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EOSDIS Maintenance and Development Project

Release 7.11 Operations Tools Manual for the EMD Project

Revision 02

July 2006

Raytheon Company
Upper Marlboro, Maryland

Release 7.11
Operations Tools Manual
for the EMD Project

Revision 02

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Preface

This document is a formal contract deliverable. It requires Government review and approval within 45 business days. Changes to this document will be made by document change notice (DCN) or by complete revision.

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Abstract

This document describes the human-machine interface (HMI) characteristics of the tools (computer software configuration items) used by the ECS operations staff and external users of ECS both registered and non-registered.

Keywords: Computer Software Configuration Items (CSCIs), GUI, Interface, Operations, Release 7.11, Screens, Software and Tools

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Appendix A. User Interface Messages

Glossary

Abbreviations and Acronyms

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1. Introduction

1.1 Identification

The Release 7.11 Operations Tools Manual, Contract Data Requirements List (CDRL) item 116, whose requirements are specified in the revised Data Item Description (DID) 609/OP1, is a required deliverable under contract NAS5-03098.

1.2 Purpose

This document describes the human-machine interface (HMI) characteristics of the tools (configuration items) used by the ECS operations staff when performing the following:

- Computer systems administration
- System monitoring
- Configuration management
- Security and accountability
- Science software integration and testing
- Resource planning
- Production planning and processing
- Science data ingest, archive and distribution
- User services
- Common services

This document provides background information that is the basis for the *Release 7.11 Operations Procedures for the ECS Project* (DID 611/OP3). The 609 document is intended to (1) familiarize the ECS operators with their tools, (2) be used as a reference for all ECS operational tasks, and (3) be used as an aid during training of ECS operations staff.

1.3 Scope

This document applies to *Release 7.11*, and not to any subsequent releases of the ECS. This document is limited to (1) a detailed description of customized operator tools, (2) a brief description of Commercial Off-the-Shelf (COTS) software used by operations and references to the applicable vendor manuals, and (3) a detailed description of customized COTS software. This document points to DID 611 for all operational procedures or to individual COTS manuals for detailed COTS instructions. Operators, maintainers, and external users of the ECS system intend it for use during the period in which *Release 7.11* is operational.

1.4 Status and Schedule

This submittal of DID 609/OP1 meets the milestone specified in the CDRL of NASA contract NAS5-60000.

This document reflects the February 14, 1996 Technical Baseline (210-TP-001-006) submitted via contract correspondence No. ECS 194-00343.

1.5 Organization

This document is organized to describe the tools used by ECS operations staff and external users during *Release 7.11*.

Section 1.0 provides information regarding the identification, scope, purpose, status, and organization of this document.

Section 2.0 provides a listing of related documents, which were used as source information for this document. The section also identifies the documentation provided for each *Release* 7.11 software component.

Section 3.0 provides a brief overview of the *Release 7.11 ECS*.

Section 4.0 provides a detailed description of *Release 7.11* operations tools. It is organized by operation function and provides the following types of information: tools overview, required operating environment, CSCI function, operator commands, system messages, reports, and outputs.

Appendix A provides a description of *Release 7.11* system status and error messages, including probable causes, impacts, and proposed actions.

The Glossary section contains terms used in this document.

The Abbreviations and Acronyms section contains an alphabetical list of the abbreviations and acronyms used in *Release 7.11*.

2. Related Documentation

2.1 Parent Documents

The parent document is the document from which the scope and content of this Release 7.11 Operations Tools Manual has been derived.

423-41-02	Goddard Space Flight Center, Functional and Performance Requirements Specification for the Earth Observing System Data and Information System (EOSDIS) Core System (ECS)
423-41-03	EOSDIS Core System Contract Data Requirements Document

2.2 Applicable Documents

The following documents, referenced within this Release 7.11 Operations Tools Manual, are directly applicable or contain policies or other directive matters binding upon the content of this volume.

110-EMD-001	Configuration Management Plan for the EMD Project
205-CD-002	Science User's Guide and Operations Procedure Handbook, Volume 4: Software Developer's Guide to Preparation, Delivery, Integration and Test with ECS
194-207-SE1	System Design Specification for the ECS Project
304-CD-003	Communications and System Management Segment (CSMS) Requirements Specification for the ECS Project
305/DV2	Segment/Design Specification for the ECS Project
307-CD-002	Science Data Processing Segment Release and Development Plan for the ECS Project
311-EMD-001	Release 7 Data Management Subsystem Database Design and Database Schema Specifications
311-EMD-002	Release 7 INGEST Database Design and Database Schema Specifications
311-EMD-003	Release 7 Planning and Data Processing Subsystem Database Design and Database Schema Specifications
311-EMD-004	Release 7 Science Data Server Database Design and Database Schema Specifications

311-EMD-005	Release 7 Storage Management and Data Distribution Subsystem Database Design and Database Schema Specifications
311-EMD-006	Release 7 Subscription Server Database Design and Database Schema Specifications
311-EMD-007	Release 7 System Management Subsystem Database Design and Database Schema Specifications
311-EMD-008	Release 7 Registry Database Design and Schema Specifications
311-EMD-009	Release 7 Product Distribution subsystem Database Design and Database Schema Specifications
311-EMD-010	Release 7 NameServer Database Design and Database Scheme Specifications
311-EMD-011	Release 7 Order Manager Database Design and Database Scheme Specifications
311-EMD-012	Release 7 Spatial Subscription Server (SSS) Database Design and Database Schema Specifications
311-EMD-013	Release 7 Data Pool Database Design and Database Schema Specifications
604-CD-002	ECS Operations Concept for the ECS Project: Part 2B - ECS Release 6B
605-CD-002	Release-B SDPS/CSMS Operations Scenarios for the ECS Project
611-CD-600	Release 6B Mission Operation Procedures for the ECS Project
613-CD-003	Release B COTS Maintenance Plan for the ECS Project
625-EMD-001	Training Material for the EMD Project Volume 1: Course Outline
625-EMD-002	Training Material for the EMD Project Volume 2: Introduction and Detailed System Overview: Science Data Processing Internal Training
625-EMD-003	Training Material for the EMD Project Volume 3: Problem Management
625-EMD-004	Training Material for the EMD Project Volume 4: System Administration
625-EMD-006	Training Material for the EMD Project Volume 6: Production Planning and Processing
625-EMD-007	Training Material for the EMD Project Volume 7: Resource Planning
625.EMD-008	Training Material for the EMD Project Volume 8: Ingest

625-EMD-009	Training Material for the EMD Project Volume 9: Data Distribution
625-EMD-010	Training Material for the EMD Project Volume 10: Archive Processing
625-EMD-011	Training Material for the EMD Project Volume 11: Database Administration
625-EMD-012	Training Material for the EMD Project Volume 12: Configuration Management
625-EMD-013	Training Material for the EMD Project Volume 13: User Services
625-EMD-016	Training Material for the EMD Project Volume16: Science Software Integration and Test
625-EMD-017	Training Material for the EMD Project Volume 17: System Troubleshooting
625-EMD-018	Training Material for the EMD Project Volume 18: Advanced Production Planning and Processing
420-TP-007	Planning Workbench Detailed Design for the ECS Project
920-TDx-015	Sun Platform UNIX Kernel Configuration Parameters
920-TDx-016	SGI Platform UNIX Kernel Configuration Parameters
IMSV0-OP-GD-001	GSFC, EOS Data Gateway; User Manual for EOS Data Gateway
IMSV0-PD-SD-002	EOSDIS Information Management System EOS Data Gateway Messages and Development Data Dictionary for V0 and ASTER/ECS Message Passing Protocol Specification

2.3 Information Documents

The following documents are referenced herein, and amplify or clarify the information presented in this document. These documents are not binding on the content of the Release 7 Operations Tools Manual.

Action Request System 5.1.2, Concepts Guide, Remedy a BMC Software Company , Mountain View, CA

Action Request System 5.1 Developing AR System Applications: Basic, , Remedy a BMC Software Company, Mountain View, CA

Action Request System 5.1.2, Error Messages Guide, Remedy a BMC Software Company, Mountain View, CA

Action Request System 5.1.2 Configuring AR System, Remedy a BMC Software Company, Mountain View, CA

Adaptive Server Enterprise System Administration Guide, Release 12.5 (2002), Sybase, Inc. Dublin, CA

AMASS Overview Version 5.3.3 (2004), ADIC, 11431 Willows Road NE, Redmond, WA 98052

AutoSys User Guide for Unix, Version 4.5, 2004, Computer Associates, One Computer Associates Plaza, Islandia, NY

C Language Reference Manual (1999), Silicon Graphics, Inc., Mountain View, CA

ClearCase Administrator's Manual, Unix Edition Release 2003.06 (2003), IBM Corporation, 1133 Westchester Avenue, White Plains, New York 10604

ClearDDTS Administrator's Guide, Version 4.7 (2002), IBM Corporation, 1133 Westchester Avenue, White Plains, New York 10604

ClearDDTS User's Guide, Version 4.7 (2002), IBM Corporation, 1133 Westchester Avenue, White Plains, New York 10604

Data Production Sofware and Science Computing Facility (SCF) Standards and Guidelines, Rev A, October 1996, 423-16-01, GSFC, Greenbelt, MD

Expert Analyzer Output File Format (2000), Network Associates Technology, Inc., Santa Clara, CA

FDDI Overview and Guide to Troubleshooting (1998), Network Associates, Inc., Menlo Park, CA

IDL Reference Guide, Interactive Data Language (2001), Version 5.5, Research Systems, Inc., Boulder, CO

IDL User's Guide, Interactive Data Language (2001), Version 5.5, Research Systems, Inc., Boulder, CO

Introduction to Sun Workshop (2000), Sun Microsystems, Inc., Palo Alto, CA

Introduction to Mozilla (2003), The Mozilla Organization, Mountain View, CA

Installing and Configuring Amass, Version 5.3.3 (2004), ADIC, 11431 Willows Road NE, Redmond, WA 98052

iPlanet Web Server 6.0, Enterprise Edition Administrator's Guide (2001), Sun Microsystems, Mountain View, CA

iPlanet Web Server 6.0, Enterprise Edition Programmer's Guide (2001), Sun Microsystems, Mountain View, CA

IRIX Networker Administrator's Guide (1998), Silicon Graphics, Inc., Mountain View, CA

Managing the AMASS File System, Version 5.3.3 (2004), ADIC, 11431 Willows Road NE, Redmond, WA 98052

Microsoft Excel User's Guide (2000), Microsoft Corporation

Microsoft Word User's Guide (2000), Microsoft Corporation

MIPSpro Fortran 77 Language Reference Manual (1999), Silicon Graphics, Inc., Mountain View, CA

Mozilla 1.1 Release Notes (2003), The Mozilla Organization, Mountain View, CA

Netscape 7.0 Reviewer's Guide (2002), Netscape Communications Corporation, Mountain View, CA

NetWorker Administrator's Guide 7.0 (2003), Legato Systems, Inc., 3210 Porter Dr., Palo Alto CA 94304

NetWorker User's Guide 7.1.2 (2004), Legato Systems, Inc., 3210 Porter Dr., Palo Alto CA 94304

NASA/ESDIS Standards

Open Client DB-Library/C Reference Manual (2001), Sybase Inc., 6475 Christie Avenue, Emeryville, CA 94608

Open Client and Open Server Common Libraries Reference Manual (2001), Sybase Inc., 6475 Christie Avenue, Emeryville, CA 94608

ProDev Workshop: Performance Analyzer User's Guide (2002), Silicon Graphics, Inc., Mountain View, CA

ProDev Workshop : Debugger User's Guide (2002), Silicon Graphics, Inc., Mountain View, CA

Replication Server Administration Guide (2002), Sybase, Inc., Dublin, CA

Replication Server Commands Reference (2002), Sybase, Inc., Dublin, CA

Replication Server Configuration Guide for Unix Platforms (2002), Sybase, Inc., Dublin, CA

Replication Server Trouble Shooting Guide (2002) , Sybase, Inc., Dublin, CA

Sniffer Pro Getting Started Guide Release 4.5 (2000), Network Associates Technology, Inc., Santa Clara, CA

Sniffer Pro Installation Guide Release 4.2 (2000), Network Associates Technology, Inc., Santa Clara, CA

Sniffer Pro Gigabit Ethernet Installation and Connection Guide (2000), Network Associates Technology, Inc., Santa Clara, CA

Sybase ASE Server Troubleshooting and Error Messages Guide, Version 12.5 (2002), Sybase, Inc., Dublin, CA

Sybase Utility Guide, Version 12.5 (2001), Sybase, Inc., Dublin, CA

Sybase ASE Reference Manual Volume 1-3 (2002), Sybase, Inc., Dublin, CA

Sybase ASE System Administration Guide (2002), Sybase, Inc, Dublin, CA

Using the AMASS GUI Version 5.3.3 (2004), ADIC, 11431 Willows Road NE, Redmond, WA 98052

VolServ Graphical User Interface Guide (1995), VolServ, Version 2.3, ADIC, 11431 Willows Road NE, Redmond, WA 98052

3. Release 7.11 Overview

3.1 Release 7.11 Objectives

3.1.1 Release 7.11 Capabilities

The Earth Observing System (EOS) Data and Information System (EOSDIS) Core System (ECS) capabilities are developed in terms of formal releases. Release 7.11, which is controlled by Configuration Management, provides capabilities to support the ingest and archive of raw data obtained from the EOS AM 1 mission spacecraft, morning equator crossing spacecraft series (Terra (AM-1)), EOS PM 1 mission spacecraft, and afternoon equator crossing spacecraft series (Aqua (PM-1)). Other capabilities provided by Release 7.11 include processing the data obtained, distributing raw or processed data as requested, quality assurance of processed data, supporting communication networks, and systems monitoring via interfaces with the ECS operations staff.

Release 7.11 is a maintenance release that consists mainly of custom code fixes with a small number of enhancements. Unique capabilities and modifications associated with this release include:

- MD5 Checksum- A new checksum type, MD5 checksum, has been added to the existing end-to-end checksumming capability that is used to ensure data integrity.
- OMS-only distribution of physical media – although the distribution of physical media via OMS was a capability provided in Release 7.10, the existing PDS could still be used for this purpose. In Release 7.11, PDS has been eliminated from the system and physical media can only be distributed via OMS.

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4. Description of the ECS Operational Tools

The HMI characteristics description of the software tools that the ECS operator uses to perform routine ECS operations is listed by the following major functional areas:

4.1 Computer Systems Administration

4.2 System Monitoring (Problem, Fault, and Performance Management)

4.3 Configuration Management

4.4 Security and Accountability

4.5 Science Software Integration and Test (SSI&T)

4.6 ECS Data Ingest

4.7 Resource Planning

4.8 Production Planning

4.9 Production Processing

4.10 Science Data Archive and Distribution

4.11 User Services Tools

4.12 Common Services Tools

When using this document, the reader should note the following:

- The screens/GUIs presented in this section are samples and often do not reflect the actual window contents seen by the DAAC operator because they depend on hardware configuration, actual server names, directories, etc.
- Basic Unix, Network and application configuration and utilities are not explicitly addressed in this document
- Launching tools from the command line is avoided as much as possible to give operations management the ability to control (a) access to the Unix command line and shell; and (b) reduce the use of the xterm except for programs other than Motif programs
- This document references the EMD Baseline Information System (EBIS) web page and URL http://pete.hitc.com/baseline/index.html, in several places for information on the Required Operating Environment. This web page was constructed for the desired information in the EMD Baseline. Until it is put in place, the reader is referred to the DAAC library for hard copies of the desired COTS documents.

Note:

The sample GUI screen images provided in the tool description in this document are best viewed on a computer terminal. The terminal provides the color and resolution needed to convey the screen design and usage. The terminal allows the user to view and enlarge the screen image to see the various fields on the screen images if they are unreadable. A hard copy printout of a screen image can lose all of its color and a great deal of its resolution in going from a computer terminal to a printer to a Xerox machine. The transition from terminal to printer to Xerox machine can cause the quality to degenerate to the point the images are totally unreadable.

4.1 Computer Systems Administration

This section describes the computer system administration tools used by DAAC operators:

1. Legato NetWorker
2. AMASS
3. Interactive Structured Query Language (ISQL)
4. Sybase Replication Server
5. ECS Assistant
6. ECS Registry GUI
7. Whazzup GUI

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4.1.1 Legato NetWorker

The Legato NetWorker COTS Version 7.0 installed in ECS Release Solaris 8 has been verified to be "Y2K" compliant.

Legato's NetWorker is a set of three components: Administration, Backup, and Recovery - used by system administrators to back up the entire system, with the exception of DBMS files (see Section 4.1.3, "ISQL", for details on backup of DBMS files). The basic configuration is to have a NetWorker Server with a backup device (i.e., Jukeboxes or 8mm tapes) networked to a number of clients that represent the subsystem hosts.

NetWorker performs site-wide system backup. It provides a suite of integrated tools for backup and recovery, archive and retrieval, and hierarchical storage management. The product supports multi-platform networks, contains a motif-based GUI with on-line help, and supports concurrent device support for parallel backup and recovery using up to 16 storage devices. Authorized users can perform both scheduled and ad-hoc backups, recoveries and other data management services. NetWorker software consists of two components: a client portion, which runs on the systems to be backed up, and a server portion, which is the system to which the backup devices are connected. The client portion sends the data to be backed up to the server portion, which then writes the data out to disk.

Legato NetWorker is used to perform the operator functions listed in Table 4.1.1-1.

Table 4.1.1-1. Common ECS Operator Functions Performed with Legato NetWorker

Operating Function	GUI	Description	When and Why to Use
Manage, configure, and monitor NetWorker	• NetWorker Administrator GUI	Allows monitoring of server status, devices, sessions, messages, and pending displays	To start NetWorker (NW) tasks and monitor server activity
Monitor and schedule backup	• NW Backup GUI	• Group backup • Scheduled backup • Incremental backup	To back up client files
Recovering backed up files	• NW Recover GUI	Retrieves files that have been backed up	To recover backed up client files

4.1.1.1 Quick Start Using NetWorker

This section presents an orientation of NetWorker. For more information, see the *NetWorker User's Guide*, and the *NetWorker Administrator's Guide*, Using NetWorker Windows and Menus.

4.1.1.1.1 Invoking NetWorker From the Command Line Interface

The NetWorker Administrator tool is used to manage and configure the NetWorker environment. To execute NetWorker Administrator from the command line prompt use:

nwadmin <-s server_name> **&**

The NetWorker Backup tool is used to backup files on client machines. To execute NetWorker Backup from the command line prompt use:

nwbackup <-s server_name> **&**

The NetWorker Recover tool is used to recover files on client machines. To execute NetWorker Recover from the command line prompt use:

nwrecover <-s server_name> **&**

Note: The optional <-s server_name> is used only in NetWorker environments that have multiple NetWorker servers.

4.1.1.2 NetWorker Main Screen

Figure 4.1.1-1 shows the NetWorker Administration's screen. For more information on the NetWorker Administrator, see the *NetWorker Administrator's Guide*.

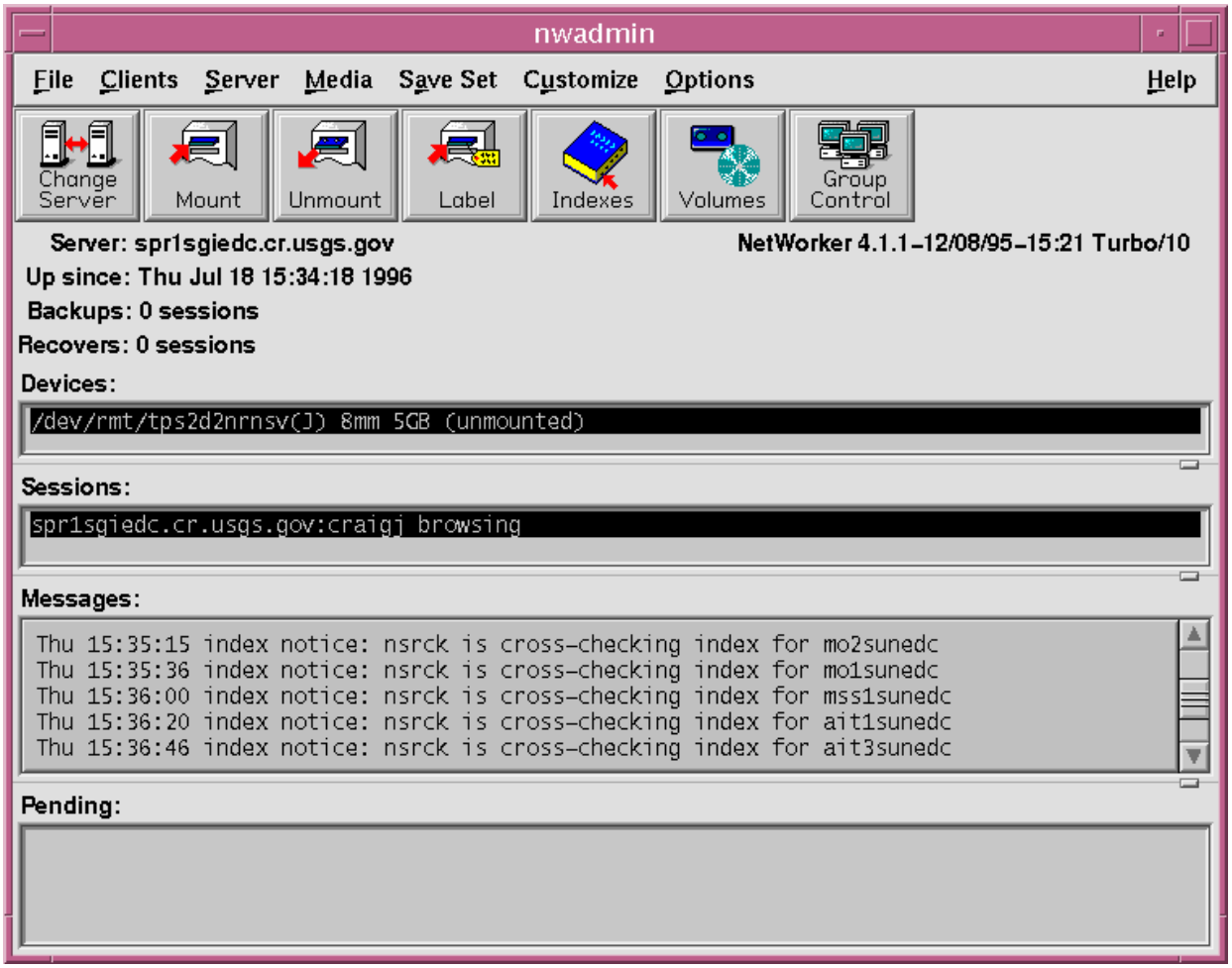

Figure 4.1.1-1. NetWorker Administrator's Screen

Figure 4.1.1-2 shows the NetWorker Backup screen. For more information on NetWorker Backup, see the *NetWorker User's Guide*.

