

GDC UAS 7000[®]

Team 7624 for UNIX, Version 3.0.0

GDC UAS 7000[®]

Team 7624 for UNIX, Version 3.0.0

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Revision History

Table-1 Revision History

Issue Number	Date	Description of Change
01	June 1 1998	Applicaitions for user interface

Safety Guidelines

- Always use the following guidelines when unsafe conditions exist or when potentially hazardous voltages are present:
- Always use caution and common sense.
- To reduce the risk of electrical shock, do not operate equipment with the cover removed.
- Repairs must be performed by qualified service personnel only.
- Never install telephone jacks in a wet location unless the jack is designed for that location.
- Never touch uninsulated telephone wires or terminals unless the telephone line is disconnected at the network interface.

- Use caution when installing telephone lines and never install telephone wiring during an electrical storm.

Antistatic Precautions

Electrostatic discharge (ESD) results from the buildup of static electricity and can cause computer components to fail. Electrostatic discharge occurs when a person whose body contains a static buildup touches a computer component.

The equipment may contain static-sensitive devices that are easily damaged and proper handling and grounding is essential. Use ESD precautionary measures when installing parts or cards and keep the parts and cards in antistatic packaging when not in use. If possible, use antistatic floorpads and workbench pads.

When handling components, or when setting switch options, always use an antistatic wrist strap connected to a grounded equipment frame or chassis. *If a wrist strap is not available, periodically touch an unpainted metal surface on the equipment.* Never use a conductive tool, like a screwdriver or a paper clip, to set switches.

FCC Part 68 Compliance

Connection of data communications equipment to the public telephone network is regulated by FCC Rules and Regulations. This equipment complies with Part 68 of these regulations which require all of the following.

For single or multi-line equipment that connects to the telephone network via a plug and jack, the plug and jack must comply with the FCC Part 68 rules. This device is designed to be connected to the telephone or premises wiring, using a compatible modular jack which is Part 68 compliant. See installation chapter for details.

If the unit causes harm to the telephone network, the telephone company may discontinue your service temporarily and if possible, you will be notified in advance. If advance notice is not practical, you will be notified as soon as possible and will be advised of your right to file a complaint with the FCC. The telephone company may change its communication facilities, equipment, operations and procedures where reasonably required for operation. If so, the telephone company will notify you in writing. All repairs or modifications to the equipment must be performed by General DataComm. Any other repair or modification by a user voids the FCC registration and the warranty.

The APEX DDS1 has a DSX-1 interface. To use the public telephone network, it must be connected to a registered CSU.

To connect the APEX DDS1 to the public telephone network the customer is required to provide the following information:

FCC Registration Number: AG6USA-23156-XD-N

Telephone Company jack type: Provided by the registered CSU.

Facility Interface Codes:

T1 Interface - 04DU9-BN, 04DU9-DN, 04DU9-1KN, 04DU9-1ZN

Service Order Code:

T1 Interface - 6.0N

Industry Canada Notification

The Industry Canada label identifies certified equipment. This certification means that the equipment meets telecommunications network protective, operation and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

Notice: The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5.

Electromagnetic Compatibility

This Class A digital apparatus complies with Canadian ICES-003.

Avis D'industrie Canada

L'étiquette d'Industrie Canada identifie le matériel homologué. Cette étiquette certifie que le matériel est conforme aux normes de protection, d'exploitation et de sécurité des réseaux de télécommunications, comme le prescrivent les documents concernant les exigences techniques relatives au matériel terminal. Le Ministère n'assure toutefois pas que le matériel fonctionnera à la satisfaction de l'utilisateur.

Avant d'installer ce matériel, l'utilisateur doit s'assurer qu'il est permis de le raccorder aux installations de l'entreprise locale de télécommunication. Le matériel doit également être installé en suivant une méthode acceptée de raccordement. L'abonné ne doit pas oublier qu'il est possible que la conformité aux conditions énoncées ci-dessus n'empêche pas la dégradation du service dans certaines situations.

Les réparations de matériel homologué doivent être coordonnées par un représentant désigné par le fournisseur. L'entreprise de télécommunications peut demander à l'utilisateur de débrancher un appareil à la suite de réparations ou de modifications effectuées par l'utilisateur ou à cause de mauvais fonctionnement.

Pour sa propre protection, l'utilisateur doit s'assurer que tous les fils de mise à la terre de la source d'énergie électrique, des lignes téléphoniques et des canalisations d'eau métalliques, s'il y en a, sont raccordés ensemble. Cette précaution est particulièrement importante dans les régions rurales.

Avertissement: L'utilisateur ne doit pas tenter de faire ces raccordements lui-même; il doit avoir recours à un service d'inspection des installations électriques, ou à un électricien, selon le cas.

Avis: L'indice d'équivalence de la sonnerie (IES) assigné à chaque dispositif terminal indique le nombre maximal de terminaux qui peuvent être raccordés à une interface. La terminaison d'une interface téléphonique peut consister en une combinaison de quelques dispositifs, à la seule condition que la somme d'indices d'équivalence de la sonnerie de tous les dispositifs n'excède pas 5.

La Compatibilité d'Électro-magnétique

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Deutschland

Installations Anweisungen: Installieren Sie die Telefonleitungen nicht während eines Gewitters. Installieren Sie die Telefonleitungen nicht in einem feuchten Raum, außer die Dose entspricht den Vorschriften für Feuchträume. Berühren Sie unisolierte Telefonleitungen oder Einrichtungen nicht, außer diese sind vom Telefonnetz getrennt. Vorsicht bei der Installierung oder Änderung von Telefonleitungen. *Achtung:* Es gibt keine durch den Benutzer zu wartende Teile im Gerät. Wartung darf nur durch qualifiziertes Personal erfolgen.

EC Declaration of Conformity

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On behalf of: General DataComm Inc.
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The products to which this declaration relates are in conformity with the following relevant harmonized standards, the reference numbers of which have been published in the Official Journal of the European Communities;

Electromagnetic Compatibility

EN55022: 1994

Specification for limits and methods of measurement of radio interference characteristics of information technology equipment.

EN 50082-1: 1992

Generic immunity standard Part 1 Residential, Commercial, and Light Industry.

Safety

EN 60950: 1995 A1 through A3

Low Voltage Directive relating to electrical equipment designed for use within certain voltage limits.

Table of Contents

Trademarks	ii
Revision History	ii
Safety Guidelines	ii
Antistatic Precautions	iii
FCC Part 68 Compliance	iii
Industry Canada Notification	iv
Electromagnetic Compatibility	iv
Avis D'industrie Canada	iv
La Compatibilité d' Électro-magnetique	v
Deutschland	v
EC Declaration of Conformity	v
Electromagnetic Compatibility	v
Safety	v
 Chapter 1: System Description	
Introduction	1 - 1
Service Support and Training	1 - 1
Safety Information	1 - 2
Typographical Conventions	1 - 3
Level 1 Heading paragraph headers introduce major topics	1 - 3
Overview	1 - 3
UAS 7624 System Components	1 - 4
DSL Concentrator	1 - 4
SpectraComm Manager (SCM)	1 - 4
TEAM 7624 Applications	1 - 4
 Chapter 2: Operations	
Overview for the 7624	2 - 1
Communications	2 - 1
User Interface	2 - 1
Front Panel Application	2 - 1
Configuration	2 - 4
Configuration - Main Window	2 - 4
Add or Delete Remotes	2 - 11
All Screens	2 - 12

Table of Contents

<u>Alarm Detail</u>	2 - 12
<u>Reports</u>	2 - 13
<u>Error Totals</u>	2 - 15
<u>Diagnostics</u>	2 - 21
<u>Maintenance</u>	2 - 25
<u>Information</u>	2 - 26

Chapter 1: System Description

Introduction

The information contained in this manual has been carefully checked and is believed to be entirely reliable. However, as General DataComm improves the reliability, function, and design of their products, the possibility exists that information may not be current.

If you require updated, or any other General DataComm product information, contact the address or number below or visit our web site at: <http://www.gdc.com>

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Service Support and Training

VITAL Network Services, a General DataComm company, is committed to providing the service support and training needed to install, manage, and maintain your GDC equipment.

GDC's VITAL Network Services provides hands-on training courses through **VITAL Network Services Global Technology Training Services**. Courses range from basic data communications, modems and multiplexers, to complex network and ATM systems. Training courses are available at our centers in the US, UK, France, Singapore and Mexico, as well as at a customer's site.

For more information regarding GDC's VITAL Network Services' service programs, training courses, or for assistance with your support requirements, contact GDC's VITAL Network Services at the address or phone number listed below, or visit our website at: <http://www.vitalnetvc.com>

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International Calling Code (+)

When calling from outside the country of origin, use the appropriate International Calling Code where the + symbol is shown.

Safety Information

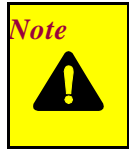
The DANGERS, WARNINGS and CAUTIONS that appear throughout this manual are not only preventative measures designed to uphold the safety of both the service engineer and operator, but also enhance equipment reliability.

The definitions and symbols for DANGER, WARNING and CAUTION comply with ANSI Z535.2, American National Standard for Environmental and Facility Safety Signs, and ANSI Z535.4, Product Safety Signs and Labels, issued by the American National Standards Institute.

