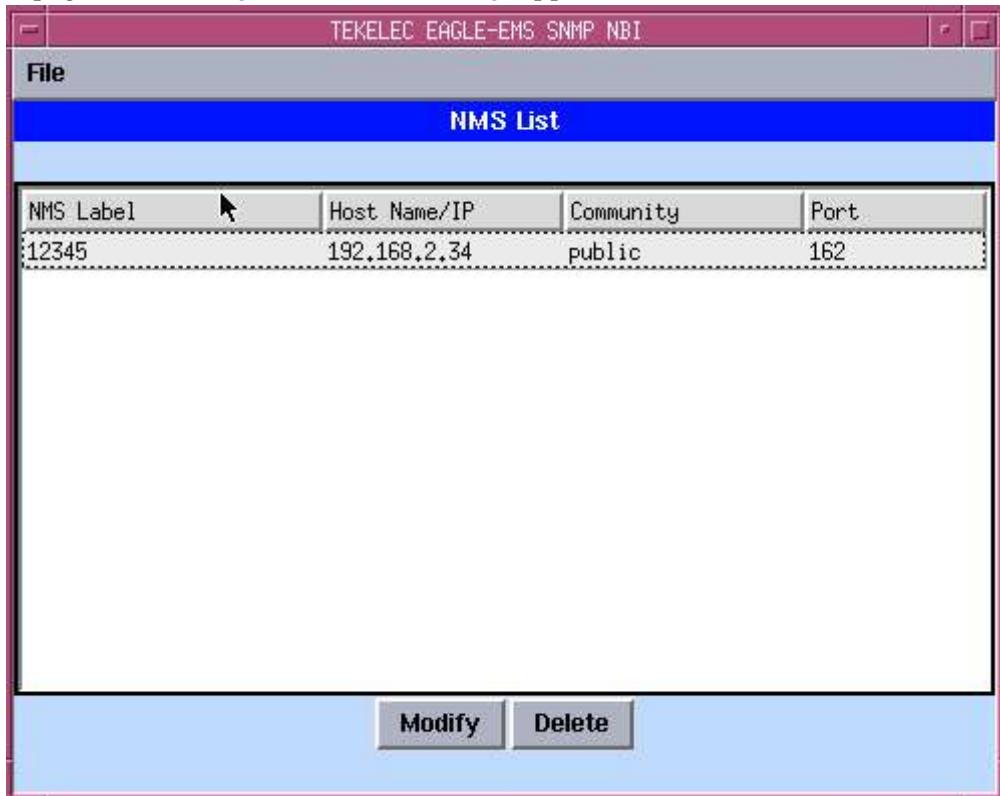


Figure 115: NMS List Page

2. From the NMS List page, an NMS can be added, modified or deleted by:
 - To add (configure) a new trap destination, go to [Step 6](#).
 - To modify the patterns of an existing trap destination, go to [Step 8](#),
 - To remove an existing trap destination, go to [Step 3](#) .
 - To exit the SNMP configuration application, click **File > Exit**.
3. Click on (select) the trap destination to be deleted.
4. Click on **Delete** to remove the trap destination.
5. Go to [Step 2](#) to continue with managing SNMP trap destinations or exit the SNMP configuration application by clicking **File > Exit**.
6. From the NMS List page, click **File** then **Add New NMS** as shown in [Figure 116: Add A New NMS Menu](#).



Figure 116: Add A New NMS Menu

7. Go to [Step 10](#).
8. Click on (select) the trap destination to be modified.
9. Click on **Modify** to change trap destination parameters.
10. Fill in or modify the parameters as described (refer to [Figure 117: NMS Configuration Page](#)):

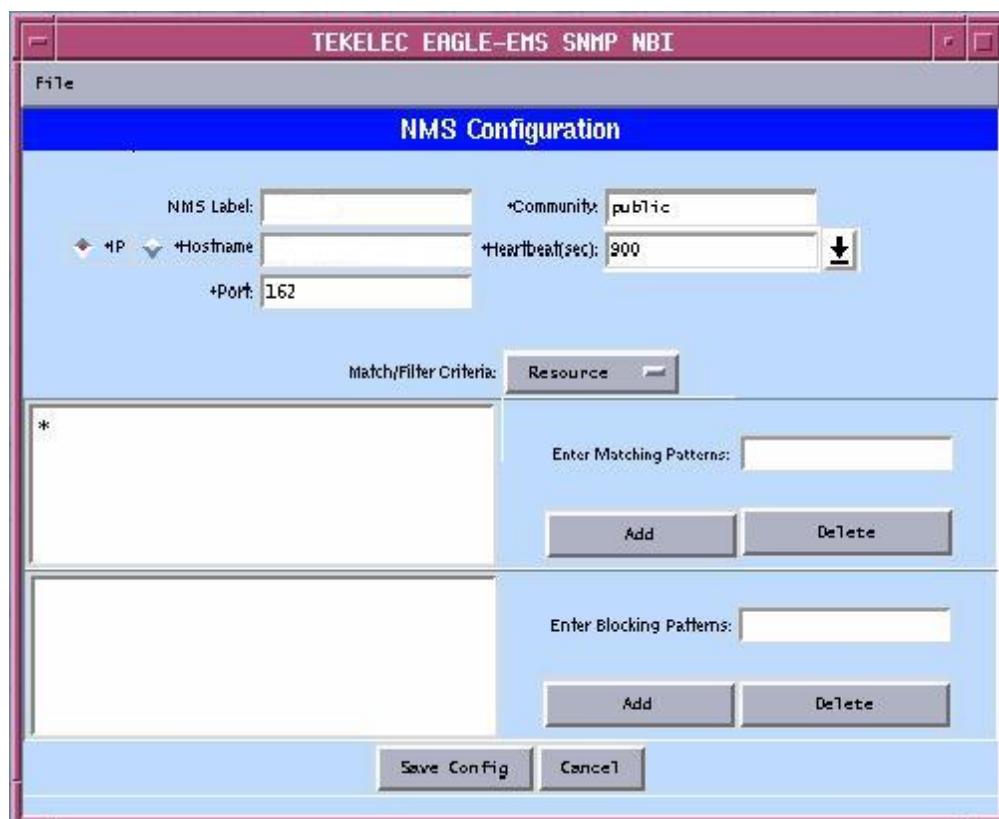


Figure 117: NMS Configuration Page

Note: Fields marked with "*" are mandatory and must have values filled in before saving this configuration.

11. Enter a unique, logical name for the Network Management System configuration to be entered on this page in the **NMS Label** field.