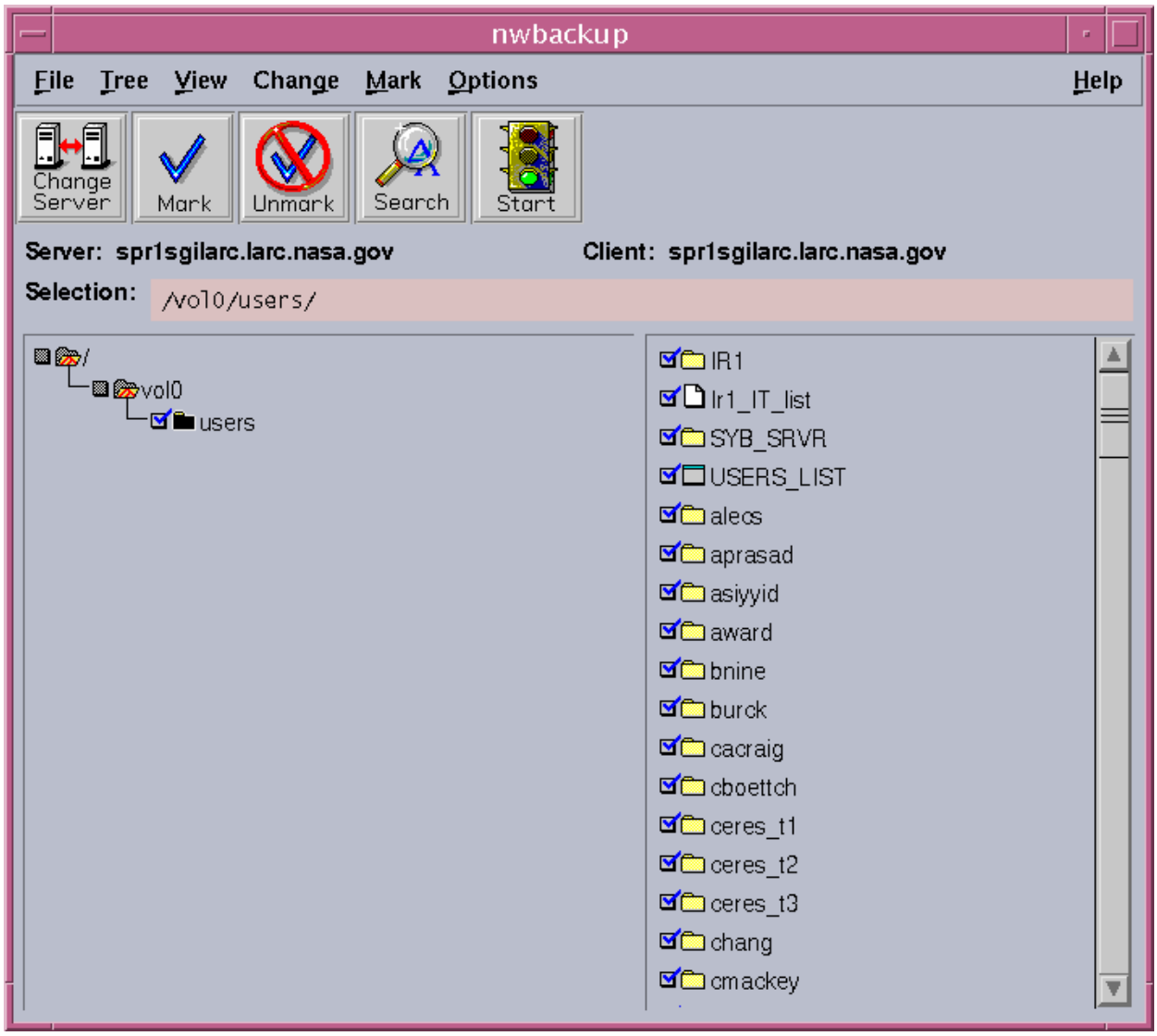

Figure 4.1.1-2. NetWorker Backup Screen

Figure 4.1.1-3 shows the NetWorker Recover screen. For more information on NetWorker Recover, see the *NetWorker User's Guide*.

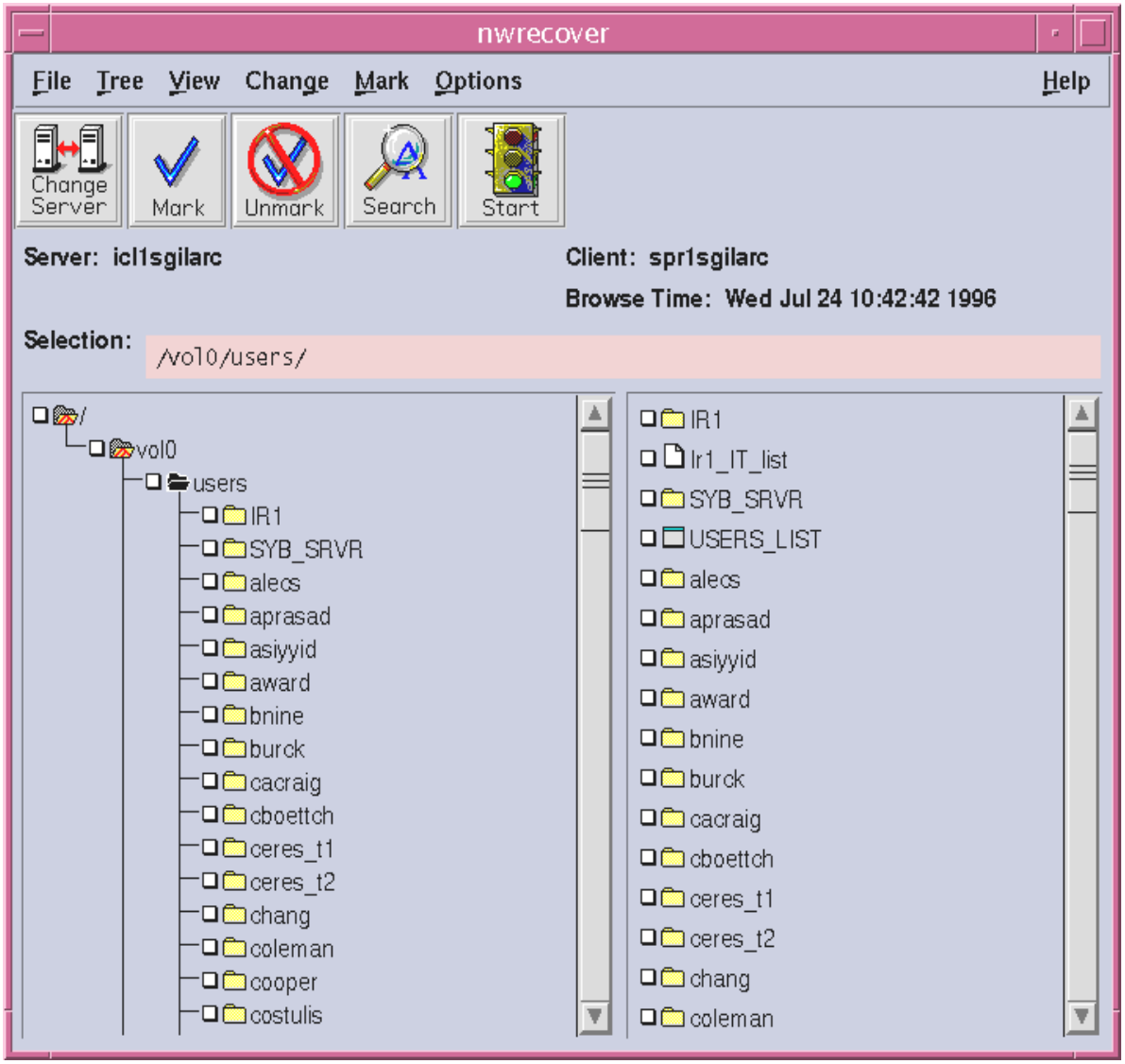

Figure 4.1.1-3. NetWorker Recover Screen

4.1.1.3 Required Operating Environment

For all COTS packages, appropriate information on operating environments, tunable parameters, environment variables, and a list of vendor documentation can be found in a CM controlled document for each product. To find the documentation for Legato Networker, refer to the ECS Baseline Information System web page, URL http://pete.east.hitc.com/, under COTS Releases.

4.1.1.4 Databases

The $Installed_dir/nsr/index directory maintains a database of files that have been backed up and the availability of the backup such as tape number and whether it is online or on a volume of tapes that has been migrated. This information is in a proprietary format that can only be read using the NetWorker Recover (nwrecover) tool.

4.1.1.5 Special Constraints

None.

4.1.1.6 Outputs

NetWorker provides the capability to print and save contents of a window as a way to maintain records of NetWorker activities and configurations. For more information, see Chapter 3, Using NetWorker Windows and Menus, *NetWorker Administrator's Guide*.

4.1.1.7 Event and Error Messages

See Appendix A, Notes and Troubleshooting Tips, *NetWorker Administrator's Guide*.

4.1.1.8 Reports

None.

4.1.2 AMASS

AMASS is a File Storage Management System (FSMS) for the ECS. The purpose of AMASS in the ECS is to provide an easy-to-use interface to the UNIX Operating System, for large media archives. Media is defined as magnetic tape. In terms of hardware, the FSMS host in the ECS architecture is a Silicon Graphics Inc. (SGI) Origin 300 and Origin 2000 servers. There are two main types of libraries used in ECS. StorageTek (STK) 9310 Powderhorn, using STK 9840A, STK T9940A SCSI Tape Drives, and STK T9940B Fibre Channel Tape drives.

The STK 9360 Wolfcreek, configured with STK 9840 tape drives is used exclusively in the Verification and Test Center (VATC), but is not deployed to operational sites. The operation of this silo is virtually the same as an STK Powderhorn.

STK Powderhorns are used at Goddard Space Flight Center (GSFC), Langley Research Center (LaRC), National Snow and Ice Data Center (NSIDC), Eros Data Center (EDC), and the Performance Verification Center (PVC). The FSMS consists of 6 major hardware and software components:

- The Automated Console System for Library Services (ACSLS) which is a Sun Ultra 10 front end controller
- The Automated Cartridge System (ACS)
- The Cartridge Access Port (CAP) where tape media are inserted and ejected
- The Library Management Unit (LMU) interface unit
- The Library Control Unit (LCU) to control the robot Drive Racks, which hold up to 18 9840, T9940A or T9940B drives per rack
- The Library Storage Module (LSM), which controls the robot arms and the tape silo itself. The LSM includes a camera to display operation to the operator and the tape drives. *Note that the ACSLS host is connected to the LSM via an Ethernet connection.*

The software components are more complicated. AMASS itself is the part that the user-of-the-system actually uses. AMASS appears to the user as just another UNIX file system or mount point, from which AMASS users may copy, move or delete files using standard POSIX (dd, mv or rm) commands. An operator can view the contents of the archive, monitor the system, or setup new tapes through the use of AMASS administrative commands, found in the *Managing the AMASS File System* (Version 5.4.1). AMASS is installed on an SGI platform. Control information is communicated from the SGI to ACSLS using transmission control program/internet protocol (TCP/IP) protocols via Ethernet. Figure 4.1.2-1 shows the basic route that *control* information takes in sending a file to AMASS to a Powderhorn:

1. User/application initiates file transfer to an AMASS mount point.

2. AMASS receives the file over the network via file transfer protocol (ftp), dd or cp or locally via dd or cp to AMASS cache.

3. AMASS sends information to ACSLS about what tape to load and which drive in which to load it.

4. ACSLS controls the movement of the robotic arm to the mount the requested media; the "gripper" grabs the tape, and retrieves the tape from the home slot and inserts it into the tape drive to complete the mount.

5. The data is finally written to tape.

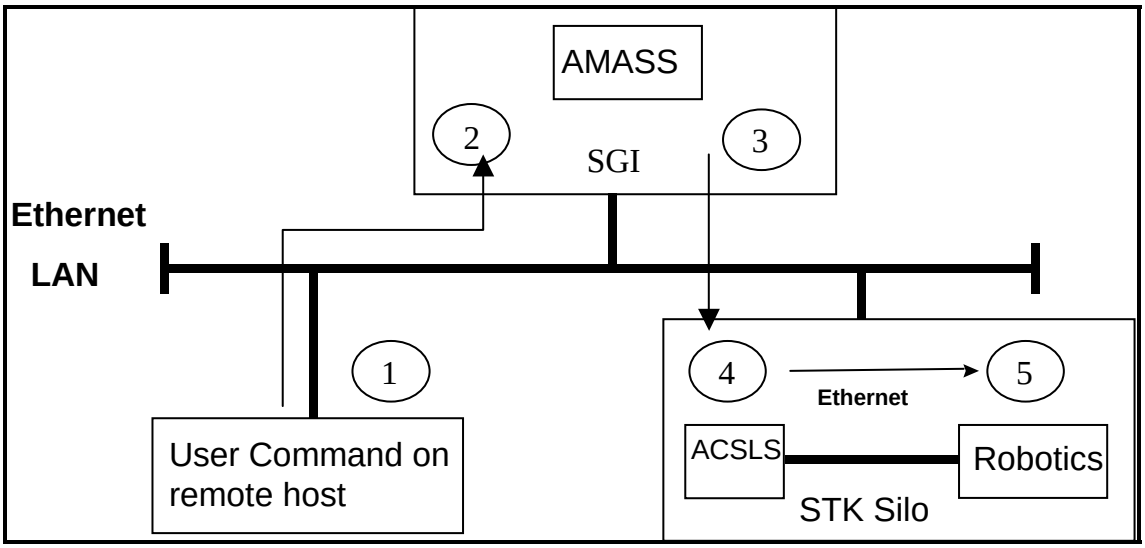

Figure 4.1.2-1. Control Path

The data path is much simpler. A small computer system interface (SCSI) controller on the SGI is directly connected to the SCSI port on the tape drive. Ideally, each drive gets its own controller. After the above process takes place, AMASS writes the file to the tape in a very simple block by block method. Note that the format of the tape is proprietary and NOT compatible with CPIO or TAR.

AMASS uses both a command line and a GUI program called aawin to perform the system administration/operator functions listed in Table 4.1.2-1.

Table 4.1.2-1. Common ECS Operator Functions Performed with AMASS (1 of 2)

Operating Function	Command or GUI	Description	When and Why to Use
Enable or Diable AMASS on boot	amass_atboot	Disables or enables AMASS during boot up	Prevent AMASS from starting in the event of problems.
Start AMASS	amass_start	Starts AMASS	Initial startup.
Inactivate the AMASS file system	kildaemons aawin GUI	Inactivate the AMASS file system	Used to inactivate the file-system for maintenance.
Add a volume	volnew aawin GUI	Introduces a new volume to AMASS and assigns a volume number.	To create a new entry in the database for a new volume
Add space to a volume group	volnew volgroup aawin GUI	Adds additional volumes to an existing volume group.	When space is needed to separate data types.
Enable space pool	vgpool aawin GUI	One or more volumes assigned to a special volume group of the Space Pool (SP).	To allow AMASS to automatically add space (volumes) to a volume group that has run out of space.
Create a volume group	volgroup setvolgrp aawin GUI	Assigns directories to specified volume groups.	To assign volumes or volume groups for specific purposes within AMASS.
Delete a volume	volstat voldelete aawin GUI	Removes a volume and its files from the archive.	To delete a volume and any files it contains.
Generate a report	amassreport	Generates standard or user defined report and/or raw output.	To extract information about files and directories from the AMASS index.
Back up the AMASS index	amassbackup	Performs full or partial back up of the AMASS index.	Any time that the system needs to be backed up other than what AMASS' automatic backup provides.
Take a volume out of service.	volstat aawin GUI	Displays the current status of the volume and to change the status.	When an INACTIVE volume is ready to return to service.
Recover dead space	volspace volcomp volformat aawin GUI	Compresses a selected volume.	To recover dead space on volumes.
Reinitialize the AMASS index	Refer to the vendor documentation for the command and procedure	Clears out the existing index and reinitializes it to an empty index.	Only when AMASS is not running.

Table 4.1.2-1. Common ECS Operator Functions Performed with AMASS (2 of 2)

Operating Function	Command or GUI	Description	When and Why to Use
Reintroduce an offline volume	volslot bulkinlet volloc	Reintroduces an offline volume to a jukebox.	If data from an offline volume needs to be referenced for read access.
Remove a volume or volume group	, voloutlet, volloc aawin GUI	Removes a volume or an entire volume group from the jukebox.	To make room for new volumes or because data not being used needs to be retained.
Loacte a directory path of a volume group.	vgroot #VG	Views the fully qualified path of a directory assigned to a volume group	When trying to locate the relative path of an existing volume group..
Replace a full backup volume	voloutlet 1, bulkinlet 0, vollabel {to rename} tapelength 1 2 volformat -b 256k 1 amassbackup -fv	Initializes a new backup volume and performs a full backup.	When the backup volume is 95% full.
Restore the AMASS database	amassrestore	Restores the index either completely or to the point of the last full or partial backup.	When the index is corrupt on the magnetic disk. Do not use the amassrestore command when AMASS is running.
Retrieve system usage by user	amassreport	Displays the number of files and directories owned by a user and the amount of space they take up.	To get statistical information on the amount of space used by an individual(s).
Retrieve system usage by volume group	adf	Displays volume group, jukebox reference number, position of volume, amount of used space, number of directories and files on volume, amount of free and dead space.	To get statistical information about the usage of a particular volume.
Reuse a volume	(volcomp, volstat, volclean, volformat aawin GUI	Compresses and moves existing data to another volume, then reformats the volume.	When a volume contains data no longer needed or contains mostly dead space.
Take a drive out of service	, drivestat aawin GUI	Displays and changes the status of the drive.	When a drive has excessive failures or for maintenance.
Kill AMASS	killdaemons	Kills all AMASS daemons, and unmounts the AMASS file system.	When system downtime planned.

4.1.2.1 Quick Start Using AMASS

For more information about AMASS, refer to the *Managing the AMASS File System* and *Using The AMASS GUI* guides.

The documentation of AMASS used as a basis and referenced in this section is for AMASS for Unix version 5.4.1.

4.1.2.1.1 Invoking AMASS From the Command Line Interface

AMASS is normally started at boot and shutdown when the system is shutdown using scripts in the /etc/rc2.d and /etc/rc0.d directories that are linked to the actual scripts in /etc/init.d. AMASS can also be started and stopped from the command line.

To execute AMASS from the command line prompt use: (as superuser or root)

 # /usr/amass/tools/amass_start

To stop AMASS, type:

 # /usr/amass/tools/killdaemons

AMASS startup at boot can be enabled or disabled using the amass_atboot command. For more information on accessing AMASS via the command line, refer to Chapter 3, Command Reference, *Managing the AMASS File System*.

The AMASSADMIN GUI can be started from the command line by typing

/usr/amass/bin/aawin

For more information on running the AMASS, refer to *Using The AMASS GUI* guide.

For a description of AMASS commands and the functions they perform, see Chapter 2, Operational Tasks, and Chapter 3 , Commands of the *Managing the AMASS File System*.

4.1.2.2 AMASS Main Screen

AMASS allows the operator to perform a subset of the command line functions, as well as query online index and output results to a file for further processing. For more information on the AMASS, refer to *Using the AMASS GUI* guide.

The window area of the AMASS Main Screen shown in Figure 4.1.2-2 is referred to as ‘The Workroom.’

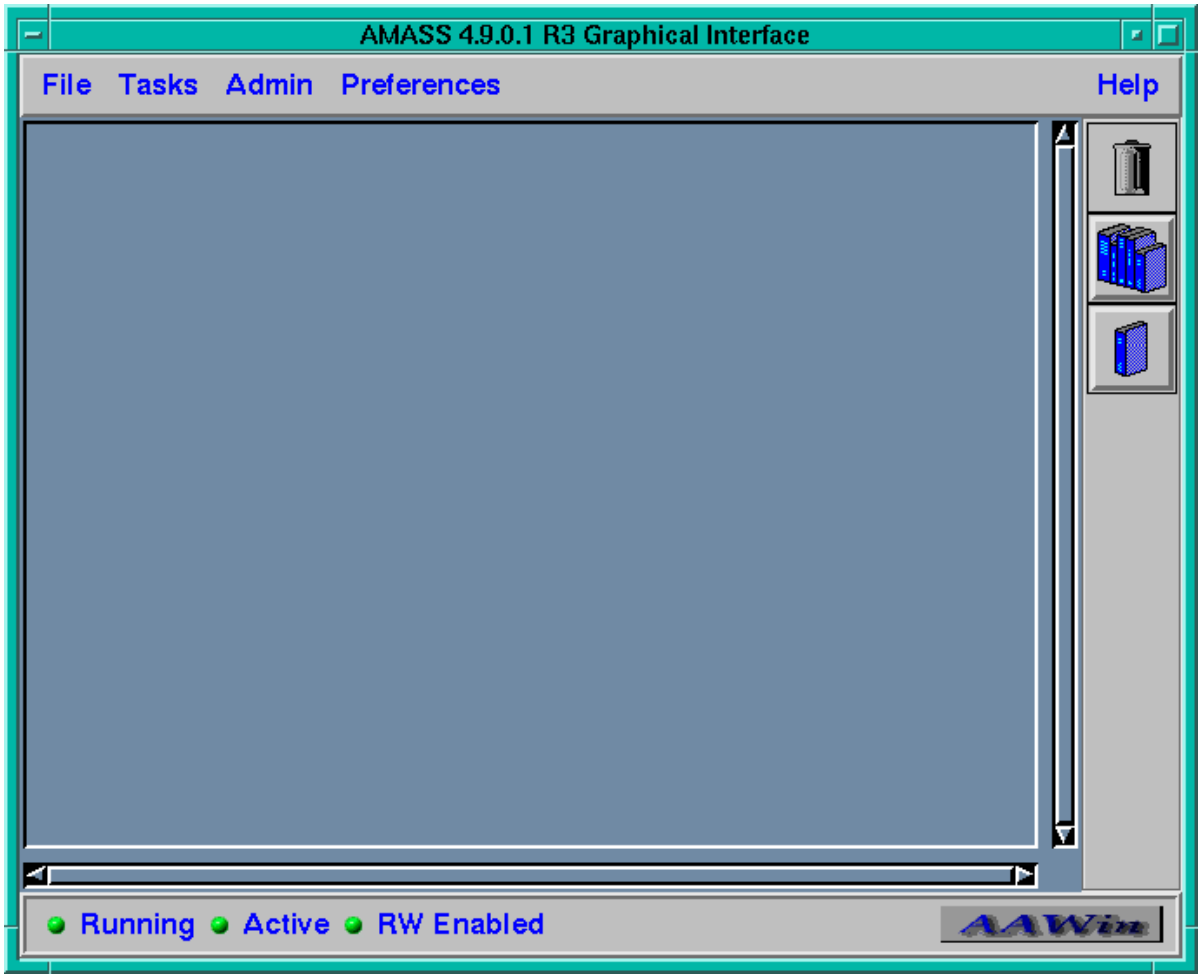

Figure 4.1.2-2. AMASS Main Screen (AAWIN)

AAWIN Pulldown Menu options:

File

Exit: Exits AMASS.

Clear Workroom: Clears the Workroom of all icons.

Tasks

Modify a Volume Group: Change configuration of Volume Group.

Modify a Volume: Change parameters associated with a Volume.

Admin

Scheduler: Opens the Scheduler Status window.

Sysperf: Opens the sysperf window displaying the status of the AMASS activity.

Preferences

Show/Hide Detail Windows: These windows give a brief description of the items the mouse pointer is touching.

Help: Opens the Help Window.

AMASS Utility Bar options (the Utility Bar is a vertical toolbar on the right side of the Main Screen)

Trash Can icon

Volume Group icon displays the volume group icons in the Workroom as shown in Figure 4.1.2-3.

Volume icon displays volume icons in the Workroom.