The following examples show the symbols and definitions of DANGER, WARNING, CAUTION, *Note* and *Important* as they are used in this manual.

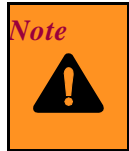
Note *Indicates a note. It is something you should be particularly aware of; something not readily apparent. A note is typically used as a suggestion.*

Important *Indicates an emphasized note. It is something you should be particularly aware of; something not readily apparent. Important is typically used to prevent equipment damage.*



Note

CAUTION Indicates a potentially hazardous situation which, if not avoided, may result in minor to moderate injury. It may also be used to alert against unsafe practices.



Note

WARNING Warning indicates an imminently hazardous situation which, if not avoided, could result in death or serious injury.



Note

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

Typographical Conventions

Level 1 Heading paragraph headers introduce major topics.

Level 2 Heading paragraph headers introduce subsections of major topics.

Level 3 Heading paragraph headers introduce subsections of secondary topics.

Courier font is used to show text that is displayed on the screen.

Times bold font is used when referring to screen names.

Courier bold font is used to show specific input that you type at the keyboard.

Overview

This manual covers the General DataComm TEAM 7624 Unix Application for HP OpenView. You should be familiar with HP OpenView and with T1 digital transmission products so that you can use this manual effectively.

The TEAM 7624 Unix Application is actually a collection of integrated applications for the HP OpenView Network Management Platform. The applications use the Simple Network Management Protocol (SNMP) to manage GDC UAS 7624 cards.

TEAM 7624 applications:

- **Configure** the UAS 7624 card.

- **Monitor** the operation of the card through an alarm display and through a front panel display that shows LED indicators as they would appear on the front panel of the physical unit.
- **Diagnose** suspected problems using local and remote loops (with or without a self test) and end-to-end self test.

UAS 7624 System Components

The UAS 7624 System Components consist of the following:

- 7624 Digital Subscriber Line (DSL) concentrator
- SpectraComm Manager (SCM)

DSL Concentrator

The UAS 7624 DSL concentrator concentrates twelve (2B1Q U-interface) Digital Subscriber Lines (DSLs) into a single T1. It is a dual-slot SpectraComm product.

SpectraComm Manager (SCM)

SpectraComm Manager (SCM) acts as the SNMP agent through which TEAM management applications communicate with UAS 7624 components. All management communications are directed to the SCM card Internet Protocol (IP) address. The SCM card relays commands and responses between management applications and hardware components, using a slot addressing scheme to communicate over the SpectraComm shelf backplane with the other UAS 7624 components. The SCM is transparent to the applications, which operate as though they were communicating directly with the hardware units. The SCM card is managed by the TEAM core application, which is also responsible for the discovery and mapping functions by which HP OpenView keeps track of the devices being managed.

TEAM 7624 Applications

The applications that make up the TEAM 7624 manager are grouped on menus under the headings Performance, Configuration, Fault, and Misc. Menus for the applications are available in two ways:

- By way of the menu bar of the HPOV Map window when an UAS 7624 is selected in the window, or
- By way of the `Select` button on the UAS 7624 front panel display.

UAS 7624 front panel displays current status information on the card by displaying the states of the LED indicators on the front panel of the unit; and provides button selection menus where you can invoke all other functions of the TEAM 7624 manager. You can launch the front panel display from the HPOV Map window by the `Front Panel` in the `Performance` menu or by double-clicking on the shelf icon of the unit that you need to work with.

The following TEAM 7624 applications appear on the map window and `Select` button menus:

- `Performance`:
 - Alarms – furnishes detailed information about alarm state changes.
 - Front Panel – launches the Front Panel display (selection appears only on Map window menu).
 - Reports – displays statistical reports.
- `Configuration`:

Configure – allows configuration of the UAS 7624 card.

Maintenance – allows you to set device specific attributes that are not set as configuration options.

- Fault:

Diagnose - enables you to run diagnostic tests on the UAS 7624 card.

- Misc:

Contains the information screen. The `Misc` menu in the Map window menu bar offers you a selection that does not appear in the front panel `Select` button menu:

Front Panel Poll Rate – lets you set a default polling interval to be in effect each time the front panel display is opened.

Chapter 2: Operations

Overview for the 7624

This chapter covers the design of the HPOV SNMP Manager for the Universal Access System (UAS) 7624 product. Graphical User Interface (GUI) windows are part of the description. The UAS manager applications are built on the HP OpenView network management platform. HP Open View provides the framework for the user interface application and the SNMP protocol for the communications framework.

Communications

UAS uses Simple Network Management Protocol (SNMP) to carry out configuration, maintenance, status, and other functions on the SCM and 7624 card. The IP (Internet Protocol) addressable SCM is an SNMP agent that proxies requests to the other cards in the SpectraComm Shelf. Alarms from the devices are sent to the HP OpenView Manager via SNMP Traps. The Manager furnishes the protocol stack for the SNMP Communications.

User Interface

The Graphical User Interface for the UAS 7624 Management consists of several applications that are integrated to run under HP OpenView. The applications are summarized here:

- Front Panel
- Information
- Configuration
- Alarms
- Reports
- Diagnostics
- Maintenance

The following are GUI screens for the UAS 7624 which are integrated into HP OpenView. The application windows presented deal specifically with the 7624 products.

Front Panel Application

The front panel status application gives you an image (See [Figure 2-1](#)) of the face plate of a shelf card. This application is started from the Graphical Shelf Application by choosing a particular shelf card icon and then selecting `Performance->Front Panel`, or by double clicking on a shelf card icon. The front panel contains LED images animated to reflect actual card status. This application offers you a summary of the real-time events that the unit is undergoing as well as a convenient launching point for all the major applications related to the product.

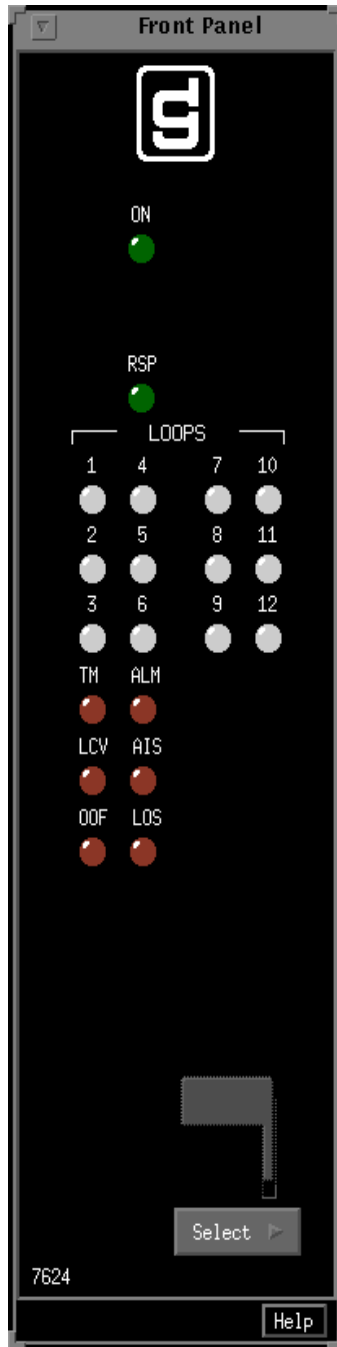


Figure 2-1 Front Panel

The GDC icon executes an information screen about the application. [Table 2-1](#) defines illuminated LEDs for the 7624 front panel.

Table 2-1 Front Panel Indicators

LED	LED Function or Indicator
ON	Power is on or applied, shown by a lighted green LED.
RSP	Response. This is a back-plane management or command response, shown by a lighted green LED.
LOOPS	Loop status in lighted green or red LEDs. Solid green LED means that a particular loop is active, has a good connection, or is in sync. Green with an arrow in the LED means that a particular loop is being tested. A lighted red LED tells you that there are loop errors, like no current or no sync. Each loop has its own LED and the LED lights when a loop operates at 128 kbps.
TM	Indicates unit is running a T1 network diagnostic test.
ALM	Alarm condition. There is one alarm LED for the Network T1 side. The color of the alarm LED is the same color as that of the shelf slot icon and is active when the LCV AIS, OOF, or LOS is in an alarm state.
LCV	Line Code Violation. Red LED lights up if there is an alarm condition. The alarm condition results from the unit receiving bipolar violations with the T1 AMI signal.
AIS	Alarm Indication Signal. Red LED lights up if there is an alarm condition. The alarm condition results from a signal sent from the network Terminal Element (TE) indicating that the TE can not transmit a framed DS1 signal.
OOF	Out Of Frame. Red LED lights up if there is an alarm condition. The alarm condition results when the unit detects severely errored seconds or a wrong T1 framing pattern.
LOS	Loss of Signal. Red LED lights up if there is an alarm condition. The alarm condition results when there is no T1 signal.

Buttons for the 7624 front panel are identified in [Table 2-2](#).

Table 2-2 Front Panel Buttons

Button	Button Function
Help	Selects Front panel descriptions
Select	Contains a menu with selections for:
• Performance	Alarms, Reports
• Configuration	Configuration, Maintenance
• Misc	Contains information screen
• Fault	Diagnostics
• Demand Poll	Polling of status to update the front panel
• Auto Poll	Periodic polling of status to update the front panel at 15, 30, and 60-second rates, or Disable. Each time the front panel display is opened, its initial polling rate is determined by the front panel poll rate selection of the HPOV map window Misc menu.
• Exit	Closing the front panel application

Status Message Area

The status message area displays messages which describe application activity and unit interaction. Examples are: time, not responding, and so forth.