The name must meet the following criteria:

- Be between 5 and 20 characters in length
- Start with an alphabetic character
- Consist only of alphanumeric characters (0-9, a-z, A-Z), hyphens, and underscores

- Be unique within the EAGLE EMS SNMP Northbound Interface
12. Depending upon the radio button selected, enter the host name or IP address of the Network Management System to receive SNMP alert traps in the **Host Name/IP** field. Default is **IP** radio button selected.
- If the radio button corresponding to **IP** is selected, then the value entered in the text field is considered an IP and is validated accordingly.
 - If the radio button corresponding to **Hostname** is selected, the value entered in the text field is considered a Hostname and is validated accordingly.
 - Allowable IP address formats take the form of a.b.c.d, where a, b, c, and d represent numbers between 0 and 255.

Note: Attempting to define configurations for a Network Management System, one with an IP address and one with a host name that resolves to the same system, will cause one of the following error messages to be displayed.

- **Hostname corresponds to that of another host already in the list!**
- **IP Address corresponds to that of another host already in the list!**

Note: Care should be taken to ensure that there are not two configurations defined for a Network Management System, one with an IP address and one with a host name that resolves to the same system.

13. Enter the destination UDP port number to be included in northbound SNMP alert traps in the **Port** field.

The UDP port number entered must be between 0 and 65535. Port number **162** is the default UDP port for SNMP Traps.

14. Enter the name of the SNMP community to be included in northbound SNMP alert traps in the **Community** field.

The SNMP community name cannot exceed 127 characters in length. The default community name is **public**.

15. Enter the desired number of seconds to elapse between northbound Heartbeat traps or enter "Disabled" to turn off northbound Heartbeat traps in the **Heartbeat (sec)** field.

The recommended value for this field is 600 seconds (5 minutes). Default is 60.

A set of values for this field are presented in a drop-down list, but any number between 5 and 7200 can be entered, even if that number does not appear in the drop-down list.

16. From the **Match/Filter Criteria** drop-down list, select the criteria to be used for the patterns.

The criteria available in the drop-down list:

- Resource - the source of the alert
- SubResource - the subsource of the alert
- Severity - the severity of the alert (1 through 5)
- Acknowledge - alert is acknowledged or not

17. If desired, use the **Enter Matching Patterns** pane to enter a matching pattern appropriate to the criteria selected to determine which SNMP alert traps are forwarded, then click the **Add** button.

The value to be provided in the **Enter Matching Patterns** field depends on the criterion selected from the **Match/Filter Criteria**.

- **Resource:** A text field will be provided to enter the resource matching strings. The matching string will be validated for the presence of alphanumeric characters, asterisk (*), question mark (?), hyphen (-) or an underscore (_).
- **SubResource:** A text field will be provided to enter the subresource matching strings. The matching string will be validated for the presence of alphanumeric characters, asterisk (*), question mark (?), hyphen (-), underscore (_), comma (,) or a slash (/).
- **Severity:** The ability to configure matching strings corresponding to the criterion “**Severity**” will be provided through a drop-down list on the NBI Configuration Interface. The drop-down list will enlist the values: 1, 2, 3, 4, 5.
- **Acknowledge:** The ability to configure matching strings corresponding to the criterion “**Acknowledge**” will be provided through a drop-down list on the NBI Configuration Interface. The drop-down list will enlist the values: **acknowledge**, **unacknowledge**

By default, the list box for displaying matching strings will contain an asterisk “*” for all the criteria enlisted in the drop-down for **Match/Filter Criteria** implying that all the alarms shall be forwarded by default.

The matching pattern entered appears in the list at the left of the **Enter Matching Patterns** pane.

- Multiple matching strings for each criterion may be entered.
- Matching strings for multiple criteria taken one at a time may also be entered.
- Asterisk (*) and question mark (?) can be used as wild card characters for the criteria Resource and Sub-Resource.
- Asterisk will substitute for zero or more characters, and question mark will substitute for any one character.
- Underscore (_) and Hyphen (-) can be used as special characters for criteria Resource.
- For criteria SubResource, in addition to the two special characters comma (,) and slash (/) can also be used.

18. If desired, any of the matching patterns in the list at the left of the **Enter Matching Patterns** pane can be removed by selecting the pattern to be removed and clicking on the **Delete** button in that pane.
19. Repeat *Step 17* through *Step 18* until the desired matching patterns are listed in the **Enter Matching Patterns** pane.
20. If desired, use the **Enter Filtering Patterns** pane to enter a filtering pattern appropriate to the criteria selected to determine which SNMP alert traps are blocked from forwarding, then click the **Add** button.

The value to be provided in the **Enter Filtering Patterns** field depends on the criterion selected from the **Match/Filter Criteria**.

- **Resource:** A text field will be provided to enter the resource filtering strings. The filtering string will be validated for the presence of alphanumeric characters, asterisk (*), question mark (?), hyphen (-) or an underscore (_).
- **SubResource:** A text field will be provided to enter the subresource filtering strings. The filtering string will be validated for the presence of alphanumeric characters, asterisk (*), question mark (?), hyphen (-), underscore (_), comma (,) or a slash (/).
- **Severity:** The ability to configure filtering strings corresponding to the criterion “**Severity**” will be provided through a drop-down list on the NBI Configuration Interface. The drop-down list will enlist the values: 1, 2, 3, 4, 5.

- **Acknowledge:** The ability to configure filtering strings corresponding to the criterion “Acknowledge” will be provided through a drop-down list on the NBI Configuration Interface. The drop-down list will enlist the values: **acknowledge**, **unacknowledge**

By default, the list box for displaying matching strings will contain an asterisk “*” for all the criteria enlisted in the drop-down for **Match/Filter Criteria** implying that all the alarms shall be forwarded by default.

The blocking pattern entered appears in the list at the left of the **Enter Filtering Patterns** pane.

- Multiple filtering strings for each criterion may be entered.
- Filtering strings for multiple criteria taken one at a time may also be entered.
- Asterisk (*) and question mark (?) can be used as wild card characters for the criteria Resource and Sub-Resource.
- Asterisk will substitute for zero or more characters, and question mark will substitute for any one character.
- Underscore (_) and Hyphen (-) can be used as special characters for criteria Resource.
- For criteria SubResource, in addition to the two special characters comma (,) and slash (/) can also be used.

21. If desired, any of the blocking patterns in the list at the left of the **Enter Filtering Patterns** pane can be removed by selecting the pattern to be removed and clicking on the **Delete** button in that pane.
22. Repeat [Step 20](#) through [Step 21](#) until the desired matching patterns are listed in the **Enter Filtering Patterns** pane.

Note: Alerts that match both the matching patterns in the **Enter Matching Patterns** pane and the blocking patterns in the **Enter Filtering Patterns** pane will **not** be forwarded to the Network Management System.