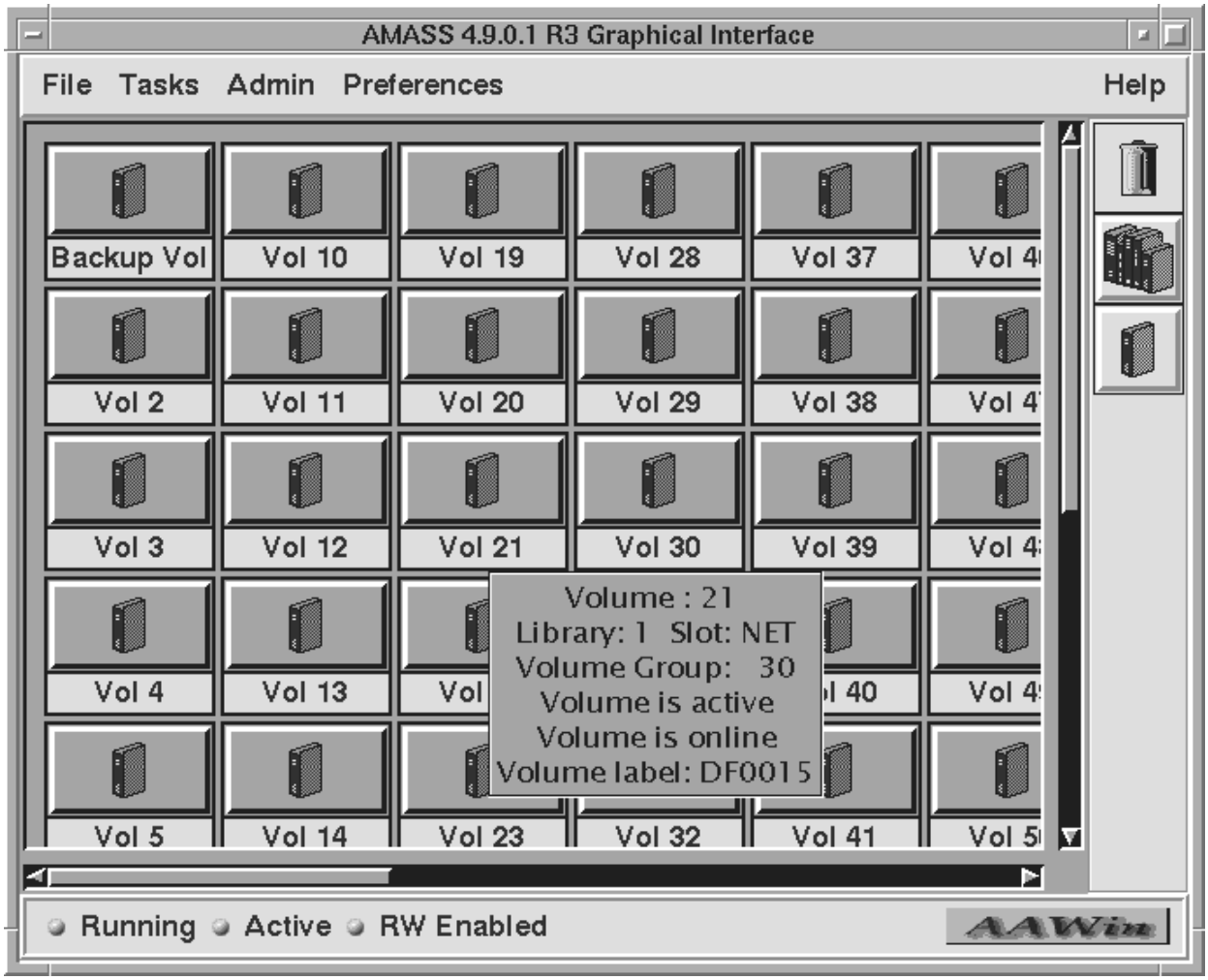

Figure 4.1.2-3. AMASS Main Screen Showing Selected Volumes in the Workroom

4.1.2.3 Required Operating Environment

AMASS requires a UNIX environment. AAWIN requires an X-window server.

For all COTS packages, appropriate information on operating environments, tunable parameters, environment variables, and a list of vendor documentation can be found in a Configuration Management (CM) controlled document for each product. To find the installation and release notes for AMASS and ACSLS, refer to the ECS Baseline Information System web page, URL, http://cmdm.east.hitc.com/.

4.1.2.3.1 Interfaces and Data Types

The commands and the AMASS GUI that operations staff use to interface with AMASS are described in the *Managing the AMASS File System* and *Using The AMASS GUI*.

4.1.2.4 Databases

The File Storage Management System provided by ADIC Company includes the RAIMA database product. AMASS utilization of the database is transparent to the operator.

4.1.2.5 Special Constraints

None.

4.1.2.6 Outputs

Output from the AMASS consists of the data displayed on the GUI described in Section 4.1.2.2, database updates or additions to the database referenced in Section 4.1.2.4, error and event messages described in Section 4.1.2.7, and reports described in Section 4.1.2.8 which can produce file outputs in response to user actions or are printed.

4.1.2.7 Event and Error Messages

AMASS generates the following types of messages:

- **Informational (AMASS_I):** Informational messages inform you about a process or situation. The status of AMASS is not changed when you receive an informational message.
- **Warning (AMASS_W):** Warning messages inform you of situations that require attention but do not inhibit the functioning of AMASS.
- **Error (AMASS_E):** Error messages require the immediate attention of the System Administrator to insure the proper functioning of AMASS.
- **System (AMASS_S):** System messages indicate internal errors and should be reported to the ADIC Technical Assistance Center.

AMASS uses the standard syslogd function of the operating system for all of its warning, error and system messages. This facility allows the system administrator to control the output destination(s) of these messages.

With the /etc/syslog.conf file, the operator can control the destination of each of the message types. The syslog.conf file is typically set up to log all levels of AMASS messages to var/adm/messages. The console is typically set up to see all AMASS levels generated by the kernel facility and the system and error level generated by the daemon facility.

For a description of AMASS event and error messages, refer to *Errors and Corrective Action* (AMASS) manual.

4.1.2.8 Reports

AMASS reports provide information of the AMASS holdings using the **amassreport** report generator. Specific reports can be tailored for specific information on the basis of selections by date, file, directory, errors, length, size, or IDs. All reports have the column headings listed in Table 4.1.2-2.

Table 4.1.2-2. Amassreport Column Headings

Heading	Description
Name	Name of file.
Parent	Record ID of Parent.
Last Accessed	Last Accessed date on timestamp.
Mode	Permission IDs.
Size	File size in megabytes.
File ID	File Number.
UID	User ID
GID	Group ID
Last Modified	Date and time showing date the file was last modified.
Vol	File is located on this volume number.

Table 4.1.2-3 below lists two types of AMASS reports using the **amassreport** command.

Table 4.1.2-3. Amassreport Report Types

Output	Description and Format
Formatted report	Prints a column header at the top of each page.
Raw output	Prints data without a column header. Can be used with other utilities to generate custom reports.

The content of both types of tables is the same. The raw output type is meant to be used to provide input for further processing to a more complete reporting system.

For information on using **amassreport** see Chapter 3, Command Reference, *Managing the AMASS File System*.

4.1.2.8.1 Sample Report

Figure 4.1.2-4 is an example of a formatted amassreport showing volume group 20.

```
NAME                    FILEID  PARENT  UID  GID  LAST MODIFIED  LAST ACCESSED  MODE       VOL
SIZE

file_create             23         2    3137  20  Oct 21 10:06   Nov 06 18:17   drwxrwxr-x  20
0
testfiles1              171147     23   435   20  Oct 22 08:57   Nov 04 06:32   drwxr-xr-x  20
0
random_files            333451     23   435   20  Sep 11  1996   Nov 04 08:04   drwxr-xr-x  20
0
portioned_random_files  1751199    23   3137  20  Sep 25  1996   Nov 04 08:04   drwxr-xr-x  20
0
logs_tape               2975809    2    435   20  Oct 22  1996   Nov 03 23:01   drwxrwxr-x  20
0
```

Figure 4.1.2-4. Amassreport Example Showing Volume Group 20

4.1.3 ISQL

ISQL is a stand-alone structured query language (SQL) command parser utility provided with the Sybase SQL Server and is available on all platforms that Sybase is available. ISQL is executed directly from the operating system level, and is used to interact with a SQL server and the databases on a SQL server. It allows for the interactive issuance and execution of Sybase Transact-SQL statements and sends the Transact-SQL commands to the SQL Server, formatting the results and printing them on the standard output. ISQL is used to perform the operator functions listed in Table 4.1.3-1.

Table 4.1.3-1. Common ECS Operator Functions Performed with ISQL (1 of 4)

Operating Function	Command/Script	Description	When and Why to Use
Monitor database and user activity	Refer to Sybase Online documentation at sybooks.sybase.com for the Overview of System Administration in the *Sybase ASE System Administration Guide*	There are various database management activities performed in Sybase ASE Server to keep the databases running for day-to-day operations	Database and user activity is monitored to manage and control various day-to-day operations of the Distributed Active Archive Center (DAAC) and to prevent or resolve any unforeseen problems
Provide and control users' database access	• Refer to Sybase Online documentation at sybooks.sybase.com for Managing Adaptive Server Logins and Database Users in the *Sybase ASE System Administration Guide* • Refer to Sybase Online documentation at sybooks.sybase.com for Managing User Permissions in the *Sybase ASE System Administration Guide*	• Create user accounts, set account default databases and other account configurable items • Grant proper permissions to user accounts	• It may be necessary to provide access to individual users or groups of users on a temporary, permanent, or on-demand basis • Access to data at the DAAC should be controlled so it is not accidentally deleted, modified, or obtained without permission

Table 4.1.3-1. Common ECS Operator Functions Performed with ISQL (2 of 4)

Operating Function	Command/Script	Description	When and Why to Use
Grant roles and assign various privileges on database objects	Refer to Sybase Online documentation at sybooks.sybase.com for Managing User Permissions - Granting and Revoking roles in the *Sybase ASE System Administration Guide*	Roles and user accounts are necessary to provide access and security to databases under Sybase ASE Server	• Proper database management roles such as SSO (System Security Officer), SA (System Administrator), OPER (Operator) are essential to the proper management of the databases at DAACs • Providing the proper level of privileges to each user of the databases prevents any accidental or unforeseen mishaps with the data (data integrity is also maintained)
Monitor, control, and manage the use of disk space, memory and connections	• Refer to Sybase Online documentation at sybooks.sybase.com for the System Administration for Beginners (Allocating Physical Resources) in the *Sybase ASE System Administration Guide* • Refer to Sybase Online documentation at sybooks.sybase.com for Checking Database Consistency in the *Sybase ASE System Administration Guide*	• All databases running under Sybase ASE Server are physically stored on various devices and require various amounts of memory based on the usage of data • These resources have to be properly monitored	• Resources for storage and manipulation of data are always at a premium • Proper management of these resources is essential in reducing errors, database crashes and unwanted downtime

Table 4.1.3-1. Common ECS Operator Functions Performed with ISQL (3 of 4)

Operating Function	Command/Script	Description	When and Why to Use
Backup and restore databases	• Refer to Sybase Online documentation at sybooks.sybase.com for Developing a Backup and Recovery Plan in the *Sybase ASE System Administration Guide* • Refer to Sybase Online documentation at sybooks.sybase.com for Backing up and Restoring user databases, in the *Sybase ASE System Administration Guide* • Refer to Sybase Online documentation at sybooks.sybase.com for Backing up and Restoring the system databases in the *Sybase ASE System Administration Guide*	Backup of databases provides for quick recovery and maintenance of data integrity	• Most Database Administrators perform a daily backup of all their databases and perform recovery operations when a database crashes and is unrecoverable by other recovery methods • Proper backup and recovery plans allow for full, quick recovery and zero loss of data • Regular backup of data, is essential in reducing downtime in case of a database crash
Diagnose system problems	• Refer to Sybase Online documentation at sybooks.sybase.com for Diagnosing System Problems in the *Sybase System ASE Administration Guide* • Also see the *Sybase ASE Server Troubleshooting and Error Messages Guide*	• Diagnosing problems with the operation of ASE Server is a regular part of database administration tasks • ISQL is used as a command line tool for interfacing with the ASE Server	• Anytime the ASE server is not performing according to expectation or any database on SQL Server has crashed, the problem(s) must be diagnosed by checking current SQL Server status information • All problems must be properly resolved for successful operation of SQL Server

Table 4.1.3-1. Common ECS Operator Functions Performed with ISQL (4 of 4)

Operating Function	Command/Script	Description	When and Why to Use
Performance and Tuning Guide	*Performance and Tuning Guide Volumes 1-3*	A continuous operations and administration activity can involve any of the above listed operating functions to make sure the ASE Server makes best use of its resources and to gain maximum performance from the ASE Server	The ASE Server is fine-tuned whenever storage or data requirements have changed, number of users have changed, new databases are added or existing databases are deleted, any SQL Server settings are modified, or any external environment changes have occurred which can impact the ASE Server

In addition, the DAAC user community can use ISQL to:

- request data from various databases by issuing Transact-SQL statements
- insert, update, or delete data from various databases by issuing Transact-SQL statements
- change their passwords

4.1.3.1 Quick Start Using ISQL

This section presents an orientation of ISQL.

Other online manuals that the operator can find useful are:

- *Sybase ASE System Administration Guide* -ASE Server administration issues
- *Configuration Guide Adaptive Server Enterprise for Unix* -operating-system specific system administration tasks
- *Open Client DB-Library/C Reference Manual* -man pages and code samples for the SQL Server interface library, Open Client DB-Library
- *Sybase Installation Guide Adaptive Server Enterpise for Sun Solaris* -installation procedures for ASE Server
- *Sybase Installation Guide Adaptive Server Enterpise for Silicon Graphics IRIX* - installation procedures for SQL Server
- *ASE Server Reference Manual Vol. 1 and Vol. 2* (commands and system procedures)
- *Sybase ASE Server Troubleshooting and Error Messages Guide*

Further documentation support for Sybase's ISQL can be found at the Sybase home page at: http://www.sybase.com/

4.1.3.1.1 Invoking ISQL From the Command Line Interface

To execute ISQL from the command line prompt use:

isql

For detailed instructions on how to invoke ISQL refer to Sybase Online documentation for Using the ISQL Utility documentation in the Adaptive Server Enterprise Utility Guide..

4.1.3.2 ISQL Main Screen

There is no ISQL GUI. The ISQL uses a command line interface for operator communications.

4.1.3.3 Required Operating Environment

The utility program ISQL is invoked directly from the UNIX operating system via the command line.

4.1.3.3.1 Interfaces and Data Types

ASE Server requires an interface file to map logical server names to physical network information about those servers. The interface file includes server name, network address, and the port number on which the server listens for queries. For detailed information on the interfaces files, refer to the *Open Client/Server Programmer's Supplement for UNIX Platforms*.

4.1.3.4 Databases

For more information on Sybase ASE Server databases, refer to the SYBASE online documentation for the *System Administration Guide*.

4.1.3.5 Special Constraints

None.

4.1.3.6 Outputs

Output from the ISQL consists of database updates or additions to the databases referenced in Section 4.1.3.4, and error and event messages referenced in Section 4.1.3.7.

ISQL does not provide formatting options for the output, but the **`-n`** option eliminates ISQL prompts, while -e includes each command issued to ISQL in the output. Other tools can then be used to reformat the output. For further information on formatting ISQL output, refer to the *Adaptive Server Enterprise Utility Guide.*

4.1.3.7 Event and Error Messages

Sybase ASE Server issues both status and error messages from the ASE Server and ISQL formats them to the designated output. For details on setting output options for ISQL refer to the *Adaptive Server Enterprise Utility Guide*.

For more information on error messages, their cause and corrective actions, refer to the online Troubleshooting and Error Messages Guide.

4.1.3.8 Reports

None.

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4.1.4 Sybase Replication Server

The concept of a domain is useful when describing a replication system. Briefly, a domain is a set of replication servers and their associated components that communicate with each other. A domain can be one replication server that replicates data from a local primary database to another local replicate database (as in a warm standby application) or a domain can contain many replication servers distributed over a wide area network (WAN) as is the case for the System Management Subsystem (MSS).

Each domain requires one, and only one, ID server. An ID server is a replication server specified as such when it is installed. An ID Server assigns unique identifiers to domain components. The ID server must be the first replication server installed in a domain and must be accessible when any component is added to the domain.

When a replication server is installed (including the ID Server), the following components are created:

- A database called the Replication Server System Database (RSSD) (the data server housing the RSSD must already exist)
- A stable device (queue)
- An interface (connection) to the RSSD data server
- A RepAgent for the RSSD

The RSSD contains system tables used by the replication server. In a multi-server domain that implements consolidated distributed primary fragments, the RSSDs must also be replicated. The RSSD contains information about each domain component, component login ids and passwords, application specific objects such as replication definitions, replicate transaction identifiers, routes and connections, and replicate transaction errors.

The RSSD data model is documented in the online documentation manual *Replication Server Reference Manual*.

As additional replication servers are added to a domain, the replication system administrator creates Replication Server Interfaces (RSI), or routes, between the replication servers. Routes allow replicate transactions to “flow” from a primary replication server to a replicate replication server.

Finally, application databases are added to a domain. For each database added to the domain the following components are created:

- For primary databases, a Log Transfer Manager (LTM), which transfers database transactions from the primary database to the replication server
- For a replicate database, an interface from the replicate replication server to the replicate database

The following components listed in Table 4.1.4-1 are used in a primary copy model that uses two replication servers. This is for illustration purposes only.

Table 4.1.4-1. Replication Server Components

DAAC Component	Description
Primary Data Server	The primary data server is the Sybase ASE server that maintains the primary copy of data being replicated.
Primary Database	Contains the copy of data that can be updated by application programs.
LTM	The LTM is a Sybase Open Server application that transfers replicate database transactions to a primary replication server and moves the secondary truncation point in the primary database transaction log. The LTM connects to the primary data server as the primary Database Owner (DBO) and to the primary replication server as specified when the primary database is added to the domain.
Primary Replication Server	The Primary Replication Server (PRS) is responsible for forwarding replicate database transactions to the replicate database. The PRS maintains connections to the replicate replication servers (route) and maintains a connection to its database, the RSSD.
Primary RSSD Data Server	The primary RSSD data server maintains the primary RSSD.
RSSD RepAgent	The RSSD RepAgent is a thread in the primary RSSD data server that transfers replicate RSSD database transactions to the PRS. The RSSD RepAgent connects to the PRS as specified when the PRS is added to the domain.
Primary RSSD Database	This database houses the information required by the replication servers to operate.
PRS Stable Device	The PRS stable Device contains a First In First Out (FIFO) queue for each primary and replicate database. Transactions are transferred from a primary database queue to a replicate database queue after the LTM sends the transaction's commit. Once a transaction is moved to the replicate database queue, the primary replication server sends the transaction to the replicate replication server.
Replicate Replication Server	The Replicate Replication Server (RRS) is a replication server that receives replicate transactions from a primary replication server and applies the transaction to a replicate database. The RRS maintains a maintenance user connection for each replicate database.
Replicate RSSD Data Server	This server houses the RSSD for the RRS.
Replicate RSSD	This database contains information required for the RRS to apply replicate database transactions to a replicate database.
RRS Stable Device	The RRS stable device is a file system containing a FIFO queue for each replicate database. Replicate database transactions are pushed into the queue before being applied to the replicate database.
Replicate Data Server	This server houses the replicate database and is updated by the RRS.
Replicate Database	The database that contains the replicate data.

4.1.4.1 Quick Start using the Sybase Replication Server

To start the Sybase replication servers from the command line, enter the following commands:

Source Sybase environment variables

./Run_<replicationservername>_srvr &

./Run_<replicationrsmname>_srvr &

4.1.4.2 Sybase Replication Server Main Screen

The database administrator can view what is happening with the Sybase Replication Servers by viewing the screen found in Figure 4.1.4-1. An administrator can click on any icon on the screen to find out the status of any replication server in the network. The status information shows up in the window below the screen.

Replication Server Administration

Administering the replication system is primarily the role of the Replication System Administrator (RSA). The Database Administrator (DBA) plays a subsidiary role by supporting some Replication Server administration tasks. At the DAACs, role distinctions may not be clear-cut and some responsibilities can overlap. The following sections describe the Replication Server Administrator role and the tasks associated with Replication Server Administration. DBA tasks are not covered in this document.

Replication System Administrator

The Replication System Administrator (RSA) installs, configures, and administers the replication system. Given the distributed nature of the MSS implementation, this role can be performed by different people at different locations. If this is the case, various tasks for administering Replication Server can require coordination between RSAs.

The RSA has user permissions, which provides that person with the capability to execute nearly all commands in the replication system. In managing the system, the RSA may need to coordinate with DBAs for both local and remote databases.

RSAs should be experienced Sybase DBAs and should have taken the Sybase training classes Replication System Administration and Replication Disaster Recovery Workshop. They should have also read and understood the manuals: *Replication Server Administration Guide*, *Replication Server Configuration Guide for UNIX Platforms*, *Replication Server Reference Manual*, and *Replication Trouble Shooting Guide* which can be found at sybooks.sybase.com

Replication Server Administrative Tasks

The following tasks are required to maintain a replication system:

Task	Roles
Installing Replication Server	RSA, DBA
Adding or removing a Replication Server	RSA
Starting up and shutting down Replication Server	RSA
Configuring Replication Server	RSA
Maintaining Routes (Creating and modifying)	RSA
Managing the RSSD	RSA, DBA
Adding a primary and replicate database	RSA, DBA
Adding login names, database users, and administering appropriate permissions	RSA, DBA
Adding replicated tables or changing table schemas Creating and modifying replicated tables Creating and modifying replication definitions Creating and materializing subscriptions at replicate sites	RSA, DBA
Defining data server function-string classes and function strings	RSA, DBA
Applying database recovery procedures	RSA, DBA
Maintaining and monitoring database connections	RSA
Monitoring Replication Server	RSA
Processing rejected transactions	RSA, DBA
Quiescing Replication Server	RSA, DBA
Reconciling database inconsistencies	RSA, DBA

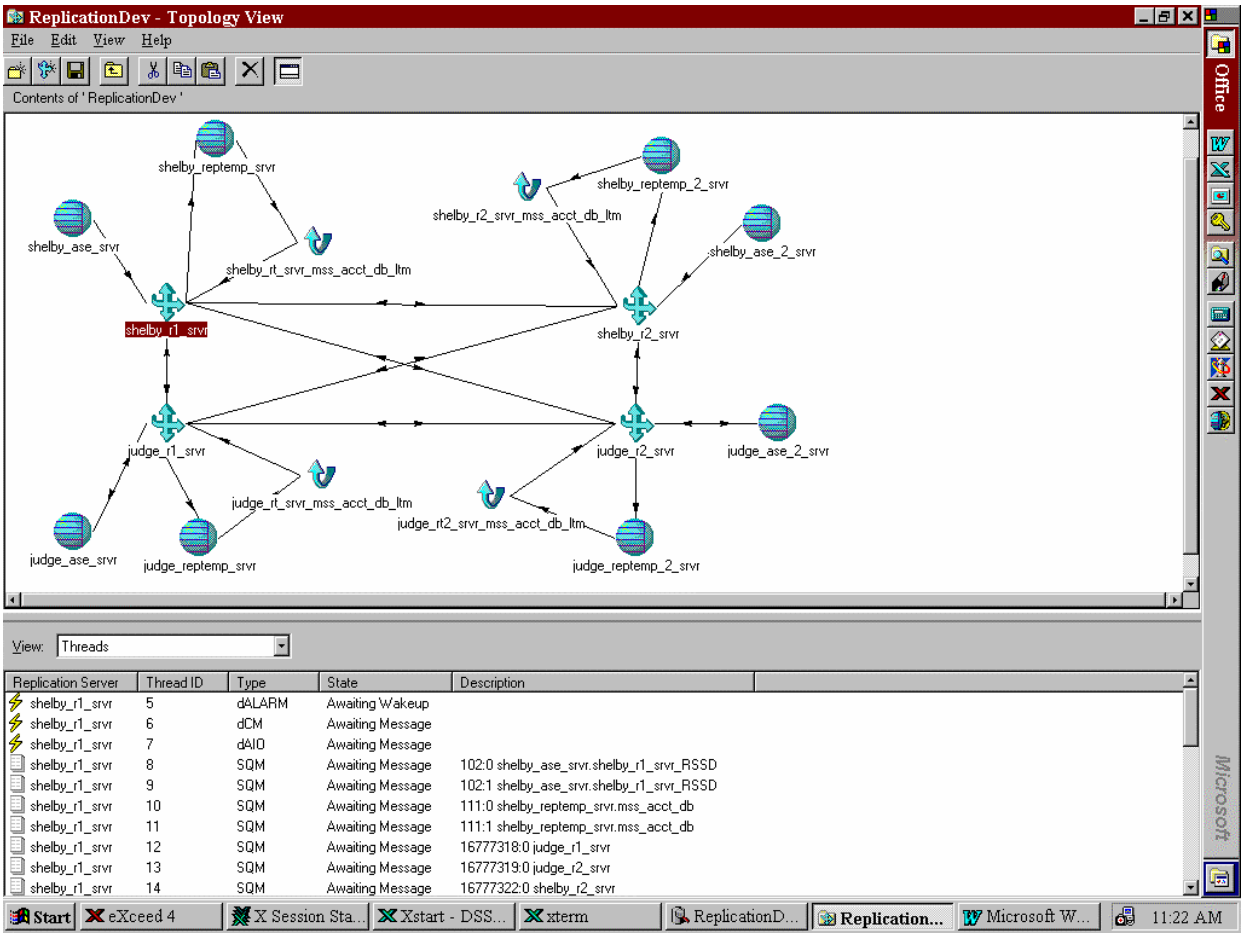

Figure 4.1.4-1. Sybase Replication Server Topology GUI

Replication Administration Software

COTS and/or custom software (scripts) support some of the Replication Server administration tasks. The COTS consists of the Sybase products Replication Server Manager (RSM) and Sybase Central, a GUI based administration tool.