Configuration

The Graphical User Interface for the configuration application incorporates features for optioning the 7624 product. With the configuration application, you have access to unit level parameters via the SNMP queries when windows are displayed or refreshed. Through SNMP set commands, modifications are applied to the unit.

The 7624 configuration is launched from the HPOV Shelf Map by first selecting a particular shelf slot, then choosing Configuration->Configure from the menu bar or from the front panel application Select button menu. One main window and a set of transient windows, offering unit optioning, make up this application. Included are the 7624 configuration (main), network configuration options, alarms reported, add-remotes, and all screens exhibited.

Configuration - Main Window

The main window is made up of four areas: (1) Title bar provides the product name and configuration type; (2) Name field contains the shelf name, slot number, and symbol label; (3) Menu bar provides file operations, navigation through subordinate screens, and help; and (4) Main body of the window is composed of administrative read-only fields and the Interface Selector for choosing the appropriate interface. Status messages are displayed at the bottom of the screen and advise you about what is going on within the application (See [Figure 2-2](#)). [Table 2-3](#), [Table 2-4](#), [Table 2-5](#), and [Table 2-6](#) call out the different aspects of the main configuration screen or window.

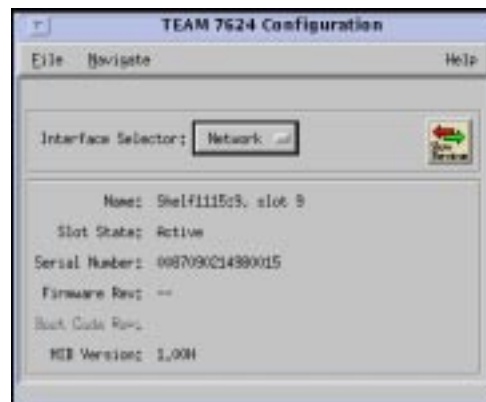


Figure 2-2 Configuration - Main Window Screen

Table 2-3 File Menu

File Menu	
File -> Refresh	Causes all options to be read from the unit; outstanding edits are lost.
File -> Save to Unit	Causes all outstanding edits to be sent to the unit and saved.
File -> Exit	Causes the application to terminate; outstanding edits are discarded.

Table 2-4 Navigate Menu

Navigate Menu	
Navigate -> Network Configuration	Displays the network options window. This is not displayed when you choose a loop by the interface selector.
Navigate -> Alarms Reported	Displays the Alarms Reported, thresholds, and local alarms windows.
Navigate -> Add/Delete Remotes	Adds or deletes remote units to the loop interfaces.
All Screens	Displays all configuration screens.

Table 2-5 Help

Help	Causes help information to be displayed.
------	--

Table 2-6 Display Fields

Fields (Note that all fields on this screen are read-only.)	
Interface Selector	The interface selection lets you choose an interface configuration option (Network, Loop 1, 2,, 12). The Show Previous glyph allows you to toggle between two alarms reported screens only.
Name	Shelf name, slot, and symbol label of the selected slot symbol from the shelf map
Slot State	State of the shelf slot: Active or Inactive.
Serial Number	Unit serial number
Firmware Rev	Unit firmware version
Boot Code Rev	(Feature reserved for a future release.)
MIB Version	Unit MIB version

Network Configuration Options

This screen is shown when Navigate->Network Configuration Options is selected on the 7624 configuration main window. This application allows configuration of network (T1) options when the unit is in soft mode. All the fields are read-only when the unit is hard-optioned. See [Figure 2-3](#) and refer to [Table 2-7](#) for network configuration descriptions.

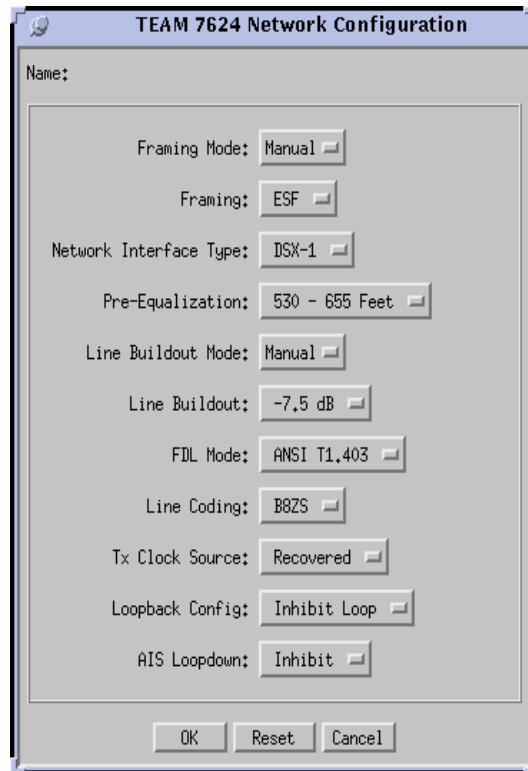


Figure 2-3 Network Configuration Options Window

Name is a read-only field.

Table 2-7 Network Configuration Options Window

Network Options (defaults in bold print)	
Framing Mode	Auto or Manual
Framing	Framing mode: ESF (Extended Super Frame, consisting of twenty-four consecutive frames) or SF (Superframe, consisting of twelve consecutive frames)
Network Interface Type	Network interface type: DSX-1 (Configures the interface for operating as a standard cross-connecting DSX-1) or DS-1 (Configures the interface for operating as a standard DS1)
Pre-Equalization	In feet: 000 - 130 , 130 - 260, 260 - 390, 390 - 530, and 530 - 655.
Line Buildout Mode	Auto or Manual
Line Buildout	In dB: 0 , -7.5, -15, and -22

Table 2-7 Network Configuration Options Window (Continued)

FDL Mode	None , ANSI T1.403, and TR-54016.
Line Coding	B8ZS or AMI
Tx Clock Source	Recovered (slave). This is the recovered timing (slave) from the network T1. Internal. Pertains to internal clock source.
Loopback Config	Inhibit Loop, Payload Loop, or Line Loop
AIS Loopdown	Inhibit or 5 - 60 seconds
Action Buttons	
OK	Holds edits and dismisses the screen.
Reset	Undoes pending edits since last File->Save to Unit operation.
Cancel	Same as Reset and dismisses the screen.

Network Alarms Reported

The network alarms reported screen is shown when you select `Navigate->Network Alarms Reported` on the 7624 configuration main window. For the Network Alarms Reported screen, see [Figure 2-4](#) and refer to [Table 2-8](#). The network alarms screen lets you configure alarm reporting with thresholds. By choosing a particular alarm you report it, which means that the alarm is reported in an SNMP Trap from the SCM to the controller. For this screen, the Name field is read-only. With the local alarm configuration, you can mask or set the severity of given alarms that can trigger the local alarm card for alarm display on a light panel. Local alarms do not create SNMP traps. Settings are stored within the 7624 product. For all local alarms, your choices are Disabled, Enable Major, and Enable Minor.

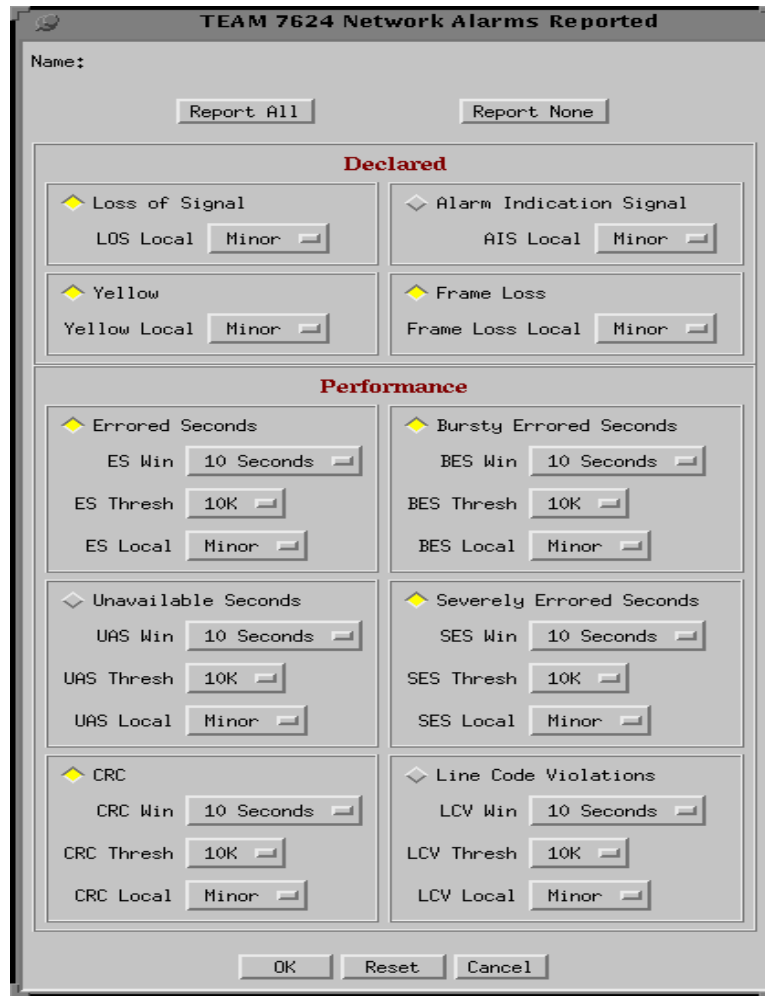


Figure 2-4 Network Alarms Reported Screen

Table 2-8 Network Alarms

Declared Alarms	Description
Loss of Signal • LOS Local	Means loss of T1 signal.
Yellow • Yellow Local	Yellow signal received.
Alarm Indication Signal • AIS Local	Alarm indication sequence received.
Frame Loss • Frame Loss Local	Means loss of selected T1 framing.