23. To save the new Network Management System configuration entered in this procedure, click on the **Save Config** button.
A page similar to the one shown in [Figure 115: NMS List Page](#) appears, with a new line describing the newly entered Network Management System added.
24. If desired, the Network Management System configuration performed in this procedure can be cancelled by clicking the **Cancel** button.
25. To continue with trap destination management:
 - Go to [Step 6](#) to add (configure) a new trap destination.
 - Go to [Step 8](#) to modify the patterns of an existing trap destination.
 - Go to [Step 3](#) to remove an existing trap destination.
 - Exit the SNMP configuration application by clicking **File > Exit**.

Operating the Enhanced SNMP Northbound Interface

Once the SNMP trap destinations have been configured in the Enhanced SNMP Northbound Interface, alert forwarding to the Network Management Systems can be initiated, as described in [Starting SNMP Trap Forwarding](#). To check whether or not the Enhanced SNMP Northbound Interface is running, perform [Checking the Status of The Enhanced SNMP Northbound Interface](#). If the Enhanced SNMP Northbound Interface needs to be restarted, perform [Restarting SNMP Trap Forwarding](#).

Resynchronization of alerts can be initiated from a Network Management System as described in [Invoking Alert Resynchronization](#).

Starting SNMP Trap Forwarding

The Enhanced SNMP Northbound Interface must be installed prior to performing this procedure.

Network Management Systems that are to receive SNMP alert traps from the EAGLE EMS must have been configured (refer to [NMS SNMP Trap Management](#)). This procedure describes how to start the forwarding of alarms as SNMP alert traps from the EAGLE EMS to those Network Management Systems.

1. Open an xterm menu from the **NetBoss Menu ▶ Applications ▶ xterm** menu.
2. Log in as root by typing **su** and entering the root password.
3. Start the Enhanced SNMP Northbound Interface by typing the following command:

```
/etc/init.d/snmpnbi start
```

If the Enhanced SNMP Northbound Interface is not already running, the following message appears:

```
Starting SNMP NBI...
SNMP NBI is up and running
```

If the Enhanced SNMP Northbound Interface is already running, the following message appears:

```
SNMP NBI is already running
```

Checking the Status of The Enhanced SNMP Northbound Interface

The Enhanced SNMP Northbound Interface must be installed prior to performing this procedure.

Network Management Systems that are to receive SNMP alert traps from the EAGLE EMS must have been configured (refer to [NMS SNMP Trap Management](#)). This procedure describes how to check whether the Enhanced SNMP Northbound Interface is running or not.

1. Open an xterm menu from the **NetBoss Menu ▶ Applications ▶ xterm** menu.
2. Log in as root by typing **su** and entering the root password.
3. Start the Enhanced SNMP Northbound Interface by typing the following command:

```
/etc/init.d/snmpnbi status
```

If the Enhanced SNMP Northbound Interface is running the following message appears:

```
SNMP NBI is running
```

If the Enhanced SNMP Northbound Interface is not running, the following message appears:

```
SNMP NBI is not running
```

Restarting SNMP Trap Forwarding

The Enhanced SNMP Northbound Interface must be installed prior to performing this procedure.

Network Management Systems that are to receive SNMP alert traps from the EAGLE EMS must have been configured (refer to [NMS SNMP Trap Management](#)). This procedure describes how to restart the forwarding of alarms as SNMP alert traps from the EAGLE EMS to those Network Management Systems.

1. Open an xterm menu from the **NetBoss Menu > Applications > xterm** menu.
2. Log in as root by typing **su** and entering the root password.
3. Start the Enhanced SNMP Northbound Interface by typing the following command:

```
/etc/init.d/snmpnbi restart
```

If the Enhanced SNMP Northbound Interface is already running, the following message appears:

```
SNMP NBI stopped  
Starting SNMP NBI...  
SNMP NBI is up and running
```

If the Enhanced SNMP Northbound Interface is not already running, the following message appears:

```
SNMP NBI is not running  
Starting SNMP NBI...  
SNMP NBI is up and running
```

Invoking Alert Resynchronization

The Enhanced SNMP Northbound Interface must be installed and running prior to performing this procedure (see [Starting SNMP Trap Forwarding](#)).

This procedure describes how to invoke the resynchronization of alerts between the EAGLE EMS and a Network Management System.

1. From the Network Management System, send an SNMP "set" command to the EAGLE EMS, setting the **resyncVar** object to 1.

Note: See [EAGLE 5 EMS NBI Management Information Base \(MIB\) Definition](#) for a complete definition of the **resync** object.

The resynchronization process will automatically occur as described in [Resynchronization of Alarms between EAGLE EMS and Network Management Systems](#). If a resynchronization process is already in process, the EAGLE EMS sends a **ResyncRejectTrap**. If the limit for the maximum number of resync processes has been met, a resync reject trap, error code 2, 3, or 4 (see [EAGLE 5 EMS NBI Error Codes](#)), is sent to the NMS. Before resynchronizing, the EAGLE EMS sends a **ResyncStartTrap**. When the resynchronization process completes, the Network Management System will receive a **ResyncStopTrap**.

2. If a **ResyncRejectTrap** was received, wait until the **ResyncStopTrap** is received and repeat [Step 1](#).

EAGLE 5 EMS NBI Error Codes

[Table 24: NBI Error Codes](#) describes the error codes associated with the Tekelec EAGLE EMS SNMP NBI.

Table 24: NBI Error Codes

S.No	Error Code	Description	Possible Cause
1	0	Resynchronization completed successfully.	The resynchronization completed successfully for the NMS.
2	1	Resynchronization aborted by NMS.	While the resynchronization is in progress, the NMS sends another request to abort the resynchronization.
3	2	Resynchronization already in progress for the NMS.	While a resynchronization is in progress for the NMS, it sends another resynchronization request.
4	3	The limit of NMS(s) in resync has been met.	A NMS tries to invoke a resync while the active resync limit has already been met.
5	4	Resynchronization Aborted, Database error occurred.	The resync thread is unable to perform database operations such as fetching resync alarms.

EAGLE 5 EMS NBI GUI Error Codes

Table 25: NBI GUI Error Codes describes the GUI error codes associated with the Tekelec EAGLE EMS SNMP NBI.

Table 25: NBI GUI Error Codes

S.No	Error Message	Possible Cause
1	NMS Label can contain only alphanumeric characters, hyphen and underscore!	NMS Label name contains characters other than alphanumeric characters, hyphen (-) or underscore (_).
2	NMS Label must have an alphabet as its first character!	NMS Label does not have an alphabet as its first character.