RSM provides status information to and accepts administrative commands from Sybase Central and executes custom scripts in response to events in the replication domain. The GUI provides a graphical topology of the replication system domain with near real-time status on each component. Although the GUI can be used to perform many administration tasks, its use is procedurally limited to the replication server administrative tasks identified below.

Installation

Scripts were developed for the following administration tasks in support of installing and configuring Replication Server and for installing replication server objects that are specific to the MSS application.

- Creating Routes
- Managing the RSSD
- Adding login names, database users, and permissions
- Creation of replication definitions, subscriptions, function strings and error classes
- Subscription materialization

Monitoring

The Sybase Central/RSM products are used for the following tasks:

- Configuring Replication Server
- Modifying Routes
- Maintaining and monitoring database connections
- Monitoring Replication Server

Recovery

Scripts were developed to restore the RSSD or to bring application databases to a consistent state.

RSSD Recovery:

- Dumpdb
- Dumptran
- Logsegment threshold
- Data segment threshold

MSS Database Recover:

- Last chance logsegment threshold modification to disable secondary truncation point
- Rs_subcmp scripts for each subscription in the domain

Sybase Central/RSM is used for the following recovery tasks:

- Processing Rejected Transactions
- Quiesing Replication Server

Network and Security Requirements

The Sybase interface files used by the Replication Servers at each DAAC are modified to locate all Sybase Replication and Data Server in the replication domain. Replication server userid and password maintenance must be coordinated across sites. Replication server supports password encryption, and this feature is being utilized at the DAACs.

4.1.4.3 Required Operating Environment

The Sybase Replication Server can run on Sun hosts (Solaris 2.x OS) and Origin (Origin IRIX 6.x) hosts. The ECS configuration only uses Solaris 2.x OS.

For all COTS packages, appropriate information on operating environments, tunable parameters, environment variables, and a list of vendor documentation can be found in a CM controlled environment. Additional Information can be obtained by visiting the http://sybooks.sybase.com web site.

4.1.4.4 Databases

Replication creates its own database created on a specified ASE Server.

4.1.4.5 Special Constraints

None

4.1.4.6 Outputs

Output from Sybase Central is displayed on the screen in the form of its GUIs or a log entry.

4.1.4.7 Event and Error Messages

Scripts executed by the RSM have been developed to notify the RSA of the following events:

Component	Event
Servers	Active, Quiesed, Suspect, Hung, Shutdown, Dead, Unknown, and Invalid
Routes	Change in status
Connection	Change in status
Partition	State change, size threshold exceeded
Queues	Latency threshold exceeded, size threshold exceeded
Database	Latency threshold exceeded

4.1.4.8 Reports

None

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4.1.5 ECS Assistant

The ECS Assistant (ECSAssist) is a custom program that simplifies the process of installation, testing and management of ECS. This utility is basically an installation tool having practical application in the operations environment. The tool is used for installing software and maintaining the information related to that software. Only the Subsystem Manager function of ECSAssist should be used in the ECS operational environment.

Table 4.1.5-1 summarizes the functions that ECSAssist provides.

Table 4.1.5-1. Common Tasks Performed with ECSAssist

Task	Description	When and Why to Use
Subsystem Manager actions	Selections on the Subsystem Manager's screen, see section 4.1.5.2.1.	Installing software and performing maintenance on software parameters.
Database	Used to install, drop, patch, and update subsystem specific databases.	When database updates or upgrades are implemented. See Section 4.1.5.2.1.1. See Section 4.1.5.2.1.2 to provide parameters to start database scripts.
Install	Used to install ECS custom software into the selected mode.	As necessary to install software. See Section 4.1.5.2.1.3.
Shutdown Servers	Shutdown server(s) for a selected component, application or executable.	When restart of a server is necessary or a server use has completed.
Configuration	Creates Configuration File (CFG) and Parameter Configuration Files (PCFG) for selected components.	When installing or updating software components. See Section 4.1.5.2.1.4 for configuration parameters entered by the user. See Section 4.1.5.2.1.5 to create CFG and PCFG files for selected components.
Registry Data Patch	Used to update the registry database	As desired for registry database updates. See Section 4.1.5.2.1.6.
Stage Area Installation	Used to capture the location of the delivered software staging area.	As desired to identify a staging area. See Section 4.1.5.2.1.7.
Start Servers	Used to start servers within the selected component, application or executable.	Each DAAC has unique start scripts that start one or all required servers. This task is generally used during test periods.
ESDT Manager	Supports configuring of Earth Science Data Types (ESDTs) at the DAAC into a mode.	As needed to configure new ESDTs at DAAC. See Section 4.1.5.2.2

4.1.5.1 Quick Start Using ECSAssist

To execute ECSAssist from the command line prompt use the following procedure:

>**./EcCoAssist source_file location [ssh]**

where **source_file location** can be:

/tools/common/ea – or –

/ecs/formal/COMMON/scripts – or -

any directory where ECSAssist resides.

Type **ssh**, as an argument, if you want ECSAssist Simple Installation (EASI) to use Secure Shell to connect to hosts.

The default is to use Remote Shell.

>**setenv DISPLAY** <**current_host**>

>**setenv ECS_HOME /usr/ecs**

>**setenv DEBUG 1** (Set only to capture any errors generated by ECSAssist)

The **/tools** mount point must be mounted.

File **/tools/common/ea** must exist in the path. (This can be set in the **.cshrc** or **.kshrc** file)

>EA

…or, if this alias is not available, use the following:

> **/tools/common/ea/EcCoAssist /tools/common/ea [ssh] &**

A screen labeled "Thanks for choosing ECS Assistant" appears for 5 seconds.

The following text is displayed:

"debug is [enabled | disabled]" *depending if DEBUG is set*.

EASI uses [Secure Shell | Remote Shell] to connect to hosts…

4.1.5.2 ECSAssist Main Screen

The ECSAssist main screen shown in Figure 4.1.5-1 identifies the user, host machine, ECS site and ClearCase view in effect. From the main screen, the user may invoke ECSAssist functions as described in Table 4.1.5-2.

Figure 4.1.5-1. ECSAssist Main Screen

Table 4.1.5-2 summarizes the information and capabilities presented on the ECSAssist Main Screen.

Table 4.1.5-2. ECSAssist Options and Field Descriptions (1 of 2)

Option/Field	Action	Description
User:	Display only	User's logon ID.
Host:	Display only	Host on which executing.
Site:	Display only	ECS site ID.
View	Display only	Clearcase view in effect.
Toolbar menus		
File	Click on File on the toolbar of the ECS Assistant screen.	Pull down menu showing the following options.
Clear Debug File	In the File menu, click Clear Debug File.	Clear contents of debug log file.
Preferences	In the File menu, click Preferences.	Allows user to select preferences.
Exit	Click Exit	Terminates ECSAssist execution.
Help	Click on Help on the ECS Assistant screen Toolbar.	Pulls down menu showing "Contents", "Read Me" and "About" selections.

Table 4.1.5-2. ECSAssist Options and Field Descriptions (2 of 2)

Option/Field	Action	Description
Function buttons:		
Subsystem Manager	Perform software installation and maintenance functions.	See Section 4.1.5.2.1.
E.A.S.I.	Clicking this button invokes the EASI option.	Allows one user to facilitate a complete (FULL) or custom installation of ECS software.
DB Viewer	Clicking this option invokes the DataBase Viewer.	Requires Database login to view inserted granules.
Help	Click on Help	Brings up Help on use of ECSAssist.
Exit	Click on Exit	Terminates ECSAssist execution.

4.1.5.2.1 The ECSAssist Subsystem Manager

Click on the **Subsystem Manager** button in the ECSAssist Main Screen. Figure 4.1.5-2 below presents the ECSAssist Subsystem Manager screen. **Note: The IOS has been removed from the baseline system for this version of Release 7.00.**

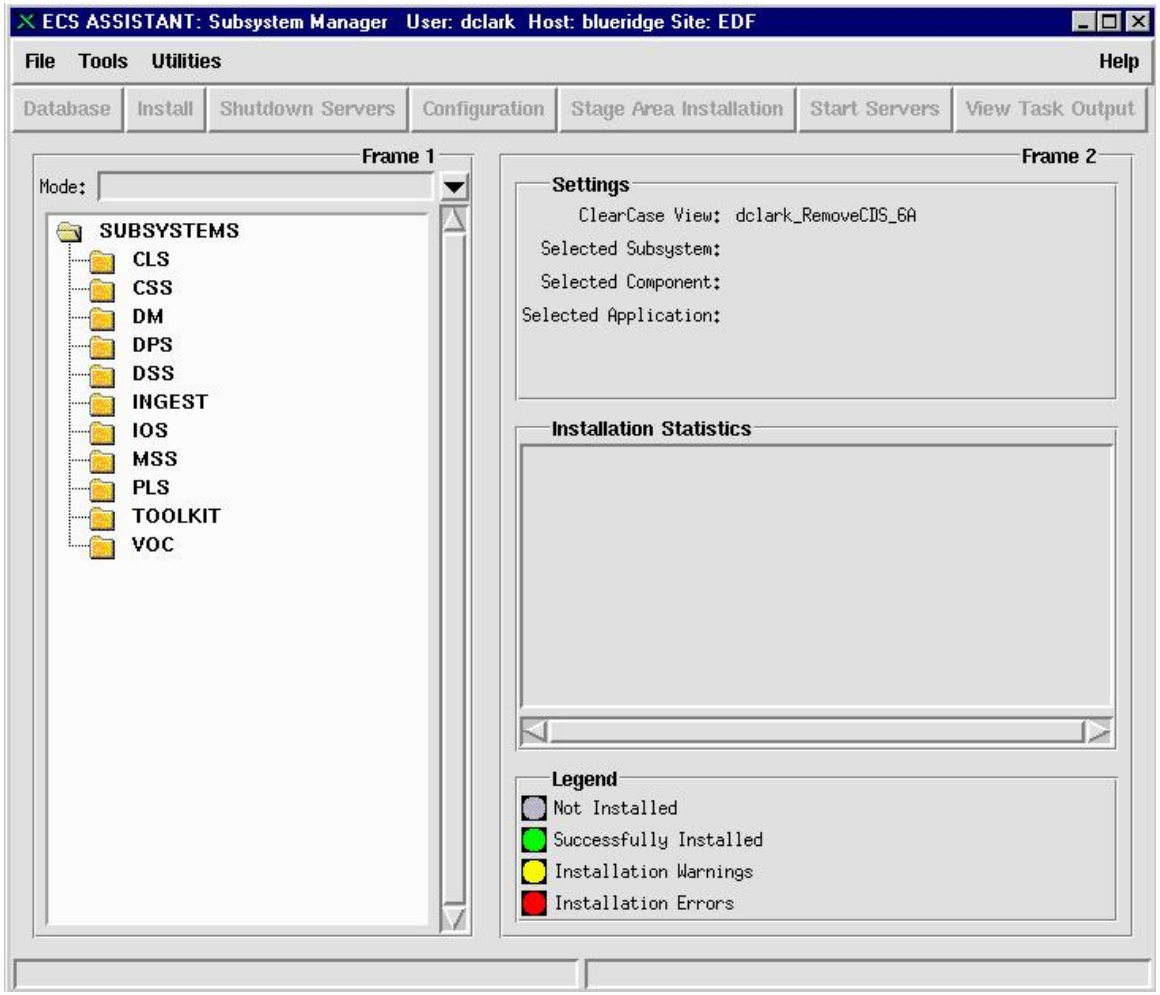

Figure 4.1.5-2. Subsystem Manager Screen

The Subsystem Manager toolbar and **Common Tasks** options are described in Table 4.1.5-3.

Table 4.1.5-3. ECSAssist Subsystem Manager Toolbar (1 of 2)

Option/Field	Action	Description
Toolbar options:		
File	Click on File on the Subsystem Manager screen Toolbar.	Pull down menu showing Save As and Close selections.
ESDT Manager	In the File menu, click ESDT Manager.	Used to configure (copy) descriptor files and associated shared objects to the proper location.
Clear Debug File	In the File menu, click Clear Debug File.	Allows user to clear current contents from debug file /[HOME_DIR]/.EA_DebugLog.
ClearTask Output File	In the File menu, click Clear Task output File.	Allows users to clear the file containing installation specific results.
Preferences	In the file menu, click Preferences.	Allows users to select preferences.
Exit	In the file menu, click Exit.	Exits Subsystem Manager.
Tools		
Clean Logs	In the Tools menu, click Clean logs.	Allows users to remove outdated log files.
System Messages	In the Tools menu, click on “System Messages.”	Displays system messages from /var/adm.
Re-Read .sitemap file	In the Tools menu, click on “Re-read .sitemap file.”	If there is a change to the .sitemap file, this function re-reads to obtain the latest information.
Override .sitemap file (ECS Development Facility (EDF) Only)	In the Tools menu. Click “Override .sitemap file.”	Only available to EDF sites. Used for custom sitemap files.
Registry Data Patch	In the Tools menu, click “Registry Data Patch.”	Allows user to update registry database.
Utilities		
DB Viewer	In the Utilities menu, click “DB Viewer.”	Requires Database login to view inserted granules.
Extensions	In the Utilities menu, click “Extensions.”	Pulls down menu showing a list of subsystem specific executables used for supporting tasks.
Help	Click on Help on the Subsystem Manager Screen Toolbar.	Displays latest information about ECSAssist.

Table 4.1.5-3. ECSAssist Subsystem Manager Toolbar (2 of 2)

Option/Field	Action	Description
Common Tasks		Area of the screen below toolbar containing the following specialized task buttons.
Database	Click on Database button	Used to install, drop, patch, and update subsystem specific databases.
Install	Click on Install button	Used to install ECS custom software into the selected mode.
Shutdown Servers	Click on Shutdown Servers button	When restart of server is necessary or server use has completed.
Configuration	Click on Configuration button	Creates CFG and PCFG files for selected components.
Stage Area Installation	Click on Stage Area Installation button	Used to capture the location of the staging area.
Start Servers	Click on Start Servers button	Each DAAC has unique start scripts that start one or all required servers. This task is generally used during test periods.
View Task Output	Used to view task log files.	As desired to view log files. See section 4.1.5.2.1.8.
Frame 1	Display Only	--
Mode	Listbox Click	Click to display a list of available modes.
Subsystems Hierarchical Listing	Double Click	Double click to display associated components, applications and executables.
Frame 2	Display Only	--
Settings	Display Only	Lists user's current selections.
Installation Statistics	Display Only	List installation specific statistics.
Legend	Display Only	When an install task has completed, a color of Yellow, Red or Green highlights the selected subsystem to denote the severity of the install as follows: Green – Completed installation successfully Yellow – Install warnings Red - Install errors

4.1.5.2.1.1 ECSAssist Subsystem Manager's Database Configuration Screen

The Database Configuration Screen is used to install, drop, patch, and update subsystem specific databases. From the ECSAssist Subsystem Manager screen, click the database button to initiate the database process. If there is more than one database parameter file (.dbparms) detected when the database button is pressed, ECSAssist asks which one to use with the File Selection popup window shown in Figure 4.1.5-3. The file selection popup window, above the "Ok" and "Cancel" buttons, contains the name of the database parameter files detected.

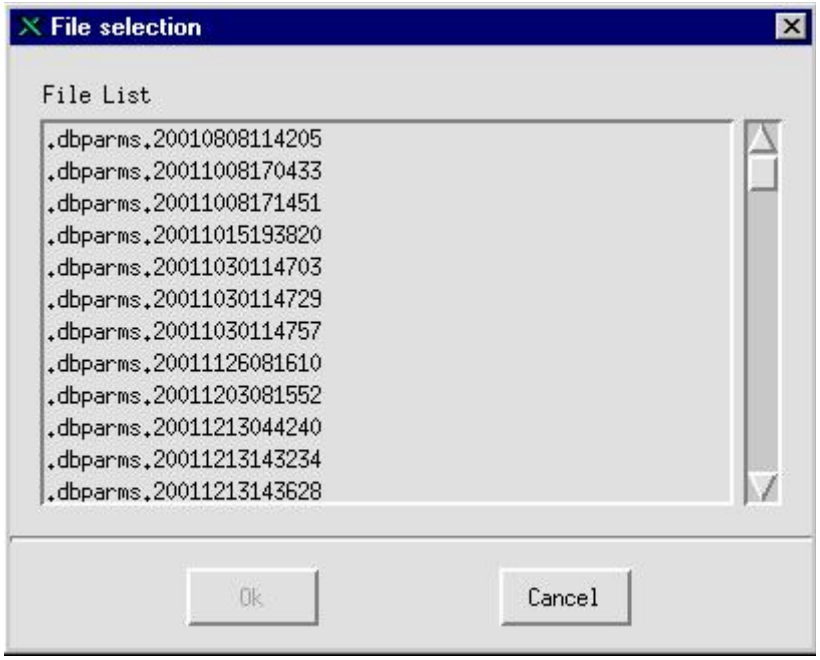

Figure 4.1.5-3. File Selection Popup Window

Select one of the .dbparms files to use and then click on the Ok button. The fields or options for this screen are described in Table 4.1.5-4.

Table 4.1.5-4. Database Parameter File Selection Option/Field Descriptions

Option/Field	Action	Description
File list	Click on the desired parameter file.	Contains list of .dbparms type files discovered. Click on the one to use and then click the Ok button.
Ok (button)	Click this after selecting a .dbparms type file in the file list.	Launches database script screen associated with the selected parameter file in the file list.
Cancel (button)	Click this after selecting a .dparms type file if you do not want to see a screen associated with the selected parameter file.	Closes the file list and the screen goes away.

On selection of a .dbparms file, ECSAssist brings up the Database Configuration Screen shown in Figure 4.1.5-4.

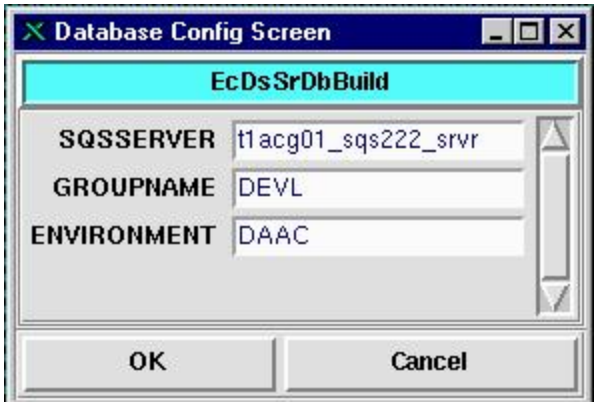

Figure 4.1.5-4. Subsystem Manager Database Configuration Screen

Table 4.1.5-5 describes the fields displayed on the "database" screen.

Table 4.1.5-5. ECSAssist Subsystem Manager's Database Configuration Screen Field Descriptions

Option/Field	Action	Description
Database Config Screen	Display Only	Window title.
EcDsSrDbBuild	Display Only	Component passed from the Subsystem Manager screen.
SQSSERVER	Entry	Configurable item for the displayed Component.
GROUPNAME	Entry	Configurable item for the displayed Component.
ENVIRONMENT	Entry	Configurable item for the displayed Component.
OK	Click	Displays the database script screen.
Cancel	Click	Aborts process.

4.1.5.2.1.2 ECSAssist Subsystem Manager's Database Script Parameters Screen

This screen is triggered from the ECSAssist Subsystem Manager's "database" screen, Section 4.1.5.2.1.1 above. The screen is used to input the parameters to set up the database. In the ECSAssist Subsystem Manager's Database Script Parameters screen, shown in Figure 4.1.5-5, the user must enter all parameters to initiate the respective database script.

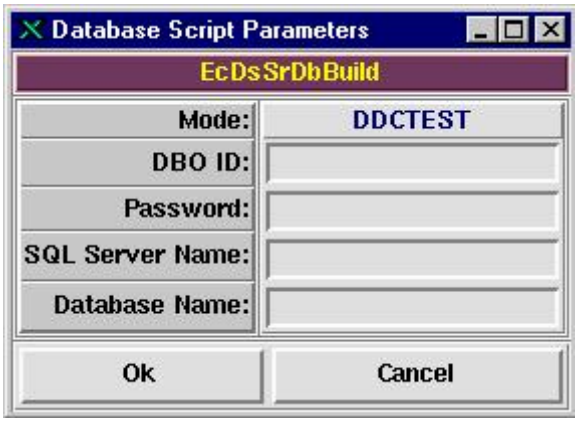

Figure 4.1.5-5. Subsystem Manager Database Script Parameters Screen

Table 4.1.5-6 describes the control and information fields on the "database script parameters" screen.

Table 4.1.5-6. ECSAssist Subsystem Manager's Database Script Parameters Screen Field Descriptions

Option/Field	Action	Description
Database Script Parameters	Display Only	Window title
EcDsSrDbBuild	Display Only	Title
Mode	Display Only	Displays selected mode.
DBO ID	Entry	Enter dbo id
Password	Entry	Enter password
SQL Server Name	Entry	Enter sql server name
Database Name	Entry	Enter database name
OK	Click	Initiates process
Cancel	Click	Aborts process

4.1.5.2.1.3 ECSAssist Subsystem Manager's Install Screen

This screen is used to install ECS custom software into the selected mode. From the ECSAssist Subsystem Manager screen click the install button to initiate the installation process.