Table 2-8 Network Alarms (Continued)

Performance Alarms	Description
Errored Seconds <ul style="list-style-type: none"> • ES Win • ES Thresh • ES Local 	An errored second (ES) is defined as a second with at least one CRC error event. Win is a window for data collection time periods. Choices are: 1 Sec, 10 Sec, 30 Sec, 1 Min, 15 Min, 1 Hr, 24 Hr, and Infinite. Thresh is threshold. Choices are for occurrences within the window time frame: 1, 3, 10, 100, 1,000, and 10,000. Local alarm: choices are Disabled, Enable Major, and Enable Minor.
Unavailable Seconds <ul style="list-style-type: none"> • UAS Win • UAS Thresh • UAS Local 	Unavailable seconds (UAS) is defined as a count of one-second intervals when service is not available. Service-not-available means 10 or more consecutive SESs. Win is a window for data collection time periods. Choices are: 1 Sec, 10 Sec, 30 Sec, 1 Min, 15 Min, 1 Hr, 24 Hr, and Infinite. Thresh is threshold. Choices are for occurrences within the window time frame: 1, 3, 10, 100, 1,000, and 10,000. Local alarm: choices are Disabled, Enable Major, and Enable Minor.
CRC <ul style="list-style-type: none"> • CRC Min • CRC Thresh • CRC Local 	This stands for Cyclical Redundancy Check errors. Win is a window for data collection time periods. Choices are: 1 Sec, 10 Sec, 30 Sec, 1 Min, 15 Min, 1 Hr, 24 Hr, and Infinite. Thresh is threshold. Choices are for occurrences within the window time frame: 1, 3, 10, 100, 1,000, and 10,000. Local alarm: choices are Disabled, Enable Major, and Enable Minor.
Bursty Errored Seconds <ul style="list-style-type: none"> • BES Win • BES Thresh • BES Local 	Bursty errored second (BES) is defined as a second with more than one, but less than 320 CRC6 error events. Win is a window for data collection time periods. Choices are: 1 Sec, 10 Sec, 30 Sec, 1 Min, 15 Min, 1 Hr, 24 Hr, and Infinite. Thresh is threshold. Choices are for occurrences within the window time frame: 1, 3, 10, 100, 1,000, and 10,000. Local alarm: choices are Disabled, Enable Major, and Enable Minor.
Severely Errored Seconds <ul style="list-style-type: none"> • SES Win • SES Thresh • SES Local 	A severely errored second (SES) is defined as a second with 7 or more CRC error events, or one or more 00Fs. Win is a window for data collection time periods. Choices are: 1 Sec, 10 Sec, 30 Sec, 1 Min, 15 Min, 1 Hr, 24 Hr, and Infinite. Thresh is threshold. Choices are for occurrences within the window time frame: 1, 3, 10, 100, 1,000, and 10,000. Local alarm: choices are Disabled, Enable Major, and Enable Minor.
Line Code Violations <ul style="list-style-type: none"> • LCV Win • LCV Thresh • LCV Local 	A line code violation (LCV) is defined as bipolar violations or an excessive number of zeros on the line. Win is a window for data collection time periods. Choices are: 1 Sec, 10 Sec, 30 Sec, 1 Min, 15 Min, 1 Hr, 24 Hr, and Infinite. Thresh is threshold. Choices are for occurrences within the window time frame: 1, 3, 10, 100, 1,000, and 10,000. Local alarm: choices are Disabled, Enable Major, and Enable Minor.

Table 2-8 Network Alarms (Continued)

Action Buttons	Description
Report All	Selects all alarms for reporting.
Report None	Deselects all alarms, no alarms reported.
OK	Holds edits and dismisses the screen.
Reset	Undoes pending edits since last File->Save to Unit operation.
Cancel	Same as Reset and dismisses the screen.

Loop Alarms Reported

The loop alarms reported screen is shown when you first access the 7626 Configuration main window and choose the desired interface, which in this case, would be one of the twelve loops from the Interface Selector shown in [Figure 2-2](#). Then, select Navigate->Alarms Reported and get the Loop Alarms Reported screen (See [Figure 2-5](#) and refer to [Table 2-9](#)). The loop alarms screen lets you configure alarm reporting with thresholds on a per-loop basis. By choosing a particular alarm you, report it. That means that the alarm is reported in an SNMP Trap from the SCM to the controller. For this screen, the Name field is read-only. With the local alarm configuration, you can mask or set the severity of given alarms that can trigger the local alarm card for alarm display on a light panel. Local alarms do not create SNMP traps. Settings are stored within the 7626 product. For all local alarms, your choices are Disabled, Enable Major, and Enable Minor. All Disabled is the default.

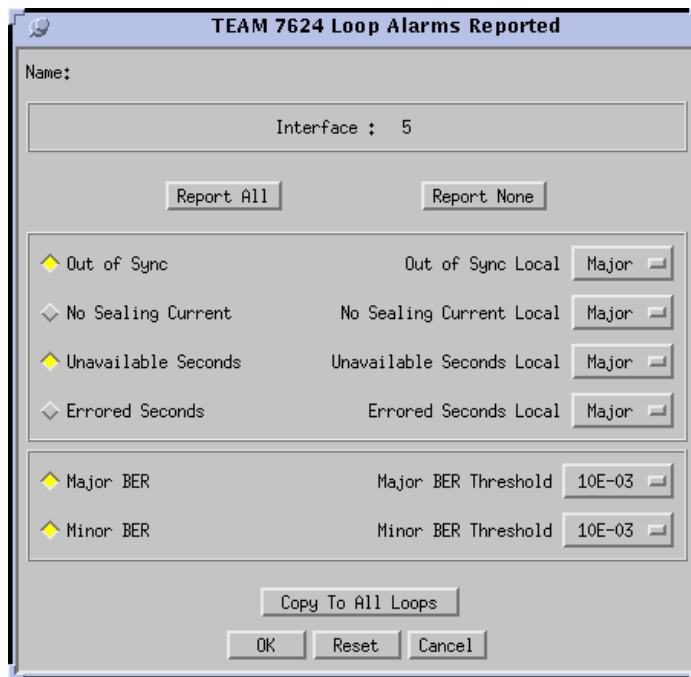


Figure 2-5 Loop Alarms Reported Screen

Name and Interface are read-only fields.

Table 2-9 Loop Alarms

Alarms	Description
Out of Sync (and Local)	Advises you that there was no framing on the U-loop signal (or it has been lost).
No Sealing Current (and Local)	Indicates that a two-wire connection to the U-loop is not detected (or it has been broken).
Unavailable Seconds (and Local)	Unavailable seconds is defined as a count of one-second intervals when service is not available. Service-not-available means 10 or more consecutive SESs.
Errored Seconds (and Local)	An errored second is defined as a second with at least one CRC error event.
Major BER	Means major bit error rate based on threshold
Minor BER	Means minor bit error rate based on threshold
Major BER Threshold	10E-03, 10E-04, 10E-05, and 10E-06 bit error rates
Minor BER Threshold	10E-03, 10E-04, 10E-05, and 10E-06 bit error rates
Action Buttons	Description
Report All	Selects all alarms for reporting.
Report None	Deselects all alarms, no alarms reported.
Copy To All Loops	Copies every selection on the screen to all loop interfaces.
OK	Holds edits and dismisses the screen.
Reset	Undoes pending edits since last File->Save to Unit operation.
Cancel	Same as Reset and dismisses the screen.

Add or Delete Remotes

Screen for adding remotes is shown when you select `Navigate->Add Remotes` on the 7624 configuration main window (See [Figure 2-6](#)). This screen permits you to add or delete remote units to or from the 7624 loops. This screen displays the current remotes of the 7624 by loop number, unit type, and serial number.

Note

If the SCM card is removed from the shelf slot, communications with the added remotes are temporarily discontinued or disrupted. When a different SCM card is replaced in the shelf slot, you have to go through the adding remotes steps again. This is also true in a redundant SCM configuration.



Figure 2-6 Add or Delete Remotes Screen

To add a remote:

1. Select `Location`: Loop numbers, 1 through 12.
2. Select `Unit Type`: select the remote unit type that you want to add or delete from the 7624.
3. Enter remote serial number of the unit.
4. Select `Add Remote` button.

The new remote is displayed on this screen and the 7624 submap. To display the 7624 submap, double-click on the 7624 shelf slot icon after adding a remote.