S.No	Error Message	Possible Cause
3	NMS Label can contain a minimum of 5 and a maximum of 20 characters!	NMS Label name contains less than 5 characters
4		NMS Label name contains more than 20 characters
5	NMS Label already defined for an existing host!	NMS Label name provided already exists in the list (irrespective of the case)
6	IP Address is blank!	No IP Address is provided
7	Hostname is blank!	No Hostname is provided
8	Hostname length cannot exceed 100 characters!	Hostname provided exceeds 100 characters
9	Host with the IP Address already exists!	IP Address provided already exists in the list
10	Host with the Hostname already exists!	Hostname provided already exists in the list (irrespective of the case)
11	Hostname corresponds to that of another host already in the list!	Hostname provided resolves to an IP that is already configured in the NMS list
12	IP Address corresponds to that of another host already in the list!	IP Address provided matches any hostname that resolves to the same IP address entered by the user
13	Cannot Resolve Host.Add a valid entry in /etc/hosts file!	An entry corresponding to hostname provided does not exist in /etc/hosts file.
14	Invalid IP Address!	An invalid IP Address is provided.
15	Community string is blank!	No Community string is provided
16	Community string length cannot exceed 127 characters!	The Community string provided exceeds 127 characters
17	Port number is blank!	No port number is provided
18	Port number can contain only numeric value!	Port number provided contains non-numeric values (including negative values)
19	Port number can contain values between 0 and 65535!	Port number provided is greater than 65535
20	Heartbeat is blank!	No heartbeat is provided

S.No	Error Message	Possible Cause
21	Heartbeat can contain only numeric value or string 'Disabled'!	Heartbeat provided is a non-numeric value (other than 'Disabled')
22	Heartbeat can contain values between 5 and 7200!	Heartbeat provided is a numeric value less than 5.
23		Heartbeat provided is a numeric value greater than 7200
24	Match pattern already defined for Resource.	User provides a Resource matching string already in the list
25	Match pattern already defined for SubResource.	User provides a SubResource matching string already in the list
26	Match pattern already defined for Severity.	User provides a Severity matching string already in the list
27	Match pattern already defined for Acknowledge.	User provides an Acknowledge matching string already in the list
28	Filter pattern already defined for Resource.	User provides a Resource filtering string already in the list
29	Filter pattern already defined for SubResource.	User provides a SubResource filtering string already in the list
30	Filter pattern already defined for Severity.	User provides a Severity filtering string already in the list
31	Filter pattern already defined for Acknowledge.	User provides a Acknowledge filtering string already in the list
32	Resource Match patterns can contain alphanumeric chars & special chars: (*), (?), (-), (.) !	The matching strings corresponding to criteria: Resource contains characters other than alphanumeric characters, asterisk (*), question mark (?), hyphen (-) and an underscore (._).
33	SubResource Match patterns can contain alphanumeric chars & special chars: (*), (?), (-), (.), (/) !	The matching strings corresponding to criteria: SubResource contains characters other than alphanumeric characters, asterisk (*), question mark (?), hyphen (-), underscore (._), comma (,) and slash (/).

S.No	Error Message	Possible Cause
34	Resource Filter patterns can contain alphanumeric chars & special chars: (*), (?), (_), (-) !	The filtering strings corresponding to criteria: Resource contains characters other than alphanumeric characters, asterisk (*), question mark (?), hyphen (-) and an underscore (_).
35	SubResource Filter patterns can contain alphanumeric chars & special chars: (*), (?), (_), (-), (,), (/) !	The filtering strings corresponding to criteria: SubResource contains characters other than alphanumeric characters, asterisk (*), question mark (?), hyphen (-), underscore (_), comma (,) and slash (/).
36	Maximum number of configurable hosts is 10!	User tries to add another NMS when ten NMS(s) are already configured.
37	Select a NMS to modify!	User clicks on the Modify button without selecting any NMS entry from the NMS List
38	Select a NMS to delete!	User clicks on the Delete button without selecting any NMS entry from the NMS List
39	Cannot add an empty string as Resource Match pattern!	User clicks on the Add button without providing any matching string for criteria Resource
40	Cannot add an empty string as SubResource Match pattern!	User clicks on the Add button without providing any matching string for criteria SubResource
41	Cannot add an empty string as Resource Filter pattern!	User clicks on the Add button without providing any filtering string for criteria Resource
42	Cannot add an empty string as SubResource Filter pattern!	User clicks on the Add button without providing any filtering string for criteria SubResource
43	Select an entry to delete!	User clicks on the Delete button without selecting any entry from the matching patterns listbox (for any criteria)
44	Select an entry to delete!	User clicks on the Delete button without selecting any entry from the filtering patterns listbox (for any criteria)

EAGLE 5 EMS NBI Management Information Base (MIB) Definition

```
-- ****
-- Copyright 2009 Tekelec Corporation
--
-- The assignments of Tekelec enterprise MIB OIDs is officially tracked by
-- Technical Reference document TR003056. Each time this MIB is updated a
-- corresponding change must be made to this document to avoid conflicts.
--
-- ****
TKLC-EAGLEEMS-NBI DEFINITIONS ::= BEGIN

IMPORTS
MODULE-IDENTITY,
OBJECT-TYPE,
NOTIFICATION-TYPE FROM SNMPv2-SMI
DisplayString FROM SNMPv2-TC
AlertSeverity, alertSeverity,
AlertAcknowledgeMode, alertAcknowledgeMode,
alertTime,
alertResourceName,
alertSubResourceName,
alertTextMessage,
alertSequenceNumber FROM TKLC-EAGLEEMS-COMMONOBJECTS
tekelecEagleEMS FROM TEKELEC-TOPLEVEL-REG;

emsNBI MODULE-IDENTITY
LAST-UPDATED "201005070000Z" --May 7, 2010
ORGANIZATION "Tekelec"
CONTACT-INFO "
Postal: Tekelec
5200 Paramount Parkway
Morrisville, NC 27560
USA
Tel: 919-460-5500"

DESCRIPTION
"This MIB defines the Tekelec Eagle EMS Common Objects"
-----

-- Revision History
--

-----  

REVISION "201005070000Z" --May 7, 2010
DESCRIPTION
"Updated to remove alertResourceName from heartbeat
trap"

REVISION "201004230000Z" --April 23, 2010
DESCRIPTION
"Updated to include alertResourceName in heartbeat
trap"

REVISION "201004090000Z" --April 9, 2010
DESCRIPTION
"Updated to include alertErrorCode varbind in
in resyncStopTrap and resyncRejectTrap"

REVISION "201002090000Z" --February 9, 2010
DESCRIPTION
"Updated to include resyncAlarmCount varbind in
```

```

in resyncStopTrap"

REVISION "201001140000Z"      --January 14, 2010
DESCRIPTION
"Updated to include heartbeatTrap"

REVISION "200912190000Z"      -- December 19, 2009
DESCRIPTION
"Updated as per FE006002 v1.5"

REVISION "200912140000Z"      -- December 14, 2009
DESCRIPTION
"Updated as per FE006002 v1.4"

REVISION "200911200000Z"      -- November 20, 2009
DESCRIPTION
"Updated as per FE006002 v1.2"

REVISION "200910260000Z"      -- October 26, 2009
DESCRIPTION
"Initial Version"

 ::= { tekelecEagleEMS 2 }

-----
--          EMS NBI OBJECTS DEFINITION
--

emsNBIObjects OBJECT IDENTIFIER ::= { emsNBI 1 }

resyncVarOBJECT-TYPE
  SYNTAXINTEGER(0|1)
  MAX-ACCESSread-write
  STATUScurrent
  DESCRIPTION "The object is available to be set by the NMS to indicate a request
for alarm resynchronization.
          Object value=0 indicates a request to stop an ongoing
resynchronization and Object value=1
          indicates a resynchronization request."
  ::= { emsNBIObjects 1 }

resyncAlarmCountOBJECT-TYPE
  SYNTAXUnsigned32
  MAX-ACCESSread-only
  STATUScurrent
  DESCRIPTION "The total number of resync alarms to be sent."
  ::= { emsNBIObjects 2 }

alertErrorCode OBJECT-TYPE
  SYNTAXINTEGER
  MAX-ACCESSread-only
  STATUScurrent
  DESCRIPTION "Enumerated value that indicates the reason for the trap."
  ::= { emsNBIObjects 3 }

-----
--          EMS TRAPS DEFINITION
--

emsNBITraps OBJECT IDENTIFIER ::= { emsNBI 2 }

alertTrap    NOTIFICATION-TYPE