Figure 4.1.5-6 presents the Install screen.

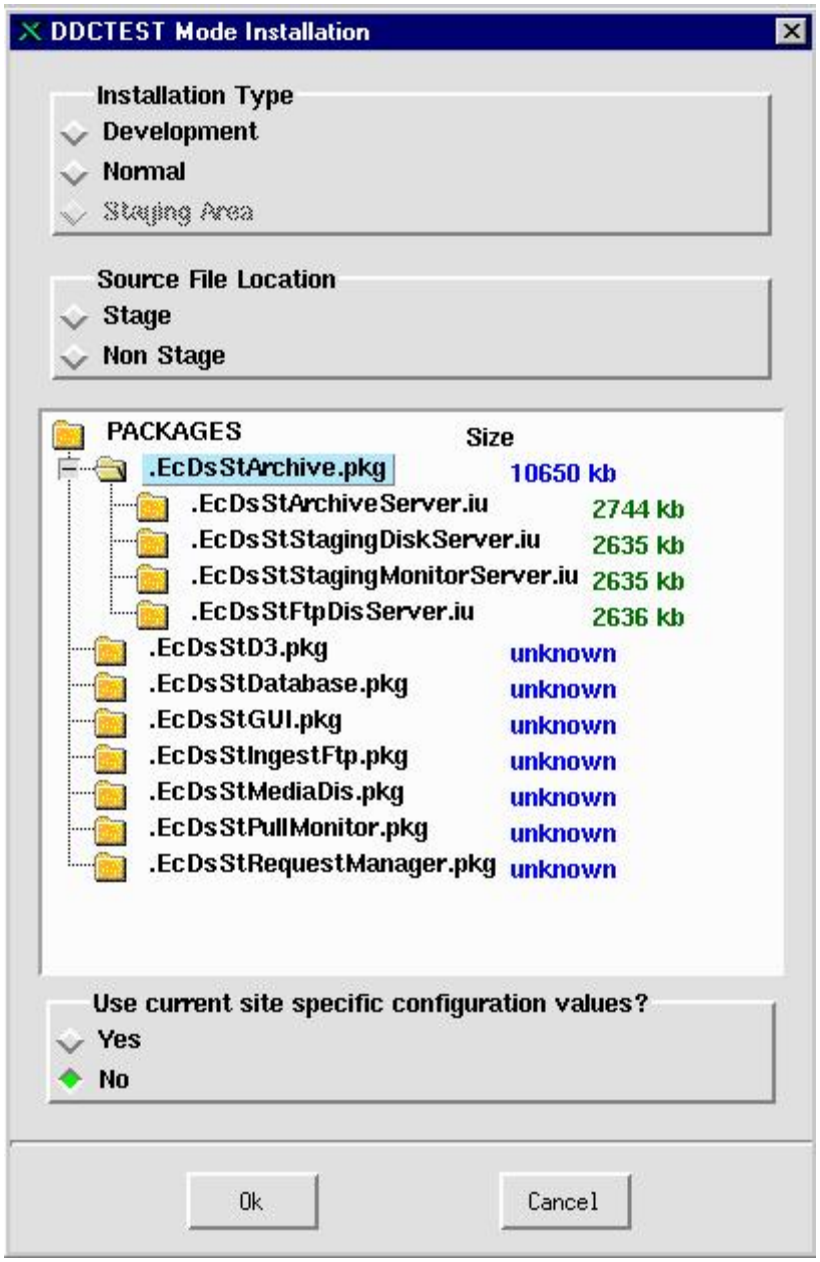

Figure 4.1.5-6. Subsystem Manager Install Screen

Table 4.1.5-7 describes the control and information fields on the install screen.

Table 4.1.5-7. ECSAssist Subsystem Manager Install Option or Field Descriptions

Option/Field	Action	Description
Installation Type	Display Only	Heading.
Development	Click	Creates symbolic links to ClearCase.
Normal	Click	Copies binaries and libraries to selected mode.
Staging Area	Click	Installs Mode from staging area.
Source File Location	Display Only	Heading.
Stage	Click	To obtain files from the nightly build.
Non Stage	Click	Allows testing of changes before a merge to branch is performed.
Packages	Click on the desired package	Contains list of packages discovered. Click on one to use and then click the Ok button.
Use current site specific configuration values?	Display Only	Heading.
Yes	Click	Use site-specific .cfgparms and .dbparms file.
No	Click	Do not use site-specific .cfgparms and .dbparms file. Allow the user to make the selection of choice.
Ok	Click	Executes installation process.
Cancel	Click	Aborts Installation process.

4.1.5.2.1.4 ECSAssist Subsystem Manager's Configuration File Selection Screen

The configuration file selection window shown in Figure 4.1.5-7 allows a user to select a .cfgparms file with configuration values that were entered by the user or should be used when starting servers.

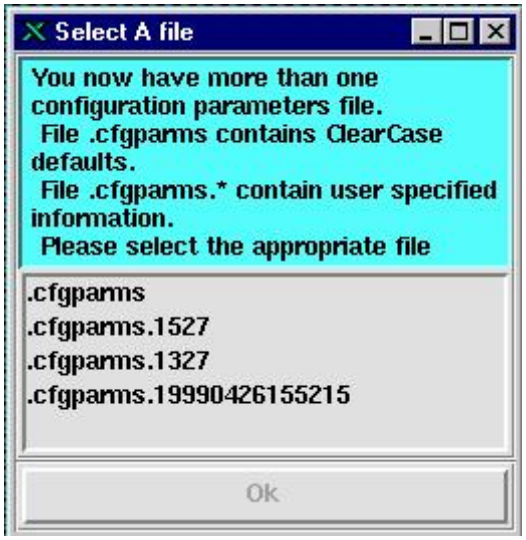

Figure 4.1.5-7. Configuration File Selection Window

Table 4.1.5-8 describes the control and information fields on the configuration selection window.

Table 4.1.5-8. Configuration File Selection Window Field Description

Option/Field	Action	Description
Listbox	Click on entry in list	Select file of choice; enables Ok button.
Ok	Click	Launches configurable parameters screen.

4.1.5.2.1.5 ECSAssist Subsystem Manager's Configurable Parameters Screen

Clicking the Configuration button on the ECSAssist Subsystem Manager screen brings up the Configurable Parameters window shown in Figure 4.1.5-8. Through this screen, ECSAssist creates CFG and PCFG files for selected components.

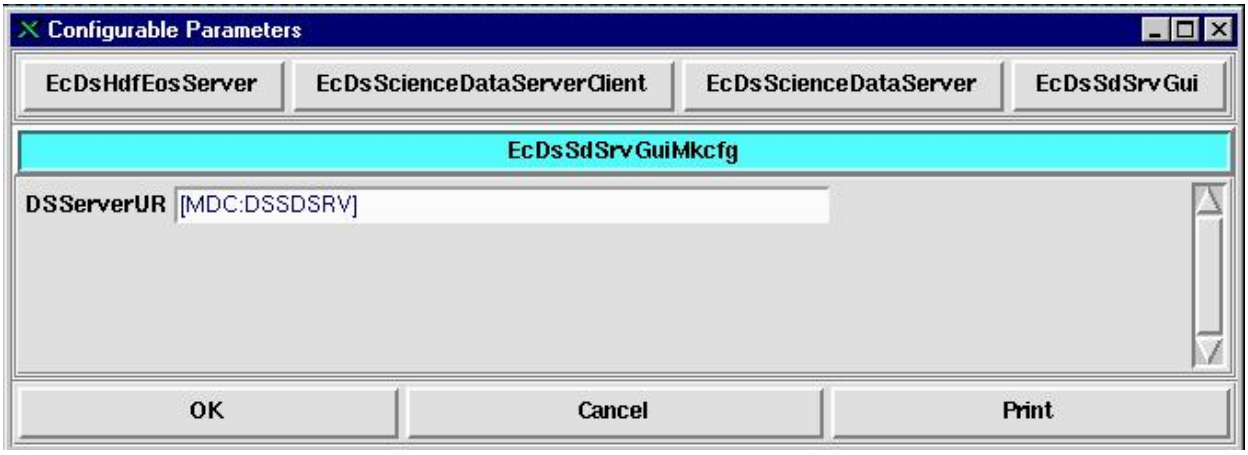

Figure 4.1.5-8. Subsystem Manager Configurable Parameters Screen

Table 4.1.5-9 describes the control and information fields on the Configurable Parameters screen.

Table 4.1.5-9. ECSAssist Subsystem Manager Configurable Parameters Field Descriptions

Option/Field	Action	Description
EcDsHdfEosServer	Click	Allows the user to configure the Hierarchical Data Format (HDF) EOS Server.
EcDsScienceDataServerClient	Click	Allows the user to configure the Science Data Server Client.
EcDsScienceDataServer	Click	Allows the user to configure the Science Data Server.
EcDsSdSrvGui	Click	Allows the user to configure the Science Data Server GUI.
EcDsSdSrvGuiMkcfg	Display Only	--
DSServerUR	Enter	User enters specific data to the DSServerUR.
Ok	Click	Executes configuration process.
Cancel	Click	Aborts configuration process.
Print	Click	Prints configuration parameters.

4.1.5.2.1.6 ECSAssist Subsystem Manager's Apply Registry Data Patch Screen

Clicking "Apply Registry Data Patch" under the Tools menu option is the registry patch screen, shown in Figure 4.1.5-9. This screen allows users to apply updates to the registry database.

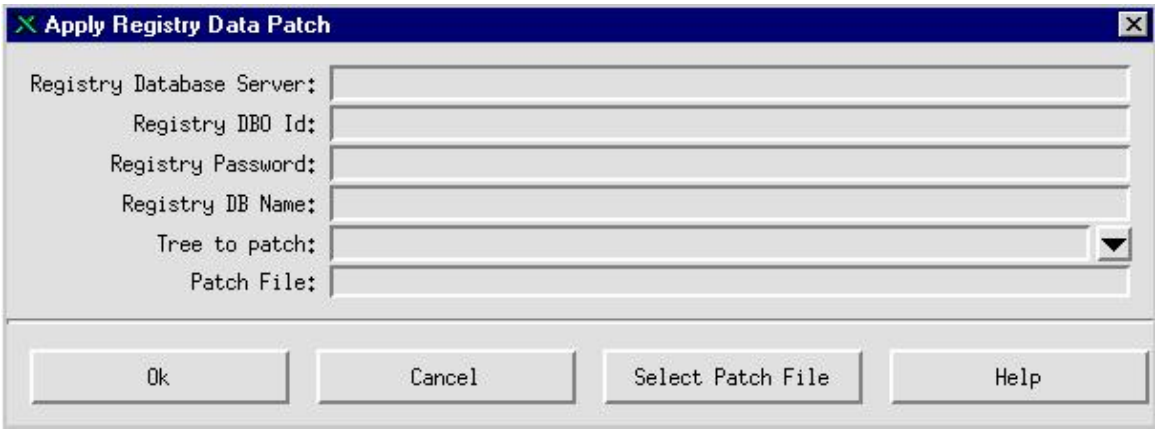

Figure 4.1.5-9. Subsystem Manager Apply Registry Data Patch Screen

Table 4.1.5-10 describes the control and information fields on the Apply Registry Data Patch screen.

Table 4.1.5-10. ECSAssist Subsystem Manager's Apply Registry Data Patch Field Descriptions

Option/Field	Action	Description
Apply Registry Data Patch	Display Only	Window title.
Registry Data Server	Entry	Database Server (e.g., t1icg01_srvr).
Registry DBO Id	Entry	Database Owner ID (e.g., css_role).
Registry Password	Entry	Database Password.
Registry DB Name	Entry	Database Name (e.g., EcCsRegistry). Press Enter to fill available Attribute Trees into Tree to Patch Combo box.
Tree to Patch	Entry/Combo box	Enter Attribute Tree name or click the arrow to select Attribute Tree of choice from list.
Patch File	Entry	Enter registry patch file, which is to be used to apply updates to the registry database.
Ok	Button	To apply updates.
Cancel	Button	Abort process.
Select Patch File	Button	Use to locate registry patch file.
Help	Button	Displays extra information related to application of patch files.

4.1.5.2.1.7 ECSAssist Subsystem Manager's Stage Area Installation Screen

The stage install screen is used to input the staging location where the delivered software is stored. From the ECSAssist Subsystem Manager screen, click the Stage Area Installation button to initiate the viewlog process.

Figure 4.1.5-10 below presents the stage install screen.

Figure 4.1.5-10. Subsystem Manager Stage Area Installation Screen

Table 4.1.5-11 describes the control and information fields on the Stage Area Installation window.

Table 4.1.5-11. ECSAssist Subsystem Manager Stage Area Installation Field Descriptions

Option/Field	Action	Description
Provide staging area source location	Display Only	Label for input field immediately below.
Input field	Input	Type in the staging area filename.
Ok	Click	Accepts the user's entry.
Cancel	Click	Aborts the process.

4.1.5.2.2 ECSAssist System Installer (E.A.S.I.)

E.A.S.I facilitates a complete or partial installation of ECS software, creation of configuration files, and execution of database operations by a single user who is familiar with the proper installation instructions.

Figure 4.1.5-11 shows the E.A.S.I. Installation Source window, which comes up as a result of hitting the "E.A.S.I." button on the ECSAssist main screen (See Figure 4.1.5-1).

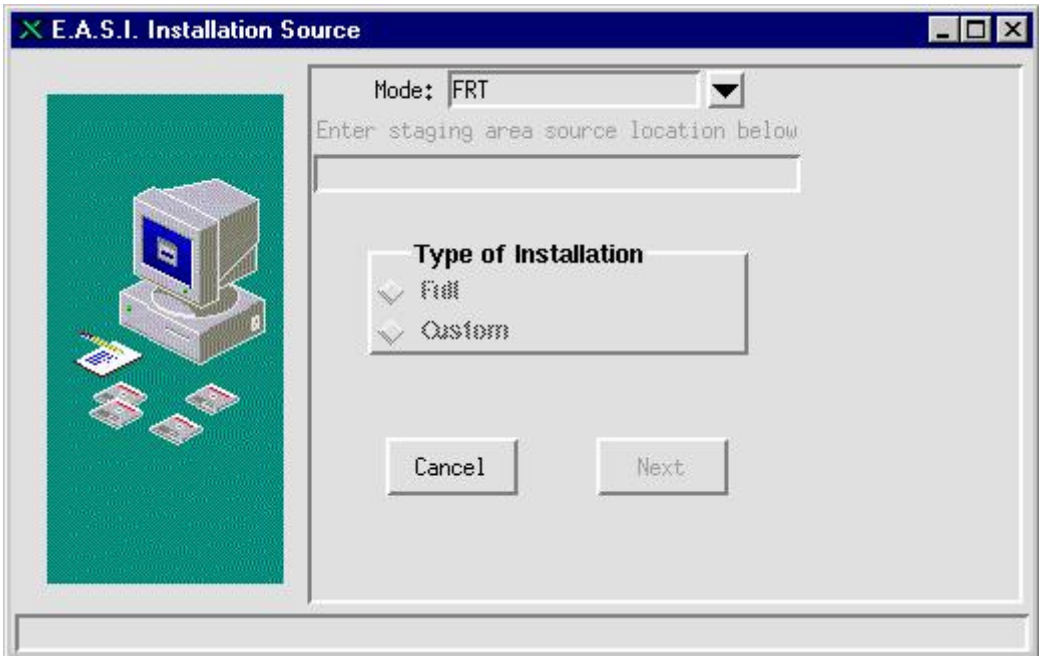

Figure 4.1.5-11. E.A.S.I. Installation Source Window

Table 4.1.5-12 describes information and control fields on this window.

Table 4.1.5-12. ECSAssist E.A.S.I. Installation Source Field Descriptions

Option/Field	Action	Description
Mode (combo box)	Click	To view a list of available modes. User can select only one mode.
Enter staging area source location below	Display Only	Staging area source location field identifier.
Staging area source location entry	Enter if available	Staging area source location entry becomes available when a ClearCase view is not available. Enter the staging area source location without the architecture and with the word “TOOLKIT” (e.g., /net/tacoma/dist/DROP50).
Type of installation	Display Only	Identifies the installation options.
Full	Click	Facilitates a complete installation of ECS custom software.
Custom	Click	Allows the user to facilitate a customized installation (e.g., The user may only want to install on three hosts or may only want to install Subsystem DSS on all hosts).
Cancel	Click	Returns the user to ECSAssist main menu.
Next	Click	When enabled, allows the user to proceed to the next window.

Figure 4.1.5-12a is the Configuration Option window. This window is displayed when the “Next” button is selected from the E.A.S.I Installation Source window (Figure 4.1.5-11).

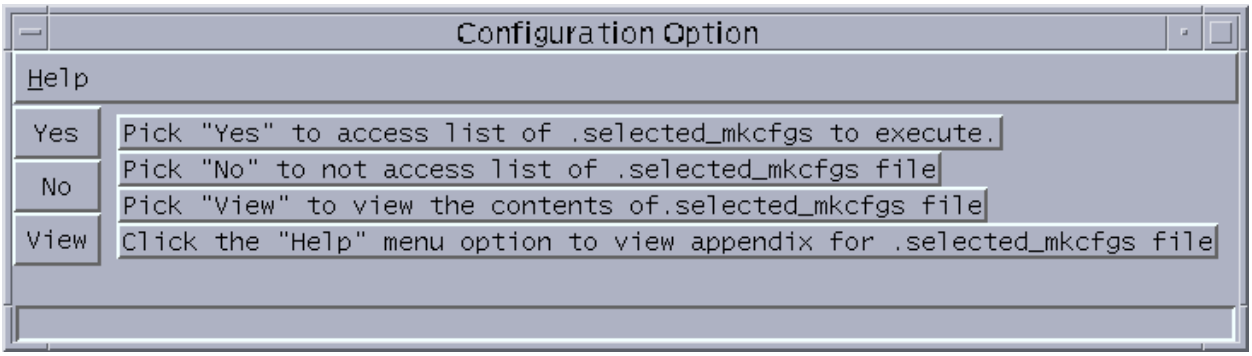

Figure 4.1.5-12a. Configuration Option Window

Table 4.1.5-13 describes the functions for the Configuration Option.

Table 4.1.5-13. Configuration Option Window Field Descriptions

Option/Field	Action	Description
Help	Click	Enable the user to view the appendix for .selected_mkcfg files.
Yes	Click	Enable the user to access list of .selected_mkcfgs file to execute.
No	Click	Disable the user to access list of .selected_mkcfgs file to execute.
View	Click	Enable the user to view the contents for .selected_mkcfgs file.

Figure 4.1.5-12b is the Contents of .selected_mkcfg file window. This window is displayed when the "View" button is selected from the Configuration Option window (Figure 4.1.5-12a). The window will display the mkcfg scripts contained in the .selected_mkcfgs file.

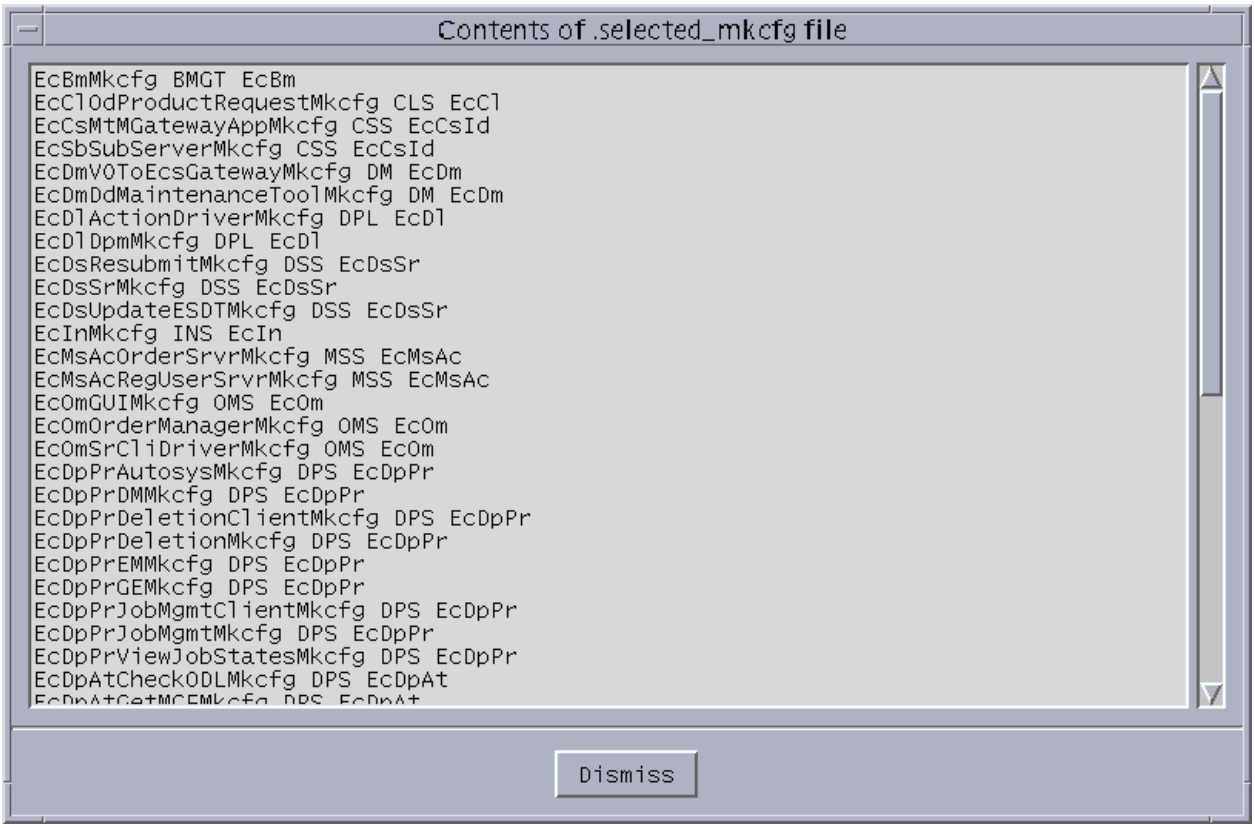

Figure 4.1.5-12b. Contents of .selected_mkcfgfile Window

Table 4.1.5-14 describes the field in this window.

Table 4.1.5-14. Contents of .selected_mkcfgfile Window Description

Option/Field	Action	Description
Dismiss	Click	Closes the window.

Figure 4.1.5-13 is the E.A.S.I. Phase Selections window. The user can select any phase to execute. Associated phase windows are displayed depending on what phases are selected.

Figure 4.1.5-13. E.A.S.I. Phase Selection Window

Table 4.1.5-15 describes the control and information fields on the E.A.S.I. Phase Selection window.

Table 4.1.5-15. ECSAssist E.A.S.I Phase Selection Window Field Descriptions

Option/Field	Action	Description
Execution Phases	Display Only	Identifies the option buttons for selecting the phase of installation.
Install	Click on/off	Selects installation of ECS custom software.
Config	Click on/off	Selects the creation CFG and PCFG files.
Dbase(s)	Click on/off	Selects the execution of selected database operations.
Cancel	Click	Returns the user to the ECSAssist main menu.
Back	Click	Returns the user to the previously selected window.
Next	Click	Allows the user to proceed to the next window.