To delete a remote:

1. Select `Location`: Loop numbers, 1 through 12.
2. Select `Delete Remote`.

Action Buttons

`OK`, `Reset`, and `Cancel` functions the same as those on the other screens.

All Screens

This reads and displays all the configuration screens for this network element.

Alarm Detail

Alarm detail for 7624 is launched from the HPOV Map Performance->Alarms or from the front panel menu. The alarms are depicted on the screen, as shown in [Figure 2-7](#). At the top of the screen, you have:

- File->Exit which causes the application to terminate
- Help which gives you displayed information
- Name which is the unit name

The colors of the LEDs and what they indicate are given here:

dark green	no alarm
yellow	minor alarm
orange	major alarm



Figure 2-7 Alarm Detail Screen

Reports

The error reports application is used to display statistics accumulated by the 7624 unit. Some features of the reporting function are:

- New background color (bisque) for graphs to emphasize graphical data
- Auto-ranging of Y-Axis
- X-Axis glyph labels lead to pop-up windows by pointing and clicking
- Real-time representation of the intervals
- Interval based graphs have scrolling capability to view all 24 hours worth of data
- Periodic polling for data

You can launch the 7624 report screens by selecting the HPOV Shelf Map slot icon and then selecting the Performance->Reports menu item; or you can click the front panel display Select button. The first window you would see is the main window (See [Figure 2-8](#)). It introduces you to each error category which has its own graph or statistics report, displayed in a specific screen. Two kinds of reports are included: TOTALS and SUMMARY and each error category is identified as ES, SES, BES, UAS, and LOFC. The menu cells on the TEAM 7624 Error Reports screen are File, Edit, View, and Navigate. Help displays help information.

Note

No data is collected from the unit until File-->Refresh is selected or the interface is changed.



Figure 2-8 Error Reports Window

File

The menu item File->Refresh is an on-demand update of the data. File->Auto Refresh has menu items to periodically poll the unit for data and update the screens. File->Auto Refresh->Off disables periodic poll; any other option periodically refreshes at the selected value. Poll time is dynamically appended to the menu item File->Auto Refresh. File->Save Error Data to File... saves the data to a file from the last poll. The data saved in the file is in text format. The File->Exit menu item closes all windows and terminates the application.

Edit

The Edit->Reset Statistics menu item sends an SNMP set to clear statistics in the unit and to clear data presented on the screen as well.

View

The View->Legend displays any legend areas that exist for all the screens. The legend area describes any notations used. For example, the main window has a legend area which contains the expansions for the acronyms ES, SES, and the other error categories.

Navigate

The Navigate menu consists of several menu items to open other screens that are part of the errors reports application. The screen pertains to the network side reports: 24 Hour Error Totals..., Errored Seconds..., Severely Errored Seconds..., Bursty Errored Seconds..., Unavailable Seconds..., Loss of Frame Count..., Errors Summary..., and All Screens....

The loop side differs from the network side in that it has Far End Block Errors... and does not have Bursty Errored Seconds... or Loss of Frame Count....

Thus, the Navigate menu of the error reports window lets you access individual windows which show more detailed statistics on each error condition.

Interface Selector

The interface selection allows you to choose the interface for the report screens you want to display (Network and Loop 1, 2,, 12).

Error Totals

Error reports for the 7624 product are given as data collection in periods of real time. X-axis buttons of the graph represent data from error categories spread over four hours for the loop side and data spread over 24 hours in 15-minute intervals for the network side; this is the same as using the Navigate menu for each error category. Time data presented in the Collection Period area uses a mechanism, statistics-last-initialized, to extract relative time and to convert it to real time.

Auto Ranging

This feature dynamically changes the Y-Axis scale, depending on the maximum value of any of the error categories data on the X-Axis. If the value for an error category (or interval) is 100, then the Y-Axis maximum value is 100. When the X-Axis value for an error category changes to 500 the Y-Axis maximum changes to 500. This way, the graphs are more readable when the values for all error categories (or intervals) fall in the same range.

Network

The statistics displayed for the TEAM 7624 Network interface ([Figure 2-9](#)) in the Error Reports window covers the current 24 hours of operation. The vertical axis shows the number of errored seconds for the Network categories: ES (Errored Seconds), SES (Severely Errored Seconds), BES (Bursty Errored Seconds), and UAS (Unavailable Seconds). The graph on the right has a vertical axis which represents the number of counts for LOFC (Loss of Frame Count).

The Totals box shows the totals of each category collected so far for the current 24-hour period. The Collection Period box indicates the portion of the current 24-hour period collected so far. The real-time range and number of 15-minute intervals accumulated are shown. Also, the Errors Summary . . . button in the upper right hand corner is equivalent to the Navigator-->Errors Summary menu item, which gives you a text summary of the valid intervals collected for all categories.

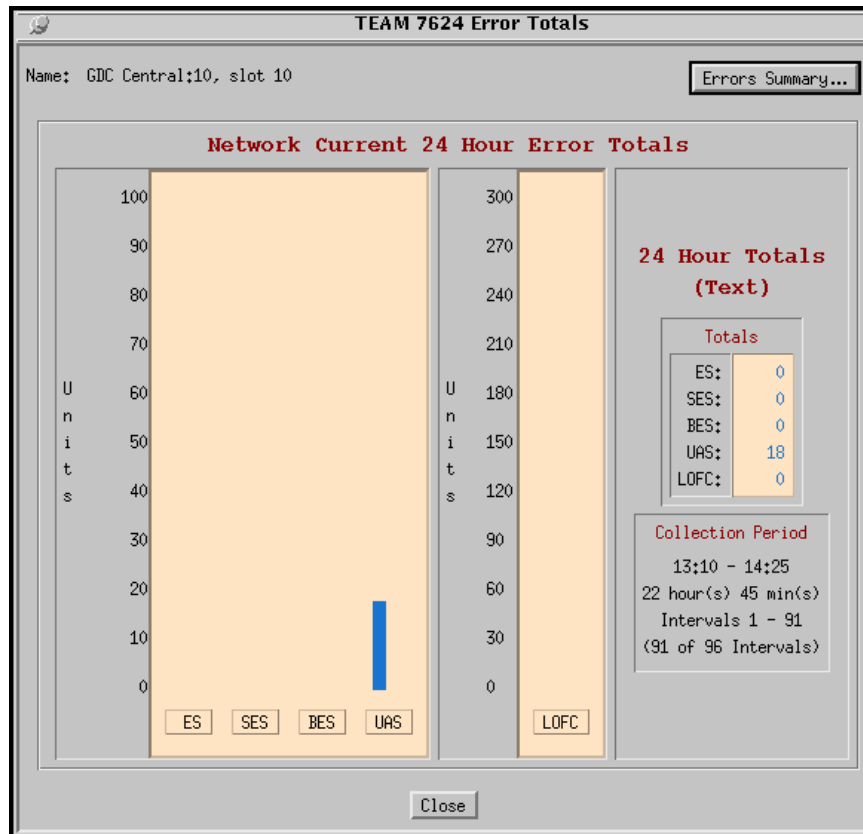


Figure 2-9 Twenty-Four Error Totals for Network

Loops

The statistics displayed for the TEAM 7624 Loop interface (Figure 2-10) in the Error Reports window cover 48 hours of operation, divided into 24 Hour Error Totals, Current and Recent, for a particular loop. You select which loop (Loop 1, 2, ..., or 12) that you want to view from the interface selection on the top level screen. The vertical axis of the two 24-hour periods, current and recent, shows the number of errored seconds for the loop categories: ES (Errored Seconds), SES (Severely Errored Seconds), and UAS (Unavailable Seconds). For the FEBE (Far End Block Error), the number of counts is displayed along the vertical axis.

The Current and Recent boxes at the bottom of the screen show the totals of each category collected so far from the current 24 hours and the totals for the recent 24 hours respectively. The real-time range is displayed. The Recent box always applies to the previous full 24 hours. The Current box presents the portion of the current 24 hours collected so far and the corresponding real-time range.

Also, the Errors Summary . . . button in the upper right hand corner is equivalent to the Navigator-->Errors Summary menu item, which gives you a text summary of the valid intervals collected for all categories.