```

```

OBJECTS { alertTime,
          alertResourceName,
          alertSubResourceName,
          alertSeverity,
          alertAcknowledgeMode,
          alertTextMessage,
          alertSequenceNumber
      }
STATUS current
DESCRIPTION "The trap is sent by the EAGLE EMS to NMS when an alert is received
on the Netboss system."
 ::= { emsNBITraps 1 }

resyncStartTrap    NOTIFICATION-TYPE
OBJECTS { alertSeverity,
          alertTextMessage}
STATUS current
DESCRIPTION "The trap is sent by the EAGLE EMS to NMS when the EMS is about to
start resynchronization."
 ::= { emsNBITraps 2 }

resyncStopTrap    NOTIFICATION-TYPE
OBJECTS { alertSeverity,
          resyncAlarmCount,
          alertErrorCode,
          alertTextMessage}
STATUS current
DESCRIPTION "The trap is sent by the EAGLE EMS to NMS when resynchronization is
complete."
 ::= { emsNBITraps 3 }

resyncRejectTrap    NOTIFICATION-TYPE
OBJECTS { alertSeverity,
          alertErrorCode,
          alertTextMessage}
STATUS current
DESCRIPTION "The trap is sent by the EAGLE EMS to NMS when a resynchronization
request is rejected by EAGLE EMS"
 ::= { emsNBITraps 4 }

heartbeatTrap    NOTIFICATION-TYPE
OBJECTS { alertSeverity,
          alertTextMessage}
STATUS current
DESCRIPTION "The trap is sent by the EAGLE EMS to NMS periodically to
indicate that the NBI is up"
 ::= { emsNBITraps 5 }
END

```

Table 26: Tekelec MIB Definition Table describes the behavior associated with the Tekelec EAGLE EMS MIB objects.

Table 26: Tekelec MIB Definition Table

MIB Object	Object Type	Description
resyncVar	Integer (0 or 1)	The MIB object resyncVar shall be available to be set by the NMS to indicate a request for event resynchronization.

MIB Object	Object Type	Description
		<ul style="list-style-type: none"> • Object value = 0 indicates that no resynchronization is required. • Object value = 1 indicates that a resynchronization is asked for by the NMS.
resyncAlarmCount	Unsigned32	Number of resync events (events tagged with [R]) sent to the NMS.
alertErrorCode	Integer	Enumerated value that indicates the reason for the trap. Refer : NBI ERROR CODESfor error codes.
alertTrap		<p>The trap is sent by the EAGLE EMS to NMS when an alert is received on the Netboss system. The alertTrap shall contain the following variables:</p> <ul style="list-style-type: none"> • alertTime • alertResourceName • alertSubResourceName • alertSeverity • alertAcknowledgeMode • alertTextMessage • alertSequenceNumber
resyncStartTrap	-	<p>Upon receipt of a SNMP SET request (which sets the resyncVar to 1 (or ResyncTrap), the EAGLE EMS shall send this trap to the NMS to indicate that EAGLE EMS is about to start the resynchronization process. The resyncStartTrap shall contain the variables:</p> <ul style="list-style-type: none"> • alertSeverity • alertTextMessage <p>. The alertSeverity shall have a value 0 in this case.</p>
resyncStopTrap	-	When the EAGLE EMS has completed sending the resynchronized traps to the NMS, it shall indicate the

MIB Object	Object Type	Description
		<p>completion of the resynchronization process by sending this trap. The resyncStopTrap shall contain the variables:</p> <ul style="list-style-type: none"> • alertSeverity • resyncAlarmCountt • alertErrorCode • alertTextMessage <p>. The alertSeverity shall have a value 0 in this case.</p>
resyncRejectTrap	-	<p>Upon receipt of a resynchronization request from a NMS for which event resynchronization is already in progress, the EAGLE EMS shall send this trap to the requesting NMS indicating that the new request has been rejected. The resyncRejectTrap shall contain the variables:</p> <ul style="list-style-type: none"> • alertSeverity • alertErrorCode • alertTextMessage <p>. The alertSeverity shall have a value 0 in this case.</p>
heartbeatTrap		<p>The trap is sent by the EAGLE EMS to NMS periodically to indicate that the NBI is up. The heartbeatTrap shall contain the variables:</p> <ul style="list-style-type: none"> • alertSeverity • alertTextMessage <p>. The alertSeverity shall have a value 0 in this case.</p>