Figure 4.1.5-14 is the E.A.S.I. Installation Parameters window. It allows the user to select Installation criteria. If a ClearCase task is not set or not available, the Installation Type defaults to the Staging Area option.

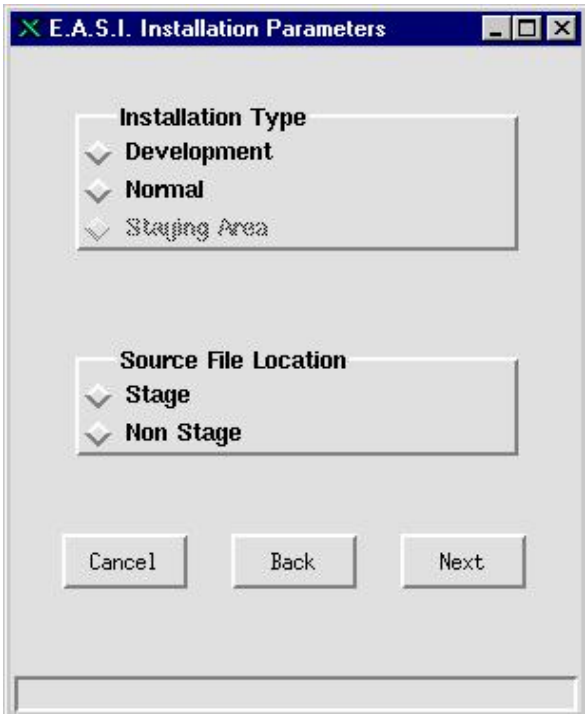

Figure 4.1.5-14. E.A.S.I. Installation Parameters Window

Table 4.1.5-16 describes the control and information fields in the E.A.S.I. Installation Parameters window.

Table 4.1.5-16. ECSAssist E.A.S.I Installation Parameters Window Field Descriptions

Option/Field	Action	Description
Installation Type	Display Only	Identifies the three installation type options.
Development	Click	Creates symbolic links to ClearCase.
Normal	Click	Copies binaries and libraries to the selected mode.
Staging Area	Click	Installs the mode from the staging location.
Source File Location	Display Only	Identifies the two options for selecting source files.
Stage	Click	To obtain files from the nightly build.
Non Stage	Click	Allows testing of changes before merging to a branch.
Cancel	Click	Returns the user to the ECSAssist main menu.
Back	Click	Returns the user to the previously selected window.
Next	Click	Allows the user to proceed to the next window.

Figure 4.1.5-15 is the E.A.S.I. Database Operations window. Select an operation other than "Clear" and the subsystem specific script parameters are displayed. Enter the correct information for the selected subsystem. Notice there is a tab for only subsystems that require database operations. **Note: The Interoperability Subsystem (IOS) has been removed from the baseline system for this release.**

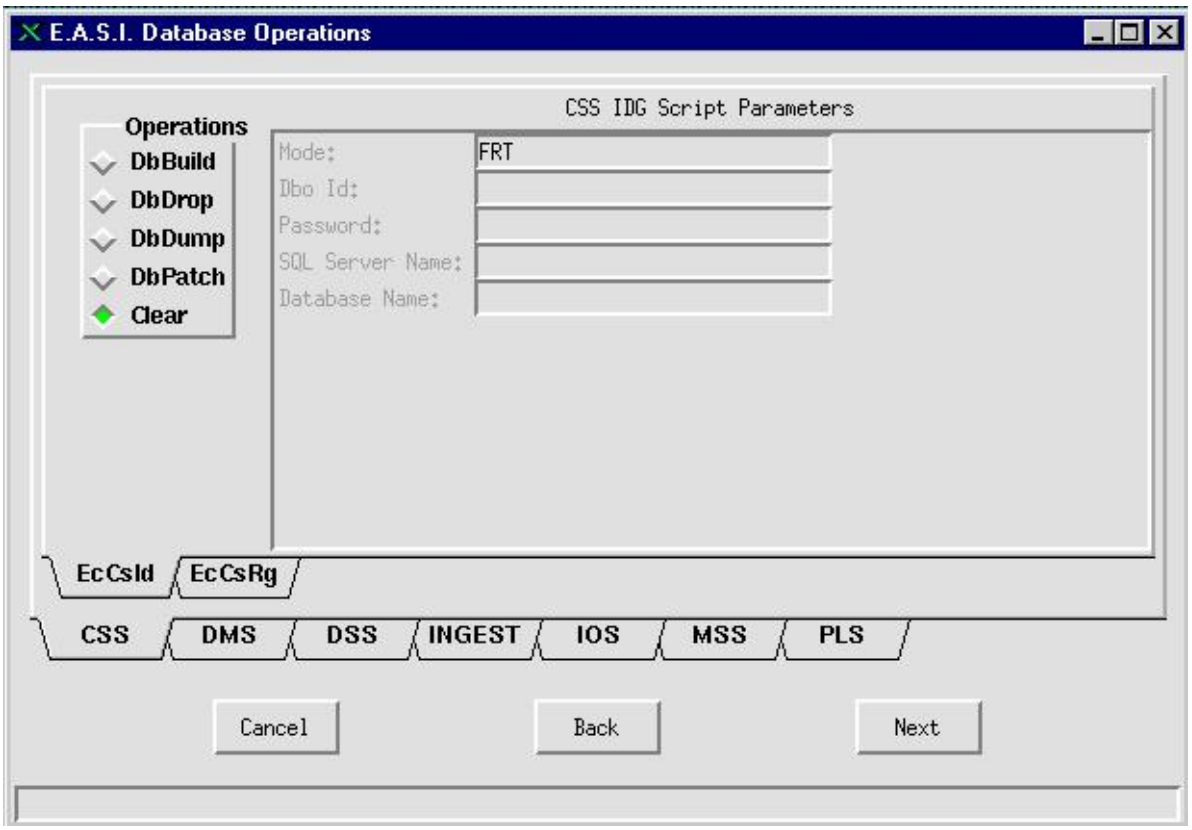

Figure 4.1.5-15. E.A.S.I. Database Operations Window

Table 4.1.5-17 describes the E.A.S.I. Database Operations window control and information fields.

Table 4.1.5-17. ECSAssist E.A.S.I Database Operations Window Field Descriptions

Option/Field	Action	Description
Operations	Display Only	Identifies the button selectable for Dbase options.
DbBuild	Click	Facilitates execution of the database build operation.
DbDrop	Click	Facilitates execution of the database drop operation.
DbDump	Click	Facilitates execution of a database drop operation.
Dbpatch	Click	Facilitates execution of a database patch operation.
DbLoad	Click	Facilitates execution of a database load operation.
DbValids	Click	DSS Science Data Server only. Facilitates execution of a Valids script for use with ESDTs.
Subsystems specific script parameters	Display Only	Heading. By selecting a tab, the heading changes according to the selection.
Mode	Display Only	Displays the selected mode.
Dbo Id	Entry	Enter Dbo Id.
Password	Entry	Enter password.
SQL Server Name	Entry	Enter SQL server name.
Database Name	Entry	Enter database name.
Cancel	Click	Returns the user to the ECSAssist main menu.
Back	Click	Returns the user to the previously selected window.
Next	Click	Allows the user to proceed to the next window.

Figure 4.1.5-16 is the E.A.S.I Installation Confirmation window. If there is an incorrectly selected item, click the “Back” button until you have reached the window requiring the change and make the change. When the change is made, click the “Next” button until you have reached the “Installation Confirmation” window.

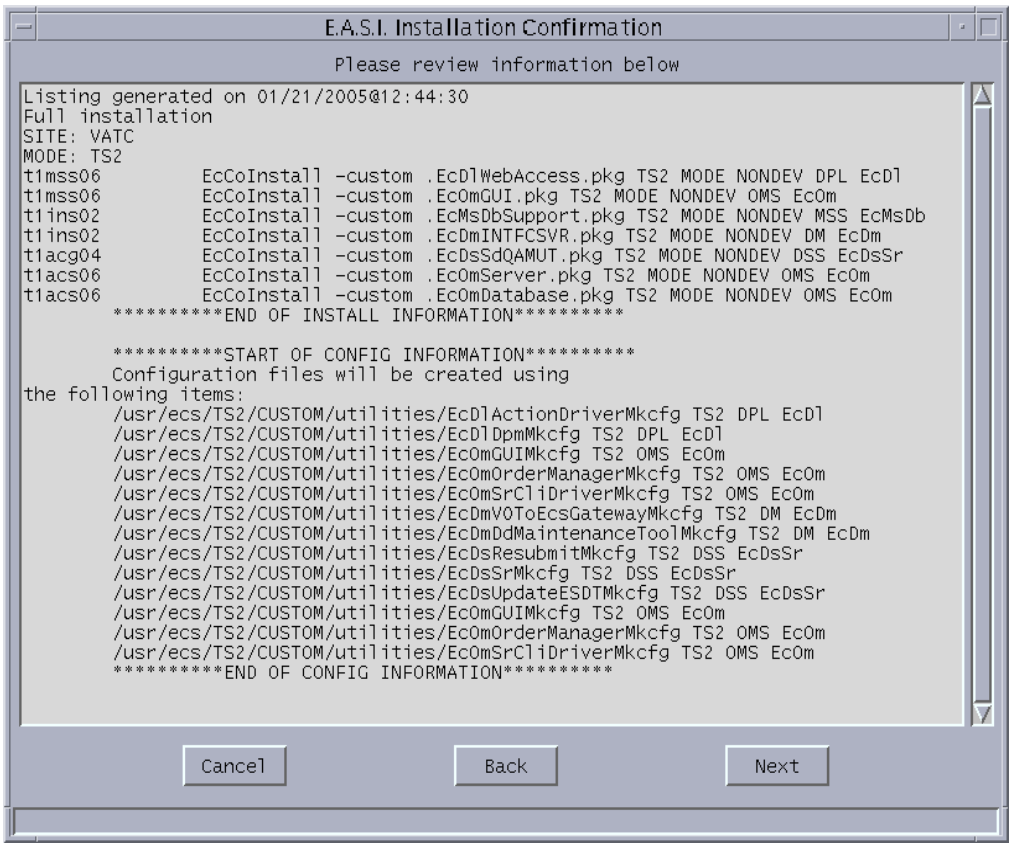

Figure 4.1.5-16. E.A.S.I Installation Confirmation Window

Table 4.1.5-18 describes the control and information fields in the E.A.S.I. Installation Confirmation window.

Table 4.1.5-18. ECSAssist E.A.S.I. Installation Confirmation Window Field Descriptions

Option/Field	Action	Description
Please review information below	Display Only	Requests the user to review the information immediately below in a scrollable text box.
Information in Text Box	Read Only	Contains a log of the installation.
Cancel	Click	Returns the user to the ECSAssist main menu.
Back	Click	Returns the user to the previously selected window.
Next	Click	Allows the user to proceed to the next window.

Figure 4.1.5-17 displays the E.A.S.I STATUS window.

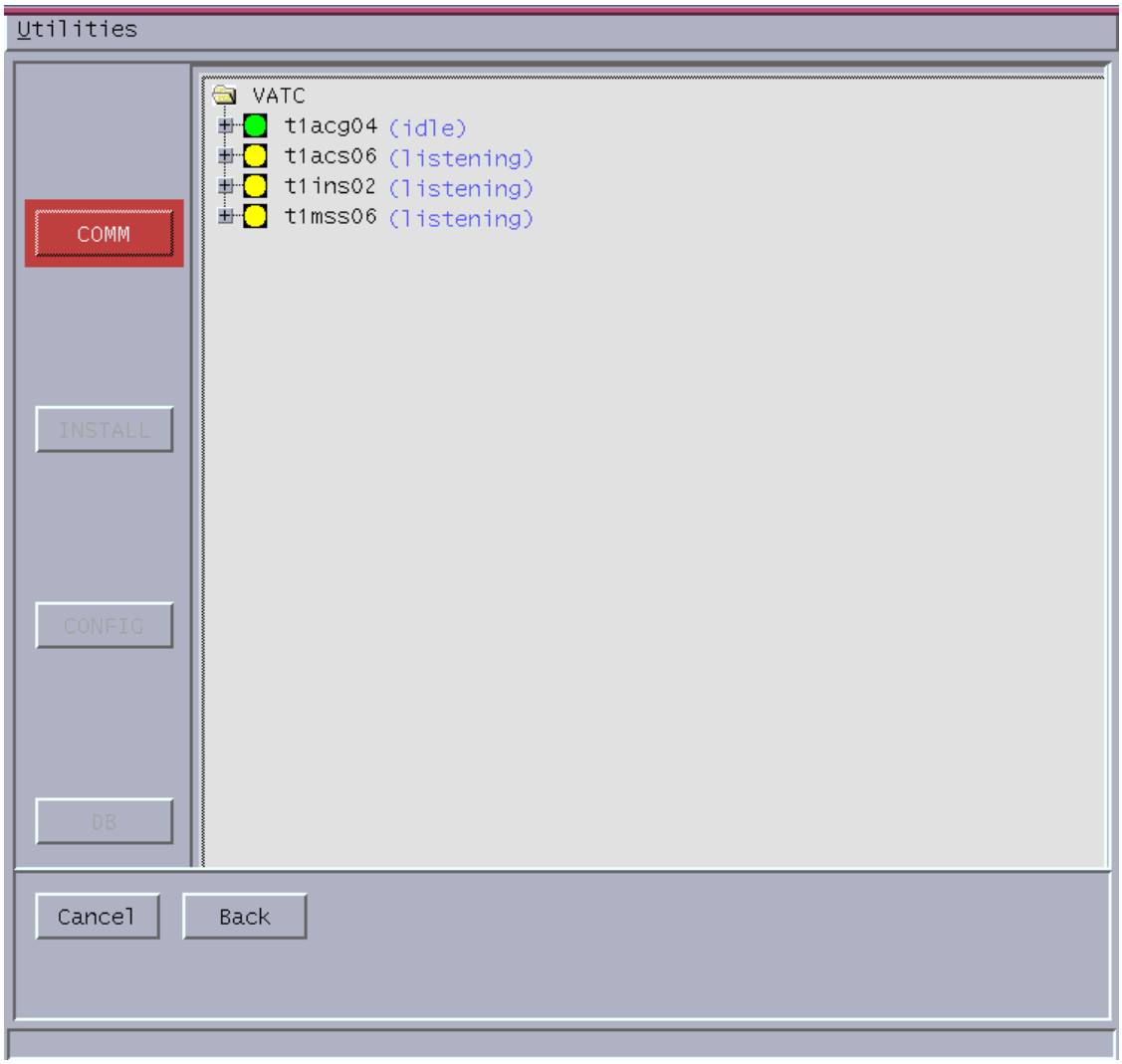

Figure 4.1.5-17. E.A.S.I. STATUS Window

Table 4.1.5-17 describes the control and information fields in the E.A.S.I. STATUS window.

Table 4.1.5-19. ECSAssist E.A.S.I. STATUS Window Field Descriptions

Option/Field	Action	Description
Utilities	Menu	--
Close all open sockets	Click	Closes all the opened connections. Waits for 4 minutes and resets communication and selected phases to "waiting." This allows users to re-run selected phases.
Max Requests	Click	Controls the number of server calls over the network.
COMM (Button)	Click	Initiates the communication phase. Starts the servers on selected hosts.
INSTALL (Button)	Click	Initiates installation of the ECS custom software.
CONFIG (Button)	Click	Initiates the creation of CFG and PCFG files.
DB (Button)	Click	Invokes the DataBase Viewer. Requires Database login to view inserted granules.
Cancel	Click	Returns user to the ECSAssist main menu. All connections to the server are terminated.
Back	Click	Returns the user to the previously selected window.

4.1.5.3 Required Operating Environment

For information on the operating environment, tunable parameters and environment variables of ECSAssist refer to the 920-TDA-022 "Custom Code Configuration Parameters" documentation series.

4.1.5.3.1 Interfaces and Data Types

None.

4.1.5.4 Databases

No database is associated with or used by the ECSAssist. ECSAssist can create configuration files for software components, remove outdated log files, or update other files related to the functions performed.

4.1.5.5 Special Constraints

None.

4.1.5.6 Outputs

Output from the ECSAssist tool consists of the data displayed on the GUIs described in Section 4.1.5.2.1 and error and event messages described in Section 4.1.5.7.

4.1.5.7 Event and Error Messages

Event and Error Messages for ECSAssist are listed in Appendix A. All outputs associated with the ECSAssist are captured in a file called "/tmp/<userid>.ecs_session.log".

4.1.5.8 Reports

None.

4.1.6 ECS Registry GUI

The ECS Registry GUI is a management tool for ECS applications. The GUI interface allows users to create and update parameter information. Registry data is warehoused in a registry database. The ECS Registry GUI is used to perform the operator functions listed in Table 4.1.6-1.

Table 4.1.6-1. Common ECS Operator Functions Done Using the Registry GUI

Operator Function	Description	When and Why to Use
Copy	Copy selected item and store contents into a buffer.	Useful when new parameters are similar to existing parameters.
Move	Move selected item.	When a node is in the wrong location.
Paste	Pastes contents of buffer.	After a node of choice has been selected.
Map	Associate an attribute tree to a mode.	Attribute trees contain configuration specific data. Attribute trees can be mapped, with an explanation, to a mode, which corresponds to a specific task.
Add	Add a new node to an attribute tree.	Add a node to represent the configuration specific data.
Delete	Deletes a node.	When a node is no longer necessary.
Rename	Renames a node.	A software change can require a name change to a node.
Attribute History	Displays historical data for the selected attribute.	When the “Attribute Information” window is displayed, an operator can view attribute historical data. There may be a problem starting an application’s server due to an incorrect value (i.e., DebugLevel = 7). The operator can review changes made using the “Attribute history window". Refer to Table 4.1.6-12 “Attribute Information” for more information.

4.1.6.1 Quick Start Using the ECS Registry GUI

The Registry GUI is invoked through Unix commands as follows:

>**setenv DISPLAY <current_host IP>:0.0**

>**EcCsRgRegistryGUIStart <mode>**

where:

<**current_host IP**> is the IP address of the host on which to run the GUI

<mode> is the mode to which the configuration parameters apply (e.g., OPS, TS1, or TS2)

4.1.6.2 User Interface Name Main Screen

Before displaying the ECS Registry main screen, the user must login to the ECS Registry Database. The login window is shown in Figure 4.1.6-1.

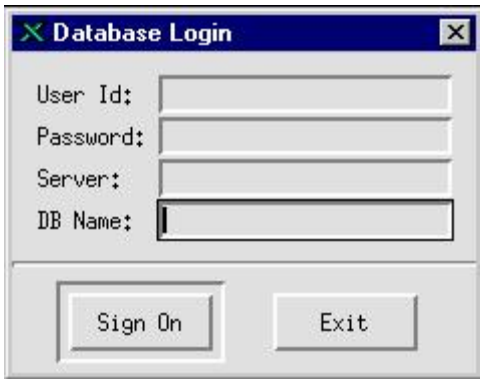

Figure 4.1.6-1. Registry GUI Database Login Window

Table 4.1.6-2 describes the various information, control, and data fields in the login window.

Table 4.1.6-2. Registry GUI Database Login Fields

Option/Field Name	Data Type	Size	Description
"Database Login"	Display Only	-	Window title.
User Id	Text	-	User ID (Automatically filled).
Password	Text	-	Enter Password.
Server	Text	-	Enter Configuration Registry Database server name.
DB Name	Text	-	Name of database.
"Sign On"	Button.	-	Logs onto the Registry Database.
"Exit"	Button.	-	Cancels the login transaction.

On successful login, the ECS Registry Main Screen, as shown in Figure 4.1.6-2, appears. On this screen there is an attribute tree named "DROOPY," displaying one host node called "dss1." Attribute tree "DROOPY" is mapped to mode ARAO. All attribute trees are *root* nodes. Attribute information displays mapped modes.

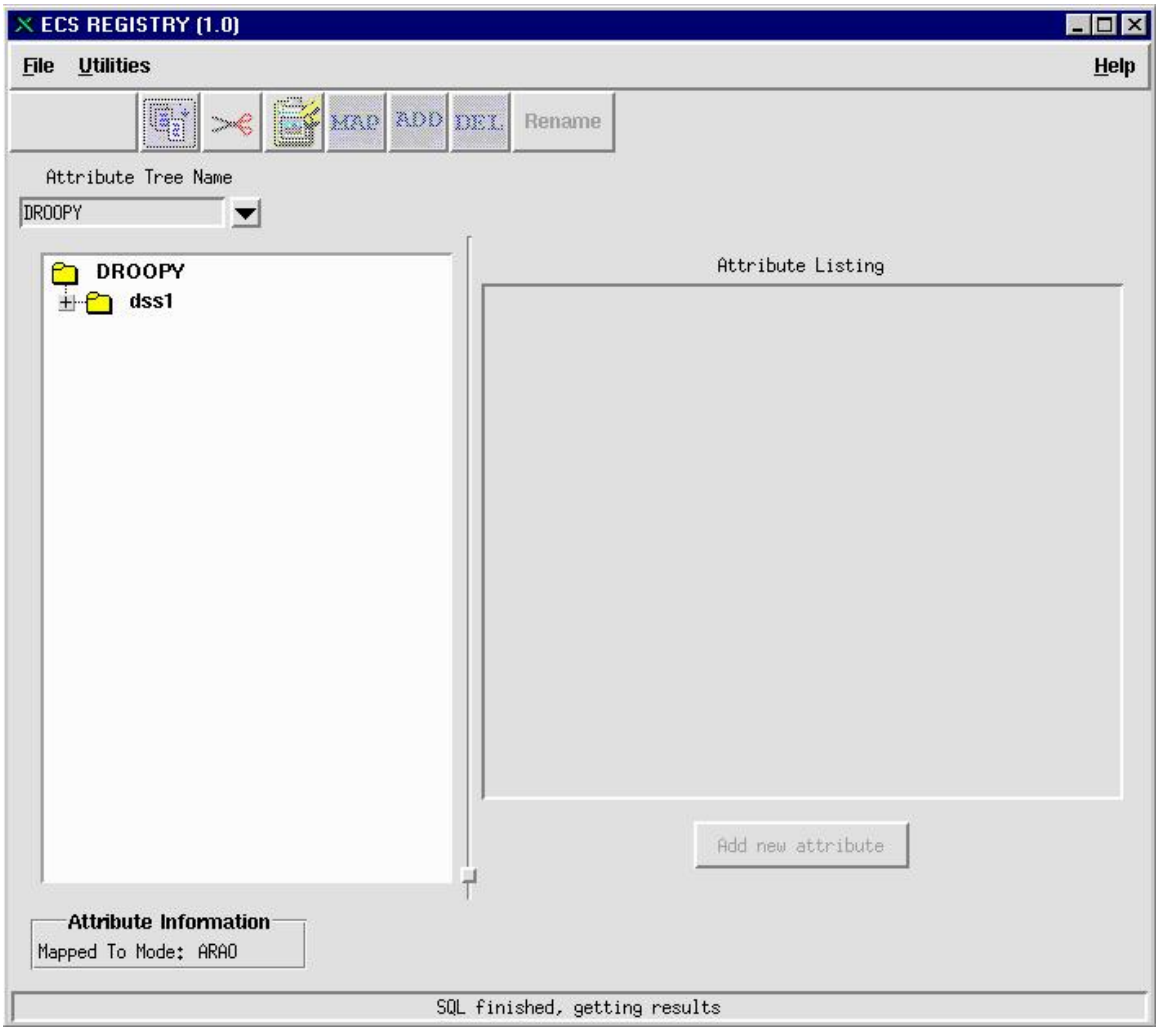

Figure 4.1.6-2. ECS Registry Main Window

Table 4.1.6-3 describes the informational, control, and data entry fields of the Registry main window.