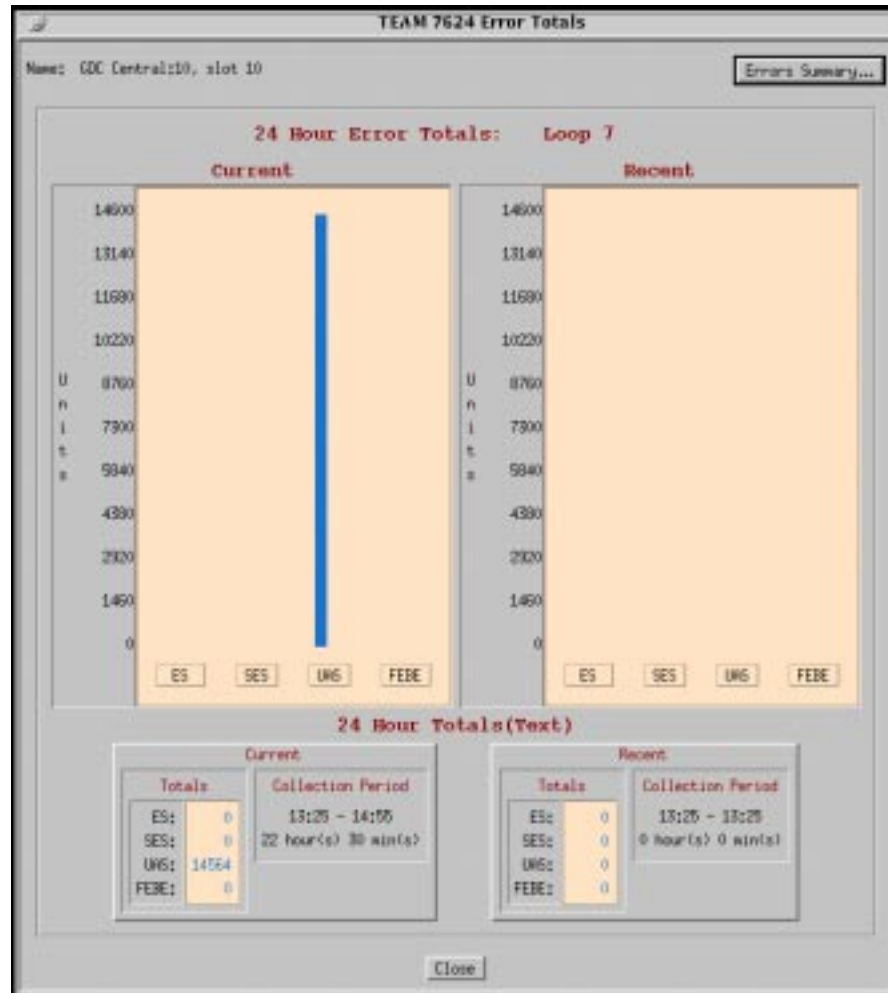


Figure 2-10 Twenty-Four Error Totals for Loops

Errored Seconds (ES)

An errored second (ES) is defined as a second with at least one CRC error event. [Figure 2-11](#) shows the errored seconds (ES) screen for network and [Figure 2-12](#) shows the errored seconds (ES) screen for the loops. Differences between the two are only the screen title text and interface read-only text. The figures are the basic screens for all individual statistical error categories like UAS, SES, and so forth. Like all other graphs, the Y-Axis scale dynamically changes, depending on the maximum value of a certain interval. The X-Axis option button on the upper right hand corner allows the user to view the X-Axis as a time scale or interval scale, or both.

For the network side, if data has been collected for less than 24 hours, the time/intervals on the X-Axis of the graph are not displayed for the unavailable periods. For the loop side, if data has been collected for less than 17 segments (current plus 16 recent ones), then the unavailable periods are not displayed. Note that after four hours of operation, all loop segments have data. You have 17 bar graphs of intervals. This screen graphically shows the number of errored seconds that have taken place in the last four hours.

The example in [Figure 2-12](#), in this case for Loop 7, shows that 9:29 is an incomplete time period, that is, seven minutes short of fifteen minutes. The vertical axis of the bar graph displays error seconds for a particular 15-minute time period. By accessing the Time button (upper right-hand corner), you have a choice of time intervals for the X-axis. The unit lets you view four hours of error reports, while non-applicable intervals are not displayed.

If the unit has not completed four hours of operation, then the unavailable intervals are not displayed. When you are finished with this screen, click on the Close button to dismiss the window.

All Other Network and Loop Error Categories

All other error categories for the network and loop interfaces have similar screens and explanations as the Errored Seconds does.

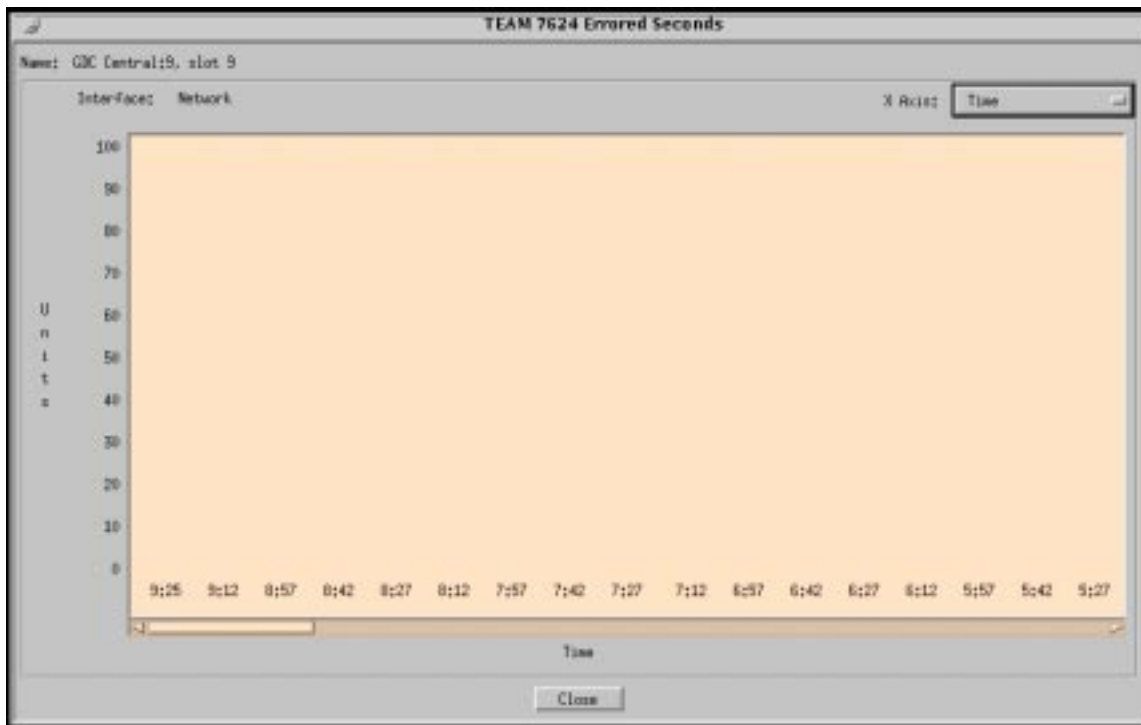


Figure 2-11 Errored Seconds (ES) Window for Network

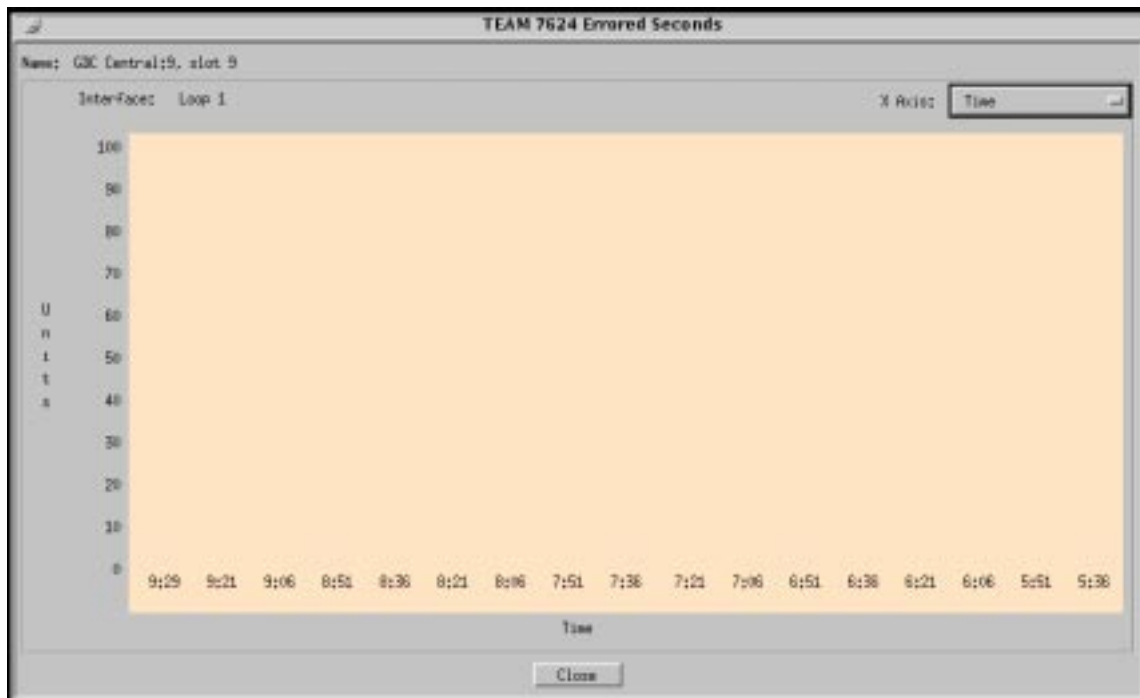


Figure 2-12 Errored Seconds (ES) Window for Loops

Errors Summary

The Errors Summary screen for the network is shown in [Figure 2-13](#) and the Errors Summary screen for loops is shown in [Figure 2-14](#). It tabulates data on the error events that have occurred for each error category. The File-->Save Error Data to File option takes the data presented on this screen and saves it to the user's file. The Errors Summary screen displays an array of error events (Y-axis) plotted over time (X-axis).