EAGLE 5 EMS NBI Common Objects Management Information Base (MIB) Definition

```
-- ****
--
```

```

-- Copyright 2009 Tekelec Corporation
--
-- The assignments of Tekelec enterprise MIB OIDs is officially tracked by
-- Technical Reference document TR003056. Each time this MIB is updated a
-- corresponding change must be made to this document to avoid conflicts.
--
-- ****
TKLC-EAGLEEMS-COMMONOBJECTS DEFINITIONS ::= BEGIN

IMPORTS
    enterprises,
    OBJECT-TYPE,
    MODULE-IDENTITY,
    Unsigned32          FROM SNMPv2-SMI
    DisplayString,
    TEXTUAL-CONVENTION   FROM SNMPv2-TC
    tekelecEagleEMS      FROM TEKELEC-TOPLEVEL-REG;

emsCommonObjects      MODULE-IDENTITY
LAST-UPDATED          "200912190000Z"      -- December 19, 2009
ORGANIZATION          "Tekelec"
CONTACT-INFO          "
    Postal: Tekelec
        5200 Paramount Parkway
        Morrisville, NC 27560
        USA
    Tel: 919-460-5500"

DESCRIPTION
    "This MIB defines the Tekelec EAGLE EMS Common Objects"
-- -----
-- Revision History
--

-- -----
REVISION "200912190000Z"      -- December 19, 2009
DESCRIPTION
"Updated as per FE006002 v1.5"

REVISION "200912140000Z"      -- December 14, 2009
DESCRIPTION
"Updated as per FE006002 v1.4"

REVISION "200911200000Z"      -- November 20, 2009
DESCRIPTION
"Updated as per FE006002 v1.2"

REVISION "200910260000Z"      -- October 26, 2009
DESCRIPTION
"Initial Version"

::= { tekelecEagleEMS 1 }

-- -----
-- TEXTUAL CONVENTIONS
--

AlertSeverity ::= TEXTUAL-CONVENTION
    STATUS      current
    DESCRIPTION "The severity of the nbiAlert being reported"
    SYNTAX     INTEGER { informational(0),
clear (1),
warning (2),
minor (3),

```

```

major (4),
critical (5)
}

AlertAcknowledgeMode ::= TEXTUAL-CONVENTION
STATUS      current
DESCRIPTION "The state of the nbiAlert being reported"
SYNTAX     INTEGER { unacknowledge(0),
                     acknowledge(1)
}
-- -----
-- EAGLE EMS ALARM OBJECTS DEFINITION
--

emsAlarmObjects OBJECT IDENTIFIER ::= { emsCommonObjects 1 }

alertTime      OBJECT-TYPE
SYNTAX        DisplayString
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION
   "Timestamp when EAGLE EMS system received the nbiAlert from the managed
sub-domain."
::= { emsAlarmObjects 1 }

alertResourceName      OBJECT-TYPE
SYNTAX        DisplayString
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION
   "Unique name or identifier to identify the NE on the domain."
::= { emsAlarmObjects 2 }

alertSubResourceName      OBJECT-TYPE
SYNTAX        DisplayString
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION
   "Unique name or identifier to identify an alarmable object within the
NE."
::= { emsAlarmObjects 3 }

alertSeverity      OBJECT-TYPE
SYNTAX        AlertSeverity
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION
   "The severity of an nbiAlert in a raise state
(INFORMATIONAL|CLEAR|WARNING|MINOR|MAJOR|CRITICAL) ."
::= { emsAlarmObjects 4 }

alertAcknowledgeMode      OBJECT-TYPE
SYNTAX        AlertAcknowledgeMode
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION
   "The current state of the nbiAlert (UNACKNOWLEDGE|ACKNOWLEDGE)."
::= { emsAlarmObjects 5 }

alertTextMessage      OBJECT-TYPE
SYNTAX        DisplayString
MAX-ACCESS    read-only
STATUS        current

```

```

DESCRIPTION
    "Original information describing alarm or nbiAlert."
::= { emsAlarmObjects 6 }

alertSequenceNumber      OBJECT-TYPE
SYNTAX      Unsigned32
MAX-ACCESS  read-only
STATUS     current
DESCRIPTION
    "Incrementing sequence number allowing NMS to determine if an alarm has
been missed."
::= { emsAlarmObjects 7 }

END

```

Table 27: Tekelec MIB Definition Table describes the behavior associated with the Tekelec EAGLE EMS MIB objects.

Table 27: Tekelec MIB Definition Table

MIB Object	Object Type	Description
alertTime	DisplayString	Timestamp when EAGLE EMS system received the event from the managed sub-domain.
alertResourceName	DisplayString	Unique name or identifier to identify the NE on the domain.e.g. CLI for EAGLE.
alertSubResourceName	DisplayString	Unique name or identifier to identify an alarmable object within the NE. e.g card 1103 for EAGLE.
alertSeverity	Enum <ul style="list-style-type: none"> • information=0 • clear=1 • warning=2 • minor=3 • major=4 • critical=5 	Severity of an event. Aligns to the current NetBoss event severity codes <ul style="list-style-type: none"> • information=0 • clear=1 • warning=2 • minor=3 • major=4 • critical=5
alertAcknowledgeMode	Enum <ul style="list-style-type: none"> • unacknowledge(0) • acknowledge(1) 	Indicates if the event has been acknowledged.
alertTextMessage	DisplayString	Original information describing event.

MIB Object	Object Type	Description
alertSequenceNumber	Unsigned32	Incrementing sequence number allowing NMS to determine if an event has been missed.

EAGLE EMS and SNMP NBI Operational Strategies and Limitations

The behavior of the EAGLE EMS and SNMP NBI is based on the expectation that the analysis of alarms is performed primarily at the EAGLE and then secondarily at the EAGLE EMS. Suppression of alarms is desired in order to reduce the overall transmission of alarms through the entire network, thereby reducing latency and improving network utilization.

This expectation is built into the EAGLE, EAGLE EMS, and SNMP NBI in order to prevent the management layer above the EAGLE EMS (an NMS) from becoming overwhelmed with alarms. Since that NMS layer may be managing a broad spectrum of entities, this suppression is desired. At the bottom of root-cause/fault isolation is the EAGLE and its responses to the rtrv-trbl command. In the subset of situations where the EAGLE is sending refreshed or replacement alarms to the EAGLE EMS that are not expressed through the SNMP NBI (to the NMS), the alarm management at the NMS/OSS level is still provided with an accurate count of the number of alarmable objects (EAGLE resources) that have outstanding alarms, the identity of those alarmable objects, and severity of the alarms on those objects. Thus, the NMS awareness of the operational state of the EAGLE is accurate and the NMS/OSS's ability to manage the EAGLE at a network level is not impeded. The NMS may opt to resynchronize with the EAGLE EMS in order to be provided the most accurate alarm details.

The fundamental objective of the SNMP NBI is for the NMS to be synchronized with the EAGLE EMS with respect to the identity of objects that are in an alarm state and the severity of those alarms. However, the details (including the number of times the alarm have been refreshed and replacement alarm information) are maintained at the EAGLE EMS and/or, possibly, even the EAGLE. This consolidation is intentional. Fault isolation and debugging are expected to require intervention with the EAGLE EMS and EAGLE interfaces.