Table 4.1.6-3. Information, Control and Data Entry Fields on the ECS Registry GUI Main Window

Field Name	Data Type	Size	Description
Attribute Tree Name	Click down arrow.	-	Displays a list of defined attribute trees.
Copy	Button	-	Copy the selected item and store contents into a buffer. See Section 4.1.6.3
Attribute Information	Label	-	Displays the currently mapped mode.
Add new attribute	Button	-	Adds a new attribute. Enabled when a node is selected.
Move	Button	-	Move the selected item. See Section 4.1.6.2.4
Paste	Button	-	Pastes contents of the paste buffer. See Section 4.1.6.2.4 for an example.
MAP	Button	-	Associate an attribute tree to a mode. See Section 4.1.6.2.2
ADD	Button	-	Add a new node to an attribute tree. See Section 4.1.6.2.1
DEL	Button	-	Deletes a node. See Section 4.1.6.2.6
Rename	Button	-	Renames a node. See Section 4.1.6.2.5
Status line	Text	-	Displays status messages.

The following menu bar options are available on the ECS Registry main window:

- **File** – provides the following options

  - **Exit** – terminates the GUI

- **Utilities** – provides the following options

  - **Clear log file contents** – Clears the log file

- **Help** – provides user help information

4.1.6.2.1 Adding a New Node

Figure 4.1.6-3 represents step 1 in adding a new node to an attribute tree. Select the *root* node, which is always the attribute tree name, from the hierarchy list. Selecting any node from the hierarchy list enables the toolbar.

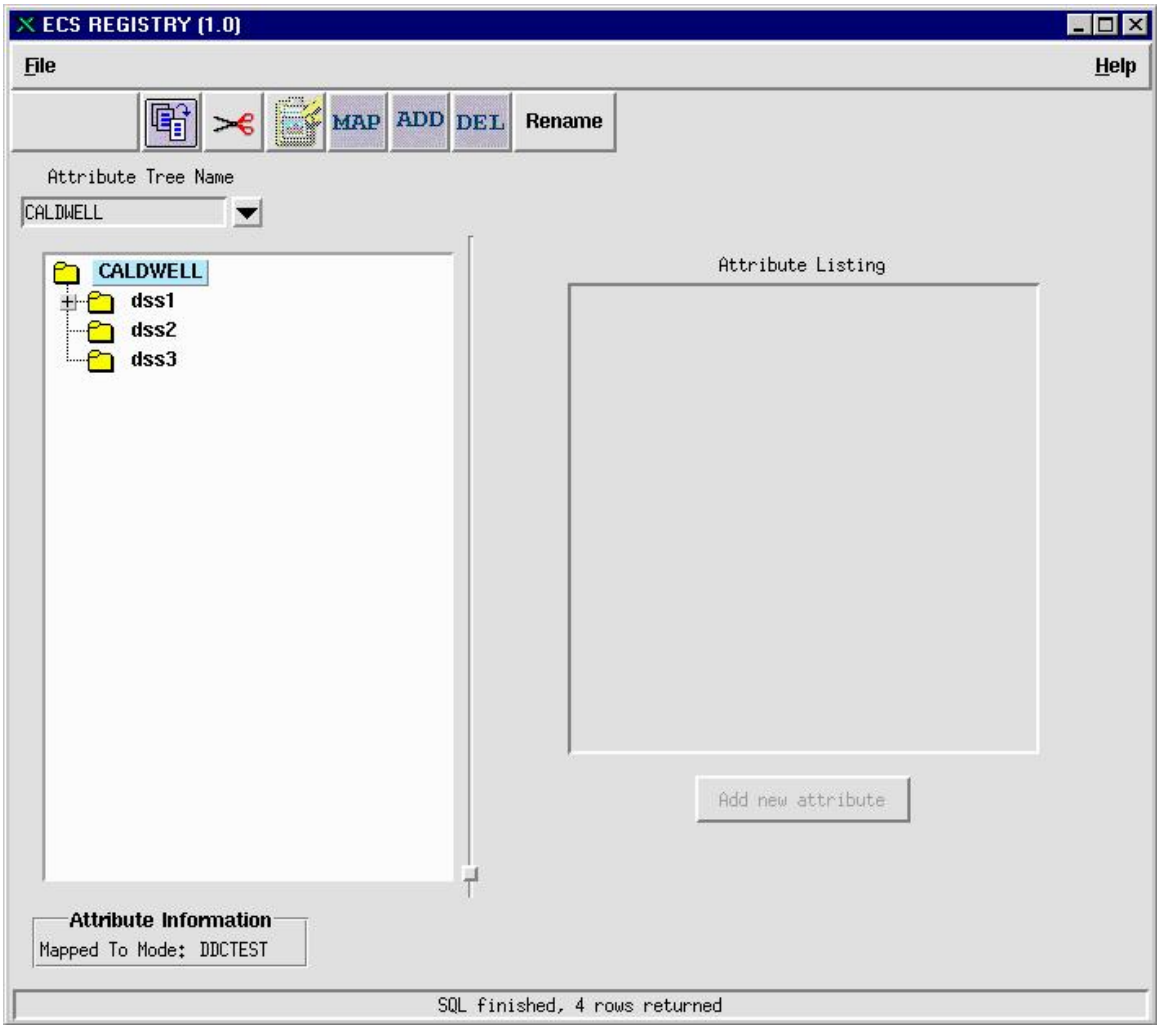

Figure 4.1.6-3. Adding a New Node Window

Clicking the "ADD" button from the toolbar displays the "Adding a new node dialog" as represented in Figure 4.1.6-4.

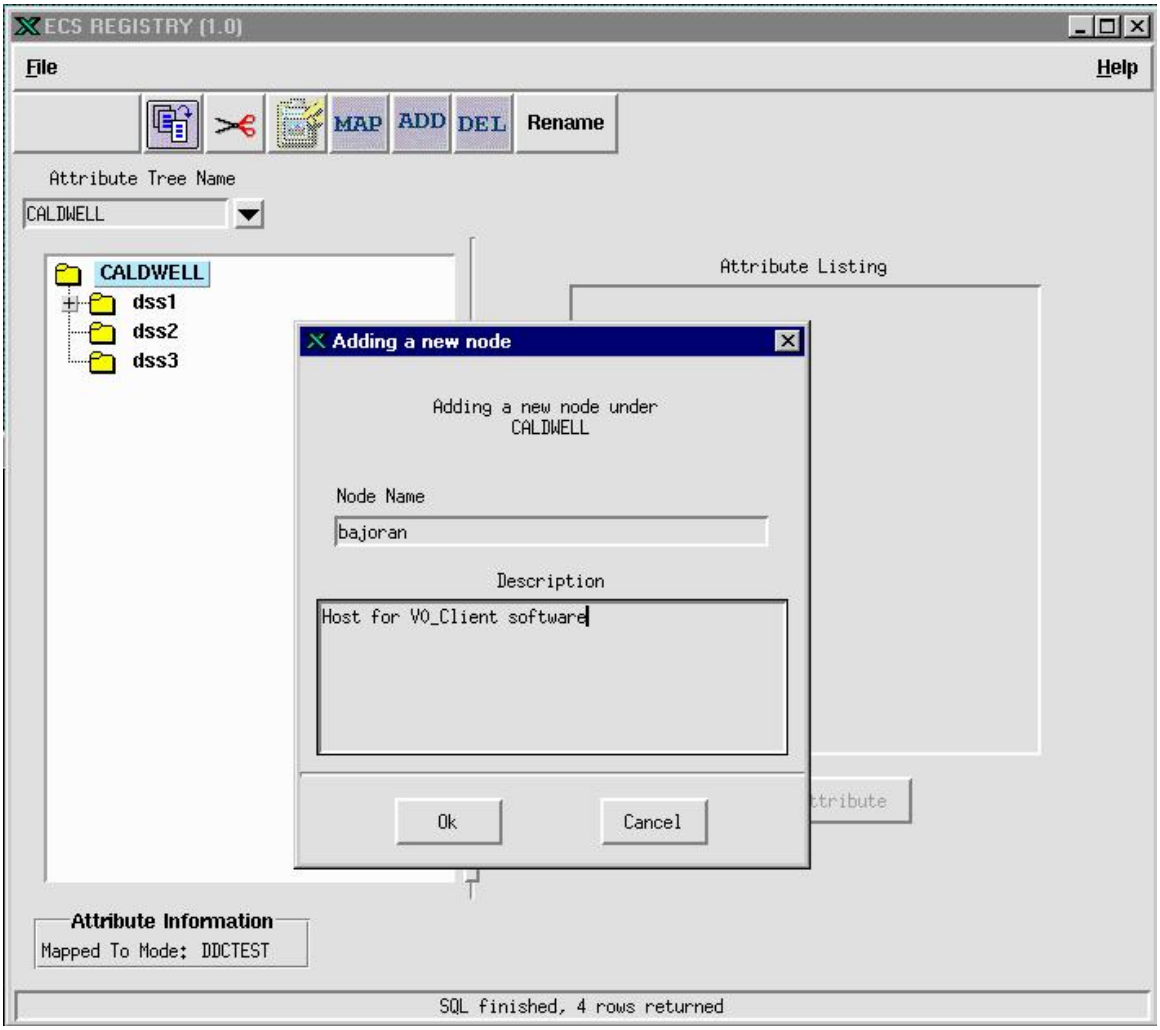

Figure 4.1.6-4. Adding a New Node Dialog Window

Table 4.1.6-4 describes the various fields in the Adding a New Node window.

Table 4.1.6-4. Adding a New Node Field Descriptions

Field Name	Data Type	Size	Description
"Adding a new node"	Display only	-	Window title
Node Name	Text	-	Node Name
Node Description	Text	-	Node Description
"Ok"	Button	-	Accepts the ADD
"Cancel"	Button	-	Cancels the ADD

Figure 4.1.6-5 shows the final results of adding a new node.

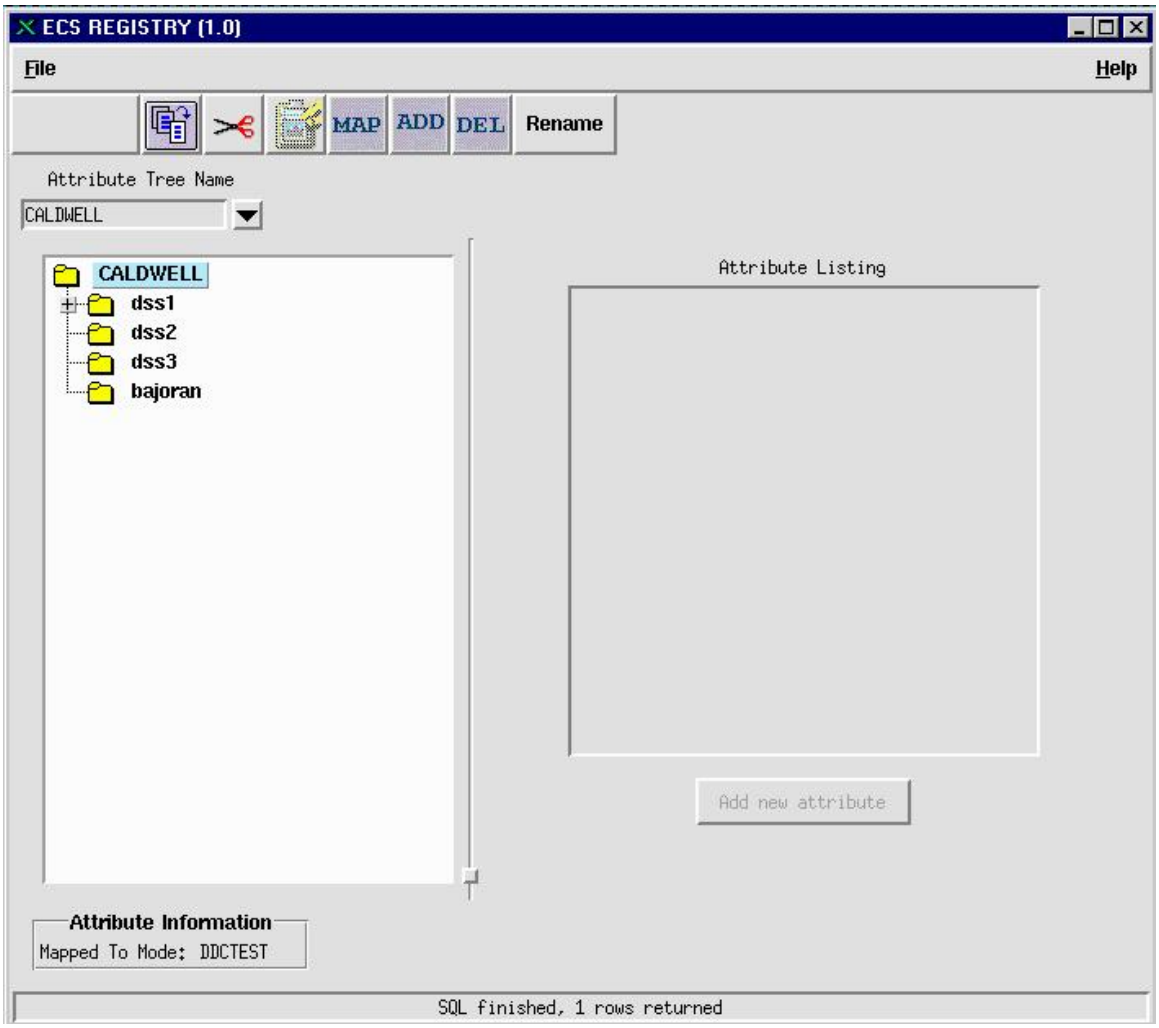

Figure 4.1.6-5. Results of Adding a New Node

4.1.6.2.2 Mapping a Mode to an Attribute Tree

Figure 4.1.6-6 represents step 1 when mapping a mode to an attribute tree.

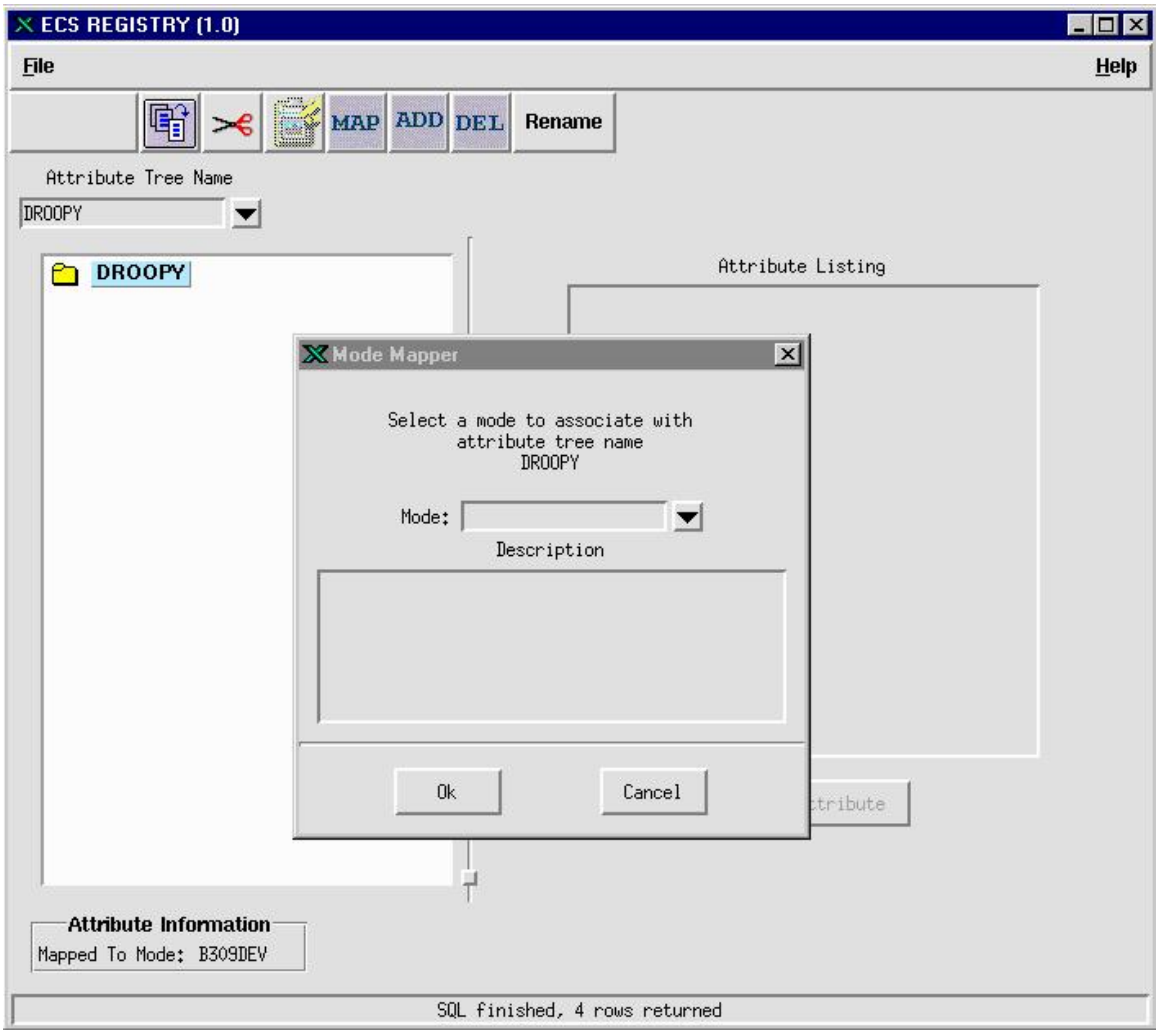

Figure 4.1.6-6. Mode Mapper Window

Table 4.1.6-5 describes the fields in the Mode Mapper window.

Table 4.1.6-5. Map a Mode to an Attribute Tree

Field Name	Data Type	Size	Description
"Mode Mapper"	Display Only	-	Window title.
Mode	Text	-	Mode selection using a combo box.
Mode Description	Text	-	Mode Description.
"Ok"	Button	-	Accepts the mode selection.
"Cancel"	Button	-	Cancels the mode mapping operation.

To associate a mode with the selected attribute tree, click the “MAP” button from the toolbar; the “Mode Mapper” dialog is displayed as represented in Figure 4.1.6-7. It indicates that mode “OPS” has been selected and a description has been entered.

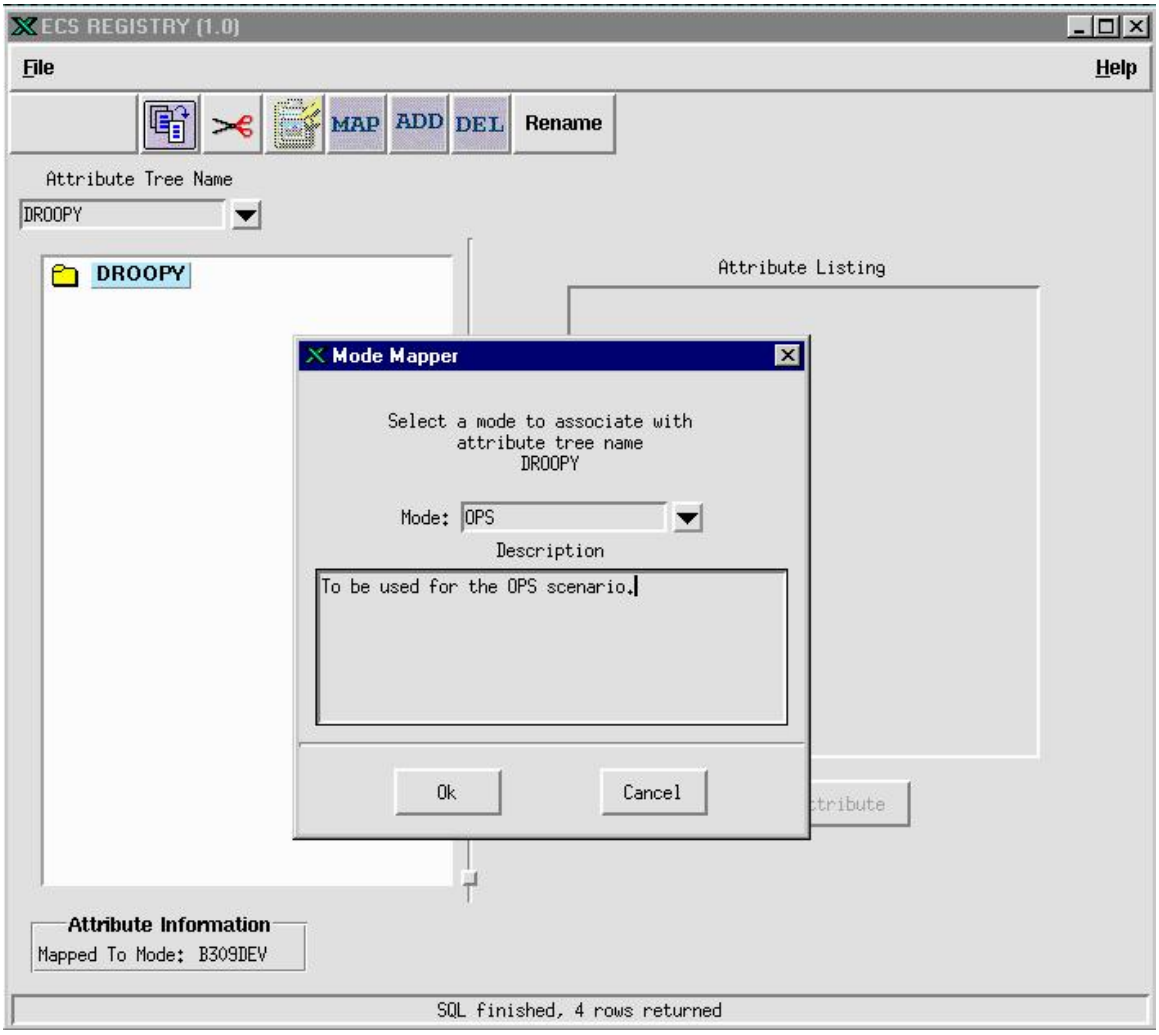

Figure 4.1.6-7. Results of Mode Mapping

Figure 4.1.6-8 represents the final result of associating a mode with an attribute tree. In the attribute information box, the mode “OPS” is mapped to attribute tree “DROOPY.”