- Network Data

If the collected network data covers less than twenty-four hours, the unrecorded time-intervals on the X-axis of the graph are not displayed. The current 24-hour totals box at the bottom of the screen shows the total of each of the categories for the current 24-hour period. The Collection Period Represented box shows the time-range and length of time of the current 24 hours and how many 15-minute intervals are in the accumulation period.

- Loop Data

If the quantity of collected loop data is less than seventeen (current plus sixteen accumulated), then the remaining unfilled quantities are not displayed. Note, however, that after four hours of operation, all loop quantities have data. The current box at the bottom of the screen shows a total for each category and for the portion of the 24-hour period accumulated so far. The Recent box always shows the accumulated total and time range for each category taken from the previous 24 hours.

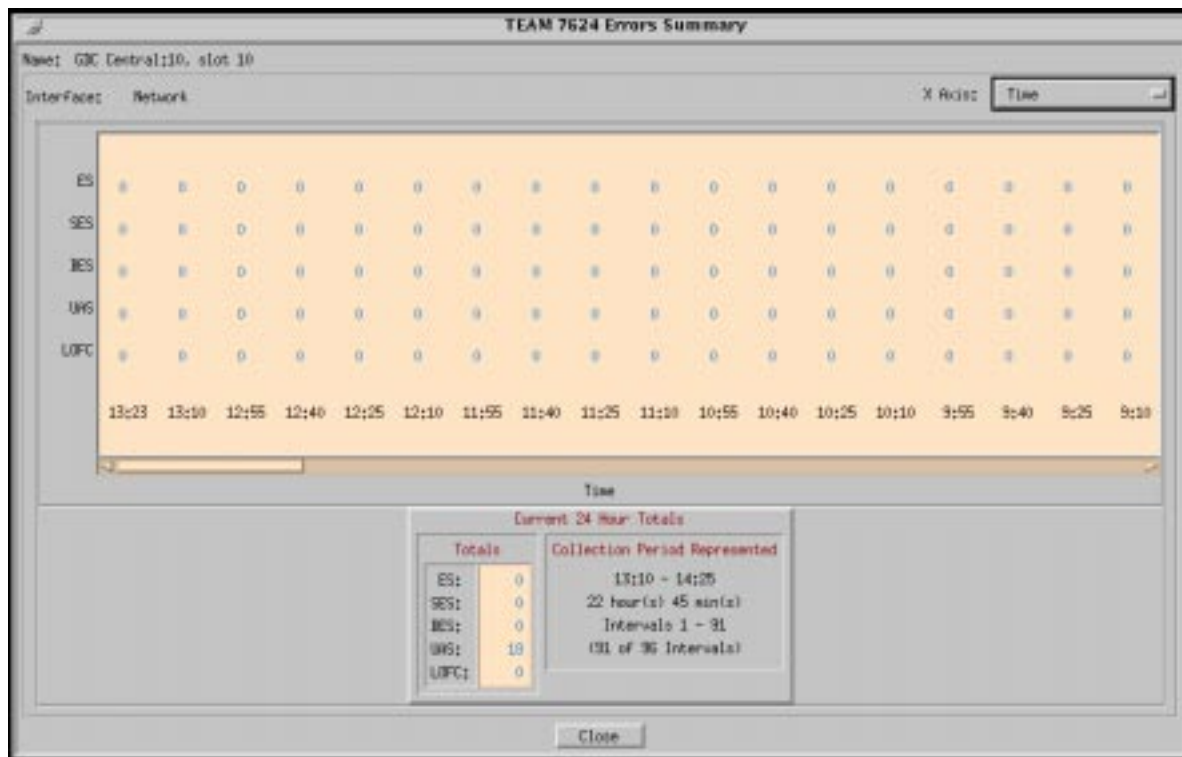


Figure 2-13 Error Summary Window for Network

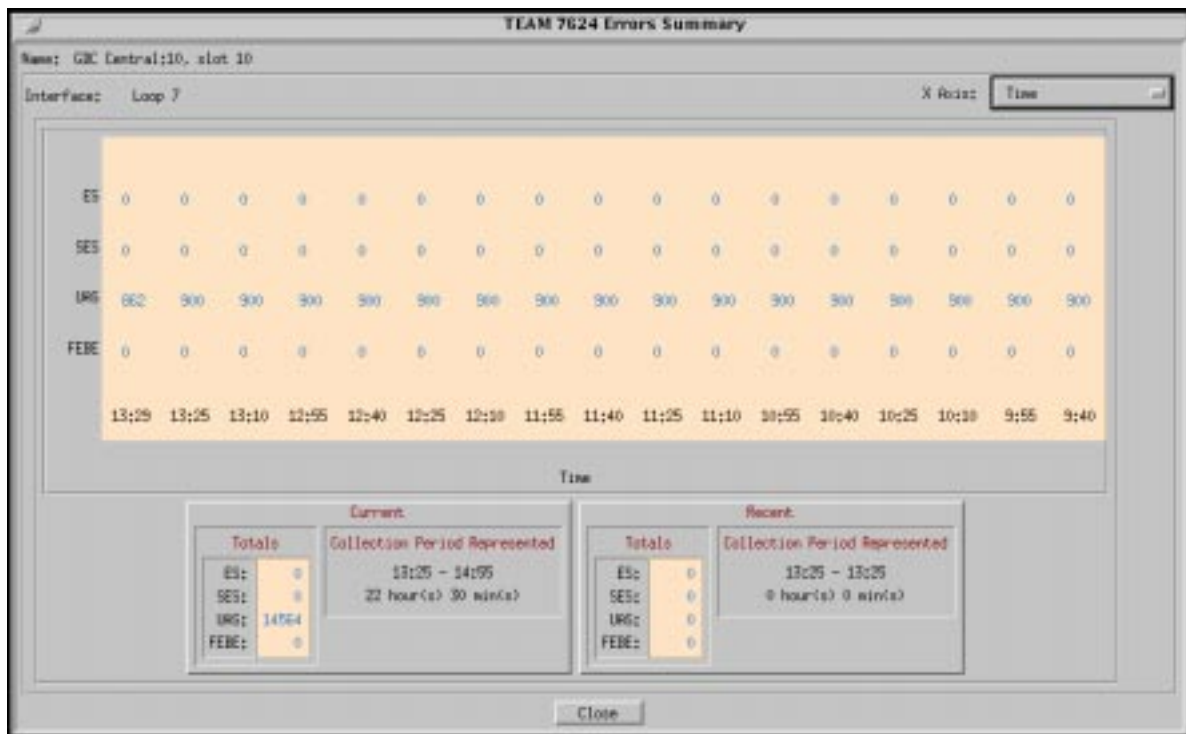


Figure 2-14 Error Summary Window for Loops

Diagnostics

The diagnostic application is used to perform tests to isolate a data communication problem to the network element or line. The 7624 diagnostic test is launched from the HPOV Map Navigate->Diagnostics History menu or from the front panel menu (See [Figure 2-15](#) which is also described in [Table 2-10](#)). The application is made up of one main window with four parts:

- Name of the unit
- Test, test time-out periods, test patterns, and test control buttons. This part also has a diagram where the user clicks on the interface, which is to be tested.
- Test graphics
- Test status, time remaining for the test, and test results