In general, if the EAGLE sends an alarm to the EAGLE EMS, the EAGLE EMS will pass that alarm to the NMS. However, the following qualifications exist:

1. The EAGLE may not send every alarm while it transitions thru recovery of alarmable objects.
2. If a new alarm is received by the EAGLE EMS for an object for which there is already an outstanding alarm of the same severity, then the new alarm is suppressed and not forwarded to NMSs.

Even with these qualifications, the EMS and NMS are synchronized (with respect to the number, objects, and severity of alarms on those objects). Debugging is expected to be directed at the EAGLE first, since alarm suppression is possible at the EAGLE.

Note: Not all scenarios presented in [Table 28: EAGLE EMS SNMP Northbound Interface Alarm Behavior](#) may be presented to the NMS (specifically for refreshed and/or replacement alarms).

The EAGLE EMS will only pass the first alarm of a series of alarms on the same resource/sub-resource with the same severity through the SNMP NBI. Subsequent alarms with the same resource/sub-resource and severity levels will be suppressed. This avoids overflowing the NMS with excessive or possibly redundant alarms of the same severity. It also replicates the EAGLE alarm paradigm, in which the EAGLE OAM suppresses "transient" alarms created while the EAGLE attempts to repair service to affected alarmable objects (e.g., recovering a link).

Table 28: EAGLE EMS SNMP Northbound Interface Alarm Behavior provides the current EAGLE EMS and SNMP NBI behavior in relationship to management of the EAGLE STP. The EAGLE alarm interface behavior is presented in columns 2-5. The EMS user interface behaviors (Event Viewer and Historical Event Viewer) are described in columns 6-7. Finally, the SNMP NBI expression of EAGLE alarms is described in column 8.

Note: When the EAGLE EMS receives an alarm for a resource/sub-resource for which there is already an outstanding alarm with a different severity level, the EAGLE EMS implicitly clears the old alarm and raises the new alarm. No explicit “Clear” alarm is forwarded by the EAGLE EMS NBI. An NMS may choose to adopt this same behavior.

It is up to the NMS to determine how to interpret the forwarded alarm raises and clears. Only the behavior and semantics of the EAGLE and EAGLE EMS alarm handling and forwarding paradigms are described herein. NMS implementations may choose to duplicate this approach or to adopt a different approach. Inconsistencies arising from different alarm raising and clearing at the various interfaces can be resolved by resynchronizing the EAGLE with the EAGLE EMS and the EAGLE EMS with the NMS.

Note: A UAM 500 Clear alarm has special semantics with it. When the EAGLE sends the UAM 500 Clear alarm, it is intended to explicitly clear all alarms that have been raised on that resource/sub-resource.

Table 28: EAGLE EMS SNMP Northbound Interface Alarm Behavior

1	2	3	4	5	6	7	8
Step	EAGLE Event (EAGLE => EAGLE EMS)	Severity	Re-source	Sub-Re-source	Behavior in EAGLE EMS Event Viewer	Behavior in EAGLE EMS Historical Event Viewer	SNMP NBI Behavior (EAGLE EMS => NMS)SNMP NBI Behavior (EAGLE EMS => NMS)
1 (initial)	Send Minor Alarm with Resource=A and SubResource=B	Minor	A	B	New Minor alarm is displayed in EV: Count= 1 Severity=3 Previous severity=1	New Minor alarm is displayed in HEV: count=1 Severity=3 Previous severity=1	Alarm is passed thru SNMP NBI
2 (step-up)	Send Major Alarm	Major	A	B	Minor alarm	New Major alarm displayed in HEV	Alarm is passed thru SNMP NBI

1	2	3	4	5	6	7	8
Step	EAGLE Event (EAGLE => EAGLE EMS)	Severity	Re-source	Sub-Resource	Behavior in EAGLE EMS Event Viewer	Behavior in EAGLE EMS Historical Event Viewer	SNMP NBI Behavior (EAGLE EMS => NMS) SNMP NBI Behavior (EAGLE EMS => NMS)
	with Resource=A and SubResource=B				(step1) is replaced by Major alarm Count is reset to 1 Severity=4 Previous severity=3	Count=1 Severity=4 Previous severity=3 (old Minor alarm is still visible)	
3 (refresh)	Send SAME Major Alarm with Resource=A and SubResource=B	Major	A	B	Old Major alarm (step2) is replaced by new Major alarm Count is incremented to 2, Severity=4 previous severity=3	No Change	No new alarm is passed thru SNMP NBI, since severity has not changed
4 (step-down)	Send Minor Alarm with Resource=A and SubResource=B	Minor	A	B	Major alarm (step3) is replaced by new Minor alarm Count=1 Severity=3	New Minor alarm is displayed in HEV Count=1 Severity=3 Previous severity=3	Alarm is passed thru SNMP NBI

1	2	3	4	5	6	7	8
Step	EAGLE Event (EAGLE => EAGLE EMS)	Severity	Re-source	Sub-Resource	Behavior in EAGLE EMS Event Viewer	Behavior in EAGLE EMS Historical Event Viewer	SNMP NBI Behavior (EAGLE EMS => NMS)SNMP NBI Behavior (EAGLE EMS => NMS)
					previous severity=4	(old Minor (step1) and major alarm (step2) are still visible)	
5 (replace)	Send NEW Minor Alarm with Resource=A and SubResource=B	Minor	A	B	Minor alarm (step4) is replaced by new Minor alarm Count=1 Severity=3 Previous severity=4	No Change	No new alarm is passed thru SNMP NBI, since severity has not changed
6 (clear)	Send Clear Alarm* with Resource=A and SubResource=B	Clear	A	B	Alarm disappears from Event Viewer. Count =1 Severity=1 Previous severity=4 (old Minor (step1) and major alarm (step2) are still visible)	New Clear alarm is displayed in HEV.	Clear alarm is passed through SNMP NBI.

Glossary

A

Alert An EAGLE EMS representation of an EAGLE 5 UAM.

ANSI American National Standards Institute

An organization that administers and coordinates the U.S. voluntary standardization and conformity assessment system. ANSI develops and publishes standards. ANSI is a non-commercial, non-government organization which is funded by more than 1000 corporations, professional bodies, and enterprises.

ATM Asynchronous Transfer Mode

A packet-oriented transfer mode that uses an asynchronous time division multiplexing technique to multiplex information flow in fixed blocks, called cells.

A high-bandwidth, low-delay switching, and multiplexing technology to support applications that include high-speed data, local area network interconnection, multimedia application and imaging, and residential applications such as video telephony and other information-based services.

ATMANSI The application used for high-speed ANSI ATM signaling links.

ATMITU The application used for high-speed E1 ATM signaling links.

B

B

BPS	Bytes per Second
-----	------------------

C

Cmd Rej	Command Rejected
---------	------------------

CMI	Command Manager Interface
-----	---------------------------

An EAGLE EMS application that provides an interface to allow EAGLE 5 commands to be sent from the EAGLE EMS to one or more EAGLE 5 systems. The Command Manager Interface also controls access to specific commands on a per-user basis.

CMI Command Class	A subset of EAGLE 5 commands defined and used within the context of the Command Manager Interface.
-------------------	--

CMI Command Script Category	A name used to group CMI Command Scripts into logical sets. This organization tool is only used by CMI Command Script owners for their own scripts.
-----------------------------	---

CMI Usergroup	A set of access privileges designed to control use of EAGLE 5 commands and API functions within the Command Manager Interface.
---------------	--

Cron	A program that enables unix users to execute commands or scripts (groups of commands) automatically at a specified time/date.
------	---

D

DCM	Database Communication Module
-----	-------------------------------

D

The DCM provides IP connectivity for applications. Connection to a host is achieved through an ethernet LAN using the TCP/IP protocol.

E**EAGLE EMS**

EAGLE Element Management System

An optional feature in the Tekelec EAGLE 5 Product Family that consolidates real-time element management functions at a single point in the signaling network.

EAGLE EMS Agent

A program that provides a particular type of EAGLE EMS management access to EAGLE 5 systems.

EMSALM

Element Management System Alarm Monitor

EMS User

EAGLE EMS User.

ENET

Can refer to a generic hardware type that supports one or more Ethernet interfaces.

EPAP

EAGLE Provisioning Application Processor

F**FIFO**

First In - First Out

FTP

File Transfer Protocol

A client-server protocol that allows a user on one computer to transfer files to and from another computer over a TCP/IP network.

G**GUI****Graphical User Interface**

The term given to that set of items and facilities which provide the user with a graphic means for manipulating screen data rather than being limited to character based commands.

I**IP****Internet Protocol**

IP specifies the format of packets, also called datagrams, and the addressing scheme. The network layer for the TCP/IP protocol suite widely used on Ethernet networks, defined in STD 5, RFC 791. IP is a connectionless, best-effort packet switching protocol. It provides packet routing, fragmentation and re-assembly through the data link layer.

IPLIM

The application used by the SSEDCM/E5-ENET card for IP point-to-point connectivity for ANSI point codes.

IPSM**IP Services Module**

A card that provides an IP connection for the IPUI (Telnet) and FTP-based Table Retrieve features. The IPSM is a GPSM-II card with a one Gigabyte (UD1G) expansion memory board in a single-slot assembly running the IPS application.

IPVHSL

IP-based Virtual High-Speed Link (only supported on the Eagle via M2PA links on IPLIMx class cards)

I

IPVL	IP Virtual Link (only supported on the Eagle via M3UA and SUA links on IPGWx class cards)
------	---

L

LIM-ATM	A link interface module (LIM) with the ATM interface.
---------	---

LIM-DS0	A link interface module (LIM) with the DS0A Appliqu�.
---------	---

LIM-E1	A link interface module (LIM) with the E1 Appliqu�.
--------	---

LIM-T1	A link interface module (LIM) with the T1 Appliqu�.
--------	---

LOC	The primary function of the LOC server is to locate subscribers on GSM and IS-41 networks.
-----	--

LSN	Link Set Name The name of the link set.
-----	--

M

M2PA	SS7 MTP2-User Peer-to-Peer Adaptation Layer
------	---

M3UA	SS7 MTP3-User Adaptation Layer M3UA enables an MTP3 User Part to be connected to a remote MTP3 via a reliable IP transport.
------	--

MCPM	Measurement Collection and Polling Module The Measurement Collection and Polling Module (MCPM) provides comma delimited core STP
------	---

M

measurement data to a remote server for processing. The MCPM is an EDSM with 2 GB of memory running the MCP application.

Measurement Platform

A feature that supports the EAGLE 5 ISS beyond 700 links by providing a dedicated processor for collecting and reporting Measurements data. The Measurement Platform collection function cannot be disabled once it is enabled in the system.

MMI

Man-Machine Interface

MPS

Multi-Purpose Server

The Multi-Purpose Server provides database/reload functionality and a variety of high capacity/high speed offboard database functions for applications. The MPS resides in the General Purpose Frame.

MTP2

Message Transfer Part, Level 2

O

OAM

Operations, Administration, and Maintenance

The application that operates the Maintenance and Administration Subsystem which controls the operation of the EAGLE 5 ISS.

P

PHP

PHP: Hypertext Preprocessor

A widely-used, open source, general-purpose scripting language that is especially suited for web development and can be embedded into HTML.

S

SAAL	Signaling ATM Adaptation Layer
SE-HSL	Synchronous E1 High Speed Link Format for E1 high-speed signaling links where time-slot 0 is used for framing and error control. The remainder of bandwidth, equivalent to 31 channels of 64Kbps data, is used as a single data link yielding a total capacity of 1.984 Mbps. Also known as Unchannelized E1.
SFTP	SSH File Transfer Protocol (sometimes also called Secure File Transfer Protocol) A client-server protocol that allows a user on one computer to transfer files to and from another computer over a TCP/IP network over any reliable data stream. It is typically used over typically used with version two of the SSH protocol.
SNMP	Simple Network Management Protocol. An industry-wide standard protocol used for network management. The SNMP agent maintains data variables that represent aspects of the network. These variables are called managed objects and are stored in a management information base (MIB). The SNMP protocol arranges managed objects into groups.
SS7	Signaling System #7
SS7ANSI	SS7 ANSI An application used by the LIM cards and the E1/T1 MIM card for the MTP functionality.

S

SS7IPGW

SS7 IP Gateway

An application used by the DCM/SSEDCM card for IP point-to-multipoint capability within an ANSI network.

SSL

Secure Socket Layer

SUA

SCCP User Adaptation Layer

A protocol for the transport of any SCCP-User signaling over IP using the SCTP. The protocol is designed to be modular and symmetric, to allow it to work in diverse architectures.

T

TCP/IP

Transmission Control Protocol/Internet Protocol

TPS

Transactions Per Second

U

UAM

Unsolicited Alarm Message

A message sent to a user interface whenever there is a fault that is service-affecting or when a previous problem is corrected. Each message has a trouble code and text associated with the trouble condition.

UIM

Unsolicited Information Message

A message sent to a user interface whenever there is a fault that is not service-affecting or when a previous problem is corrected. Each message has a trouble code and text associated with the trouble condition.