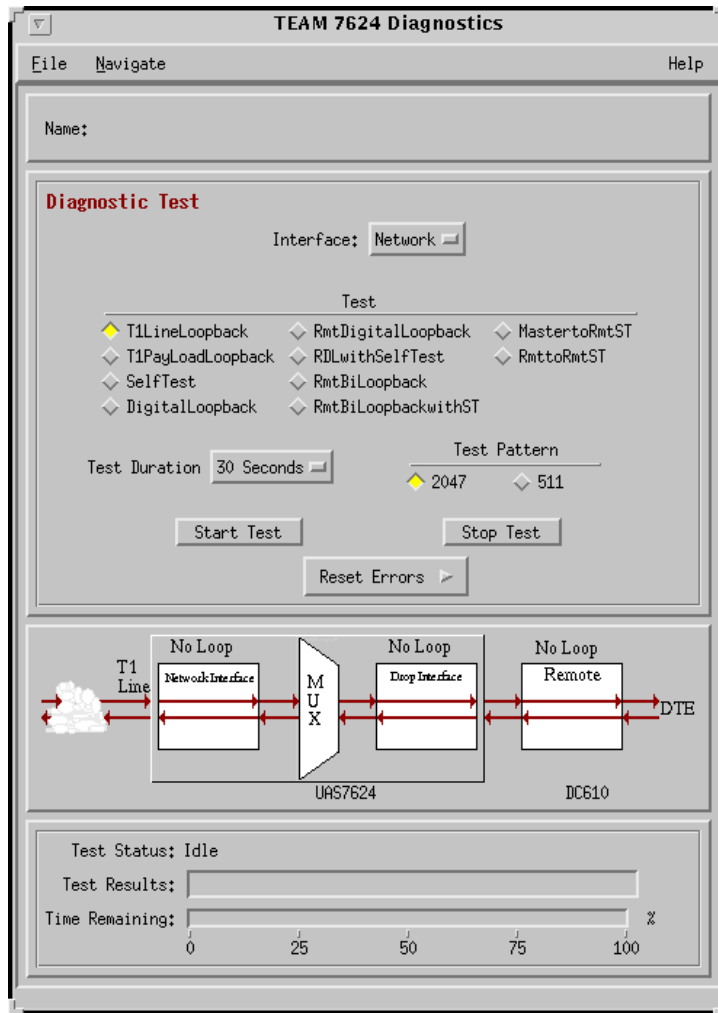


Figure 2-15 Diagnostic Test Screen

Table 2-10 Diagnostics Screen

Menu Section	
	Description
File	You can select <code>Exit</code> for closing the application.
Navigate	To access Diagnostics History
Help	Produces help information.
Name	Name field contains the shelf name, slot number, and symbol label.
Diagnostic Test	
<p>Note: When the remote device is a terminal adaptor, only the following tests are valid: <code>T1LineLoopback</code>, <code>T1PayloadLoopback</code>, <code>DigitalLoopback</code>, <code>RmtDigitalLoopback</code>, and <code>RDLwithSelfTest</code>.</p>	
<ul style="list-style-type: none"> • <code>Interface</code> • <code>T1LineLoopback</code> • <code>T1PayloadLoopback</code> • <code>SelfTest</code> • <code>DigitalLoopback</code> • <code>RmtDigitalLoopback</code> • <code>RDLwithSelfTest</code> • <code>RmtBiLoopback</code> • <code>RmtBiLoopbackwithS T</code> • <code>MastertoRmtST</code> • <code>RmttoRmtST</code> 	<p>This is the interface selector. You choose the interface for running the test on: network or one of the twelve loops.</p> <p>T1 Line Loopback - Loops the Telco receive path to transmit path, back towards the T1 network.</p> <p>T1 Payload Loopback - Loops the recovered T1 receive path to the transmit path, back towards the T1 network and corrects bipolar violations.</p> <p>Self Test - Transmits a 2047-bit pattern and tests the receiver for bit errors.</p> <p>Digital Loopback - Loops 128 Kbps (two DS0s) received path to transmit path back towards the T1 network.</p> <p>Remote Digital Loopback - Commands a remote device to go into loopback.</p> <p>Remote Digital Loopback with Self Test - Commands a remote device to go into loopback, and the 7624 transmits a 2047-bit pattern and tests the receiver for bit errors.</p> <p>Remote Bi Loopback - Bilateral loopback is performed at a remote unit.</p> <p>Remote Bi Loopback with Self Test - Bilateral loopback is performed at a remote unit, and the 7624 master is generating the self-test pattern.</p> <p>Master to Remote with Self Test - The 7624 (master) and remote are in a self-test.</p> <p>Remote to Remote with Self Test - The remote unit is running in self-test, using a 2047 or 511 test pattern (master is transparent).</p>
Buttons	
Test Duration	Selects duration of test for a network test (T1).
Test Pattern	The 7624 allows only the 2047 pattern. The 511 pattern is needed for the remotes.
Start/Stop Test	Starts or stops the selected test.
Reset Errors	Resets the errors to zero without having to stop and restart the test--attribute available only with DC621.

Table 2-10 Diagnostics Screen (Continued)

Graphics	
Note: Displayed graphics depend on unit configuration: Drop side or network side. Loops are shown where appropriate.	
Results	
Test Status	Displays the status of the diagnostic test: Idle, Test in Progress, Test Completed, or Test Completed Not in Test.
Test Results	Test results are in bit errors and displayed for only those tests where the Pattern Generator is on.
Time Remaining	Displays in meter format the time remaining for a T1 test only.

Diagnostics History

The diagnostics history application is used to log test information after the test is finished. 7624 diagnostics history is launched from the Navigate-> Diagnostics History menu. This screen is read-only (See [Figure 2-16](#) and refer to [Table 2-11](#)). The information on the screen is inserted only after a test has been completed. If the diagnostic screen is closed, the diagnostic history is cleared.

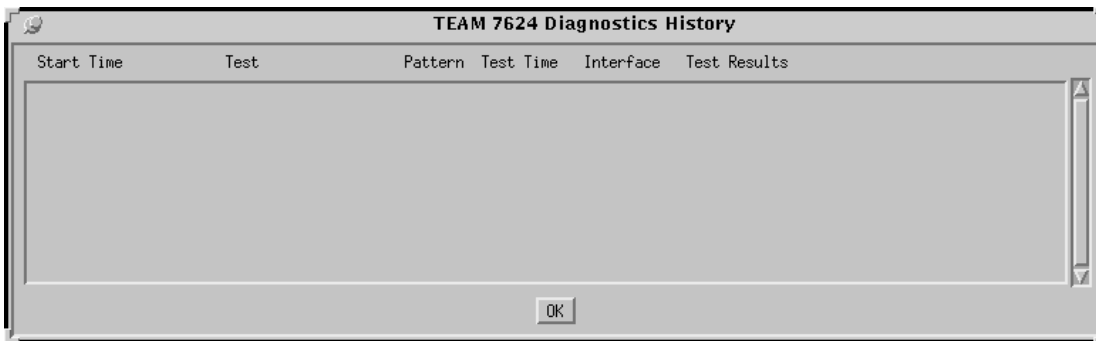


Figure 2-16 Diagnostics History Screen

Table 2-11 Diagnostics History Menu

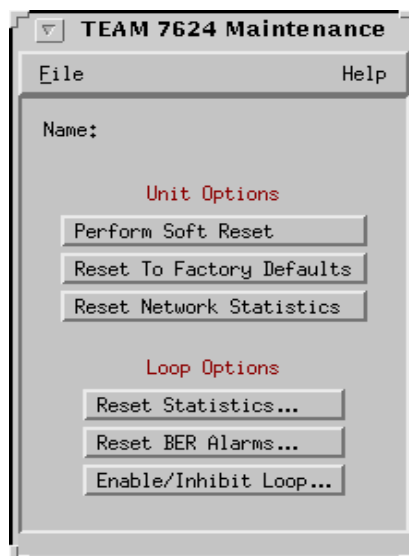
Diagnostics History	
Start Time	Date and time when test started.
Test	Name of the test.
Pattern	Test pattern selected (511 or 2047).
Test Time	Duration of the test in hours:minutes:seconds format.
Interface	Designates which interface the test had run on.

Table 2-11 Diagnostics History Menu (Continued)

Test Results	OK for a test that does not involve a self-test, or for a test with a self-test, where no errors are found. Bit Errors are followed by a bit error number for a test with the self-test, where errors are found.
Button Controls	
OK	Dismisses the screen.

Maintenance

The maintenance tool displays and modifies 7624 error categories which are device specific and cannot be set as configuration options. 7624 Maintenance is activated from the HPOV Map Configuration->Maintain menu or from the front panel menu. There is only one main window for this application (See [Figure 2-17](#)). Following the screen below is [Table 2-12](#) describing screen characteristics.

**Figure 2-17** Maintenance Screen

Window controls and their functions are as follows (Name is read-only):

Table 2-12 Maintenance Menu

Button	Description
File	File->Exit terminates application.
Help	Produces user help information.

Table 2-12 Maintenance Menu (Continued)

Unit Options	
Perform Soft Reset	Initiates a 7624 board reset.
Reset to Factory Defaults	Initiates a 7624 reset to default configuration parameters.
Reset Network Statistics	Resets all T1 statistics to zero.
Loop Options	
Reset Statistics...	Initiates a reset of selected loops statistics. Pop-up (See Figure 2-18) menu appears for selecting a loop.
Reset BER Alarm...	Initiates a reset of selected loops major and minor BER alarms. Pop-up menu (See Figure 2-18) appears for selecting a loop. Loop text is in red showing that a BER alarm (major or minor) is active. Text of loop is in black if there is no alarm.
Enable/Inhibit Loop...	Allows user to put a loop in or out of service.



Figure 2-18 Maintenance Pop-Up Menu

Information

The Information screen shows the current revision level and copyright notice of the current application. 7624 information can be launched from the HPOV Map Misc->Information menu, or you can double click on the GDC Logo on the front panel.

Index

-
- A**
- Action Buttons 2 - 12
 - Add or Delete Remotes 2 - 11
 - Alarm Detail 2 - 12
 - All Other Network and Loop Error Categories 2 - 18
 - All Screens 2 - 12
 - Auto Ranging 2 - 15
- C**
- Communications 2 - 1
 - Configuration 2 - 4
 - Configuration - Main Window 2 - 4
- D**
- Diagnostics 2 - 21
 - Diagnostics History 2 - 24
 - DSL Concentrator 1 - 4
- E**
- Edit 2 - 14
 - Error Totals 2 - 15
 - Errored Seconds (ES) 2 - 17
 - Errors Summary 2 - 19
- F**
- File 2 - 14
 - Front Panel Application 2 - 1
- I**
- Information 2 - 26
 - Interface Selector 2 - 15
- L**
- Loop Alarms Reported 2 - 10
 - Loops 2 - 16
- M**
- Maintenance 2 - 25
- N**
- Network 2 - 7, 2 - 15
 - Network Alarms Reported 2 - 7
 - Network Configuration Options 2 - 6
- O**
- Overview 1 - 3
- R**
- Reports 2 - 13
- S**
- SpectraComm Manager (SCM) 1 - 4
 - Status Message Area 2 - 4
- T**
- TEAM 7624 Applications 1 - 4
- U**
- UAS 7624 System Components 1 - 4
 - User Interface 2 - 1
- V**
- View 2 - 15