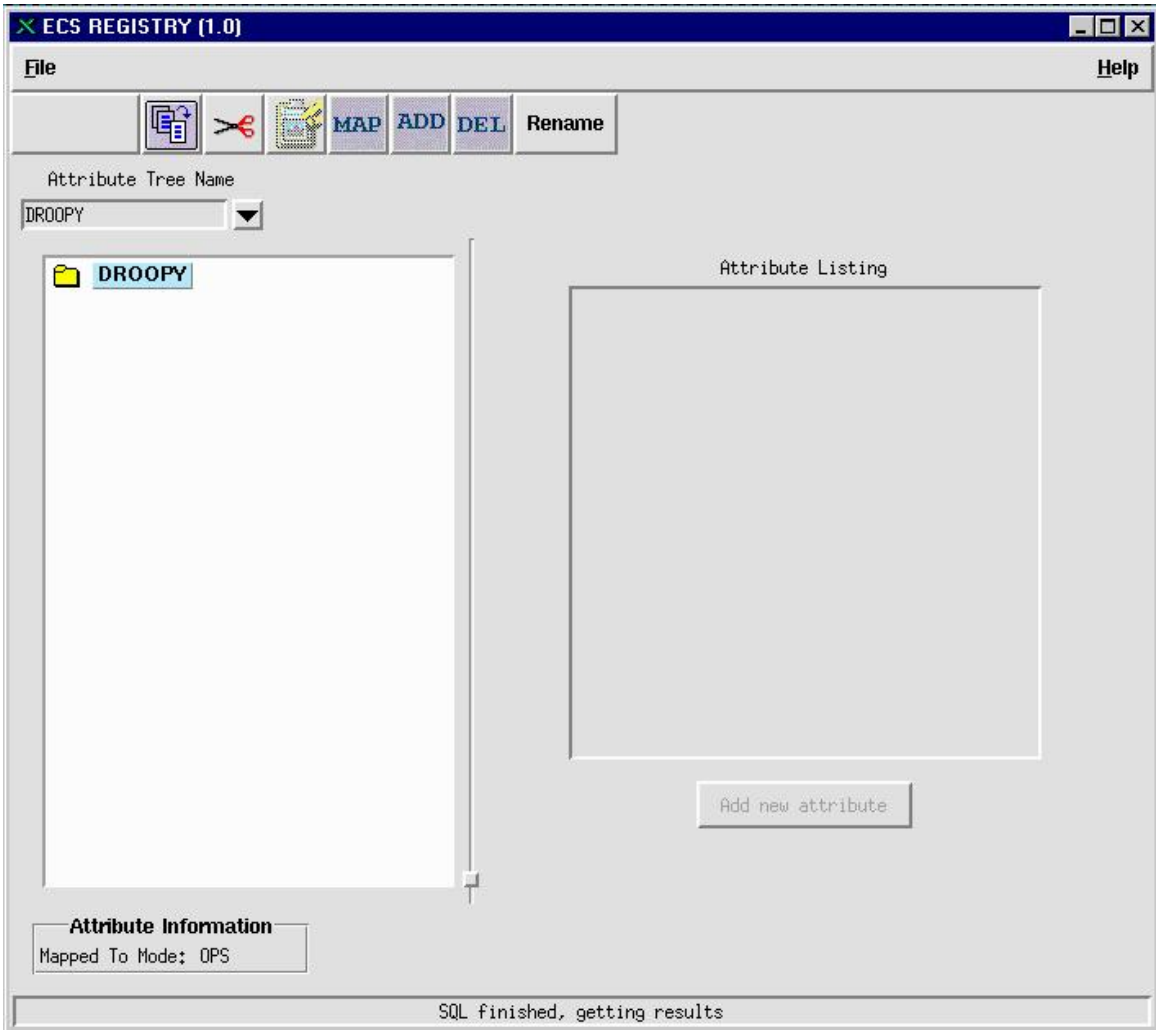

Figure 4.1.6-8. Final Result of Mode Mapping Transaction

4.1.6.2.3 Creating a New Attribute Tree by Copy

Figure 4.1.6-9 shows that an attribute tree has been selected and the user has highlighted the Copy button from the toolbar.

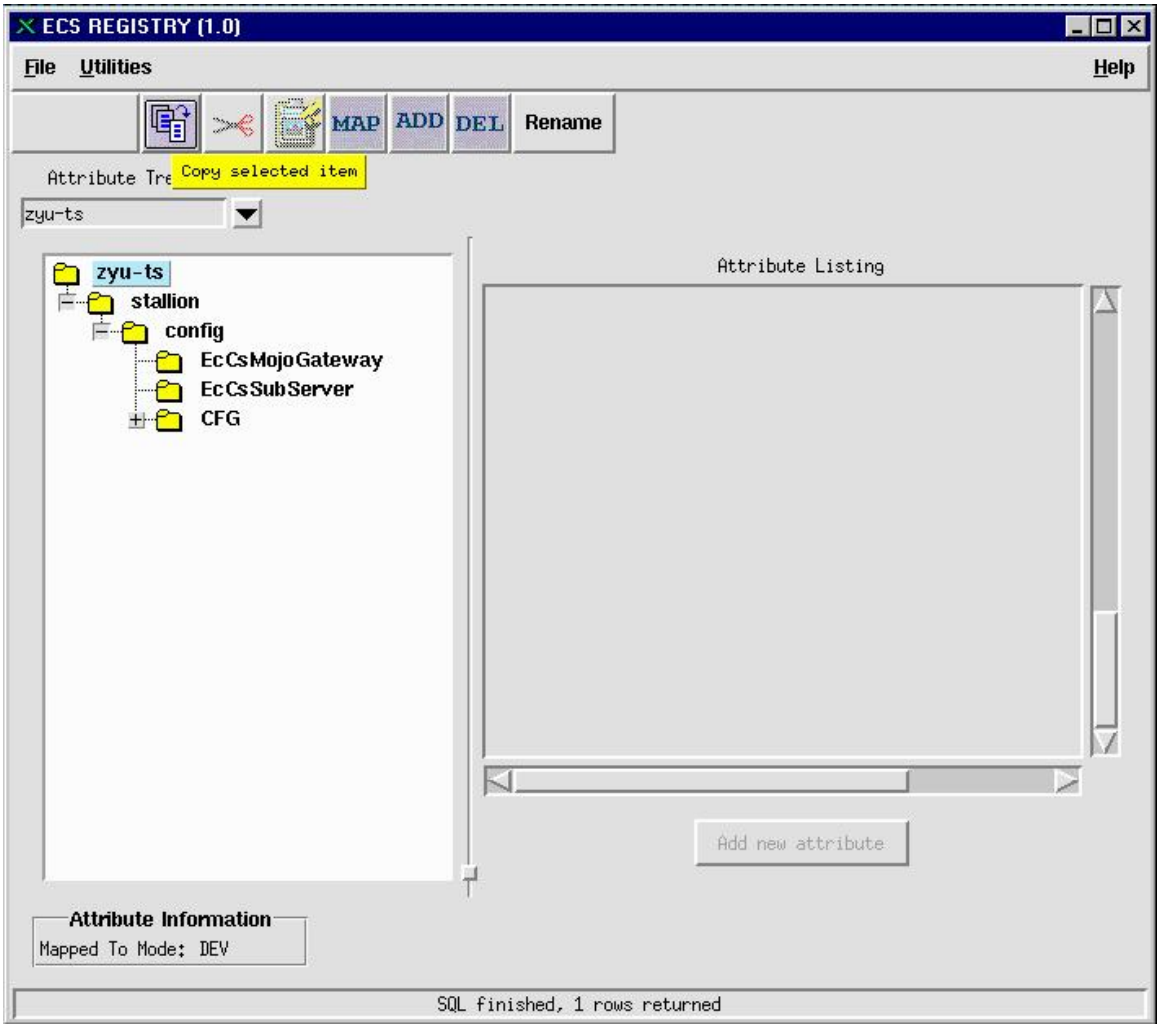

Figure 4.1.6-9. Creating a New Attribute Tree Using the Copy Button

Click the Copy button to facilitate the creation of a new attribute tree as represented by Figure 4.1.6-10.

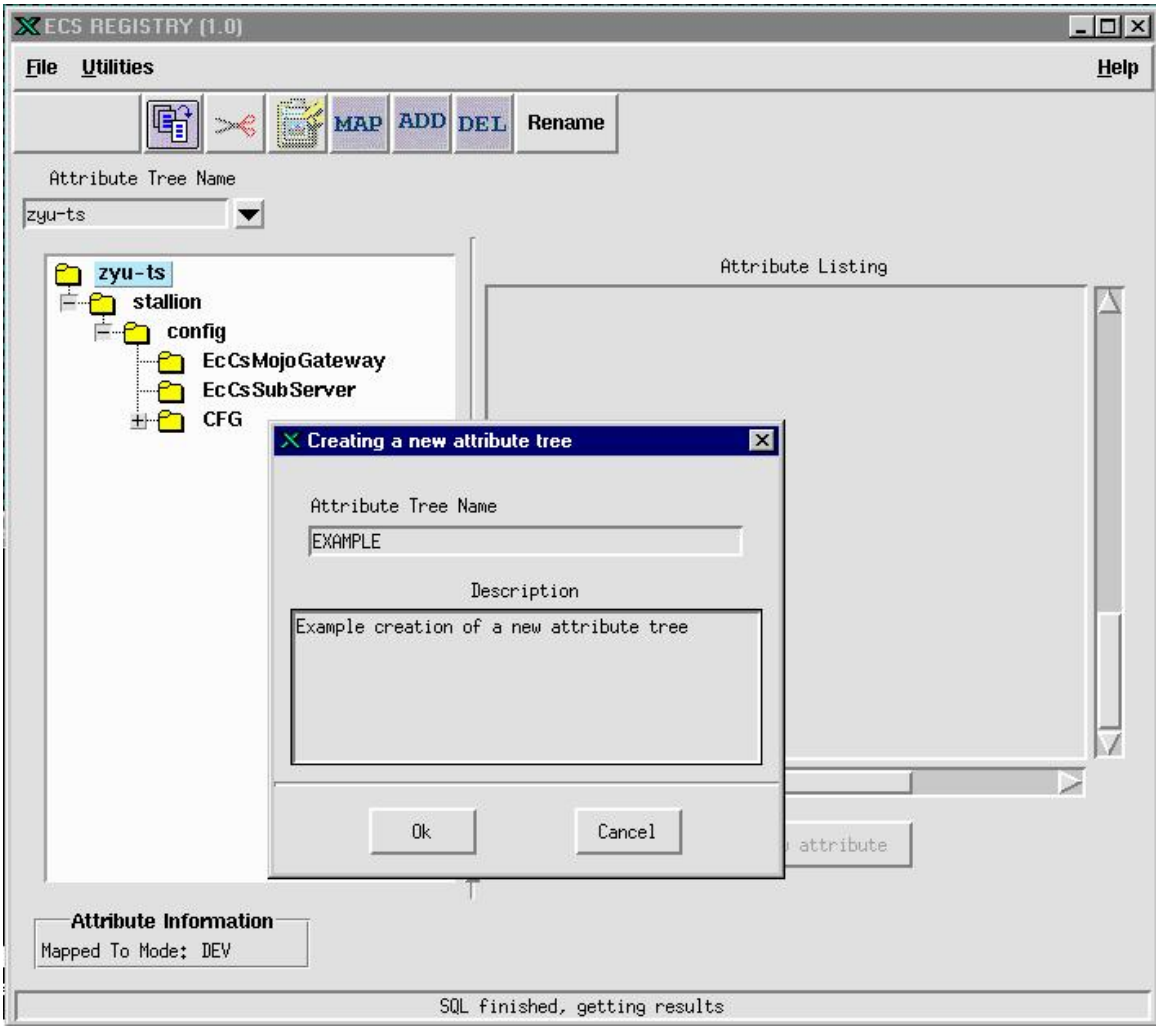

Figure 4.1.6-10. Creating a New Attribute Tree Window

Table 4.1.6-6 identifies the fields in the "Creating a new attribute tree" window.

Table 4.1.6-6. Creating a New Attribute Tree by Copy

Field Name	Data Type	Size	Description
"Creating a new attribute tree"	Display Only	-	Window title
Attribute Tree Name	Text	-	Attribute Tree Name
Description	Text	-	Attribute Tree Description
"Ok"	Button	-	Accepts the Copy operation
"Cancel"	Button	-	Cancels the Copy operation

Once the new attribute tree has been created, you can verify its existence. Open the combo box as depicted in Figure 4.1.6-11 and select the new attribute tree. In this case, the new attribute is "EXAMPLE" as shown in Figure 4.1.6-12.

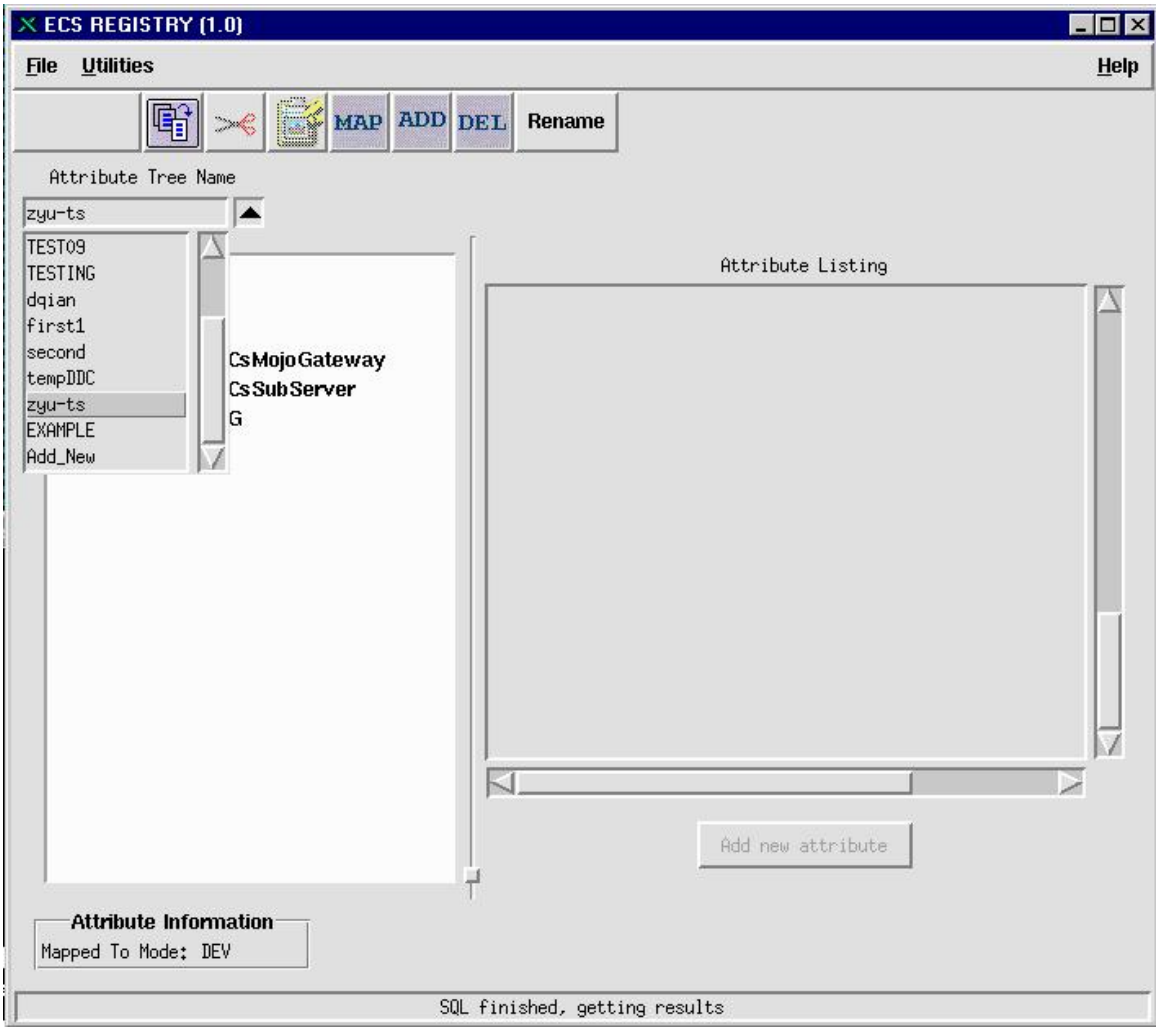

Figure 4.1.6-11. Attribute Tree Field Combo Box List

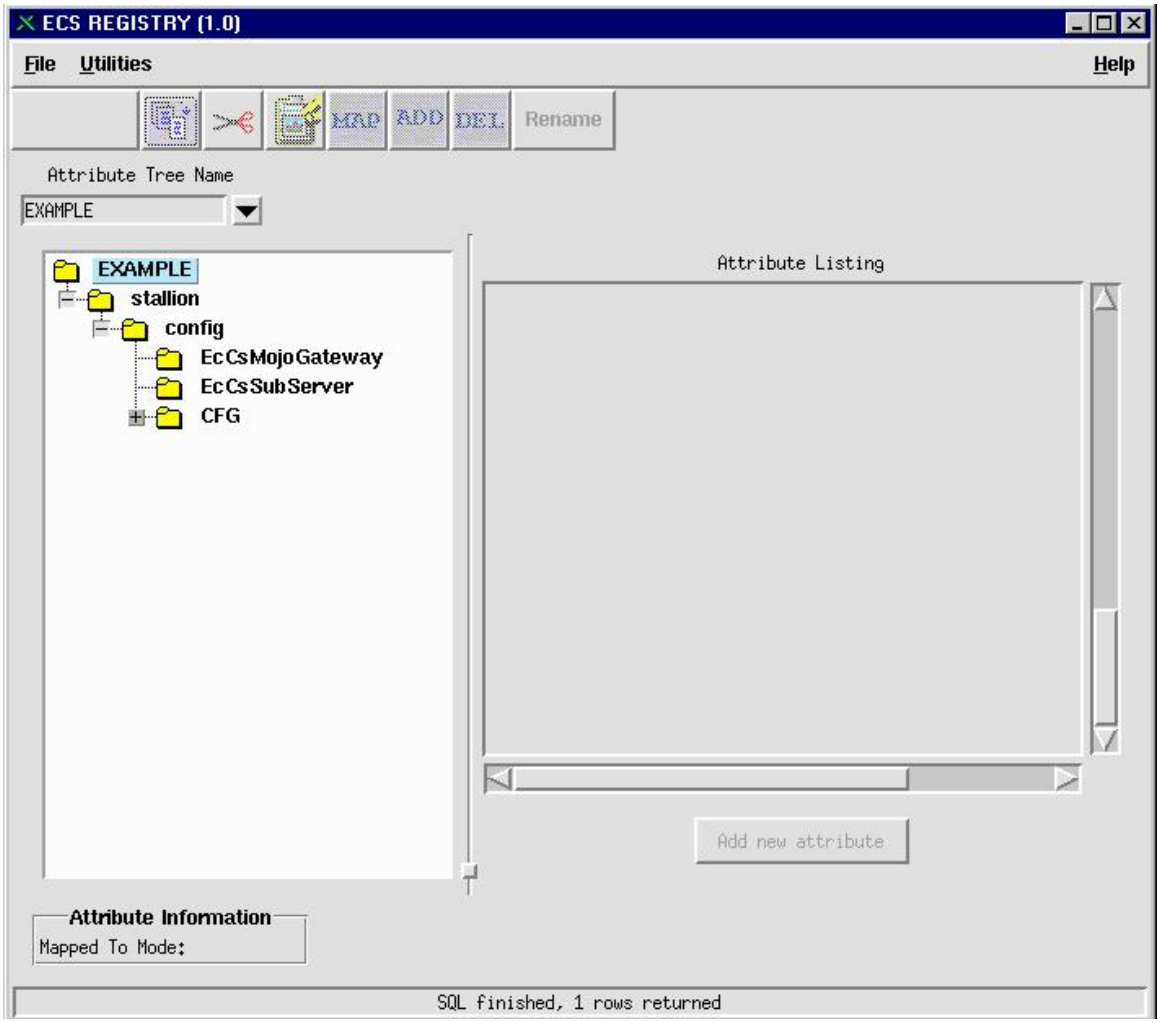

Figure 4.1.6-12. Display of the New Attribute Tree

4.1.6.2.4 Move Subtree Option

To move nodes within the attribute tree, select the root of the sub-tree that is to be moved. In this case, we have selected the node "*EcCsEmailParser*" within the attribute tree labeled *tempDDC* as depicted in Figure 4.1.6-13. Note that there are Attributes associated with the node EcCsEmailParser, which are discussed ahead.

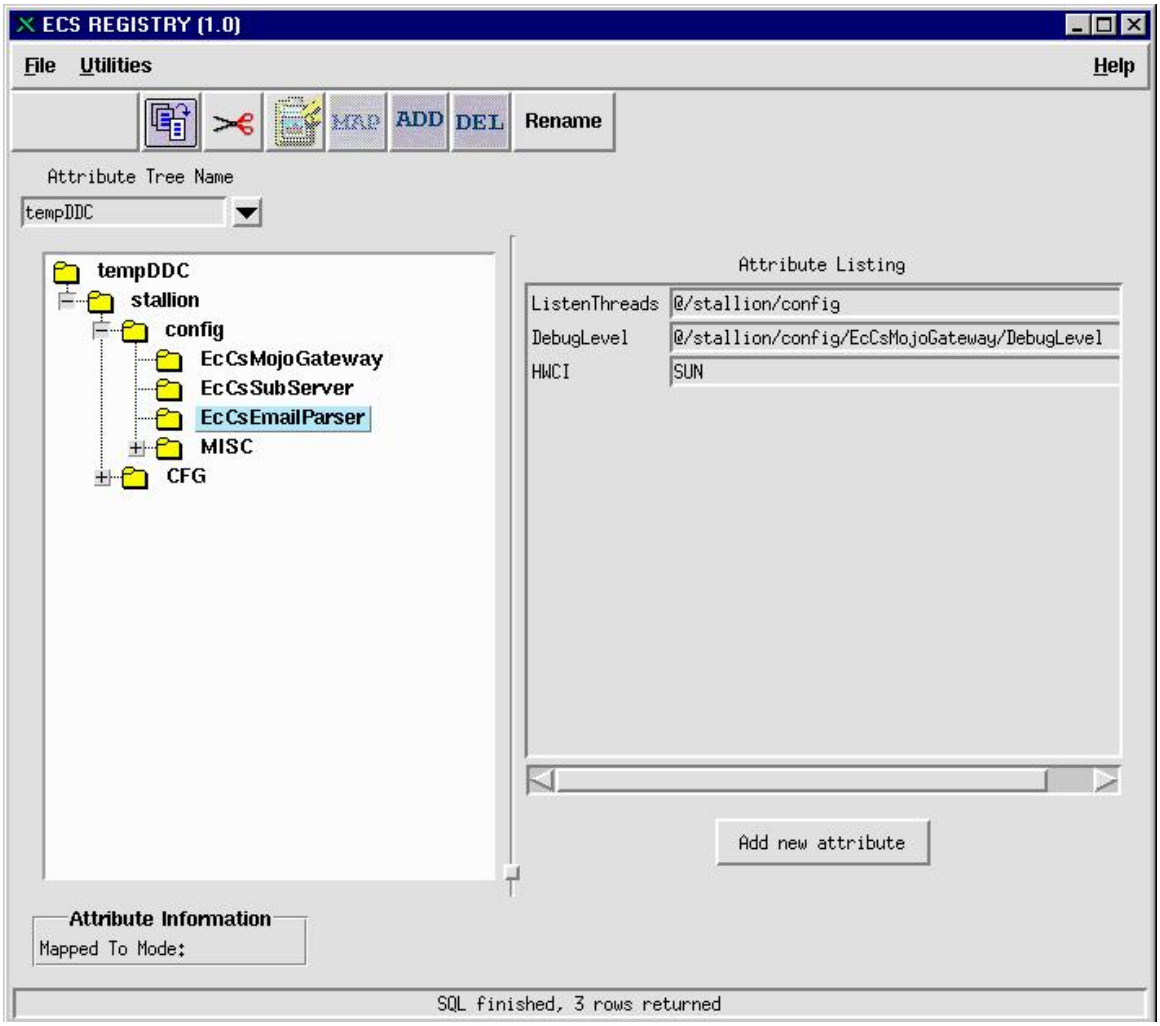

Figure 4.1.6-13. Move Nodes Option

In Figure 4.1.6-14, the Cut button is highlighted.

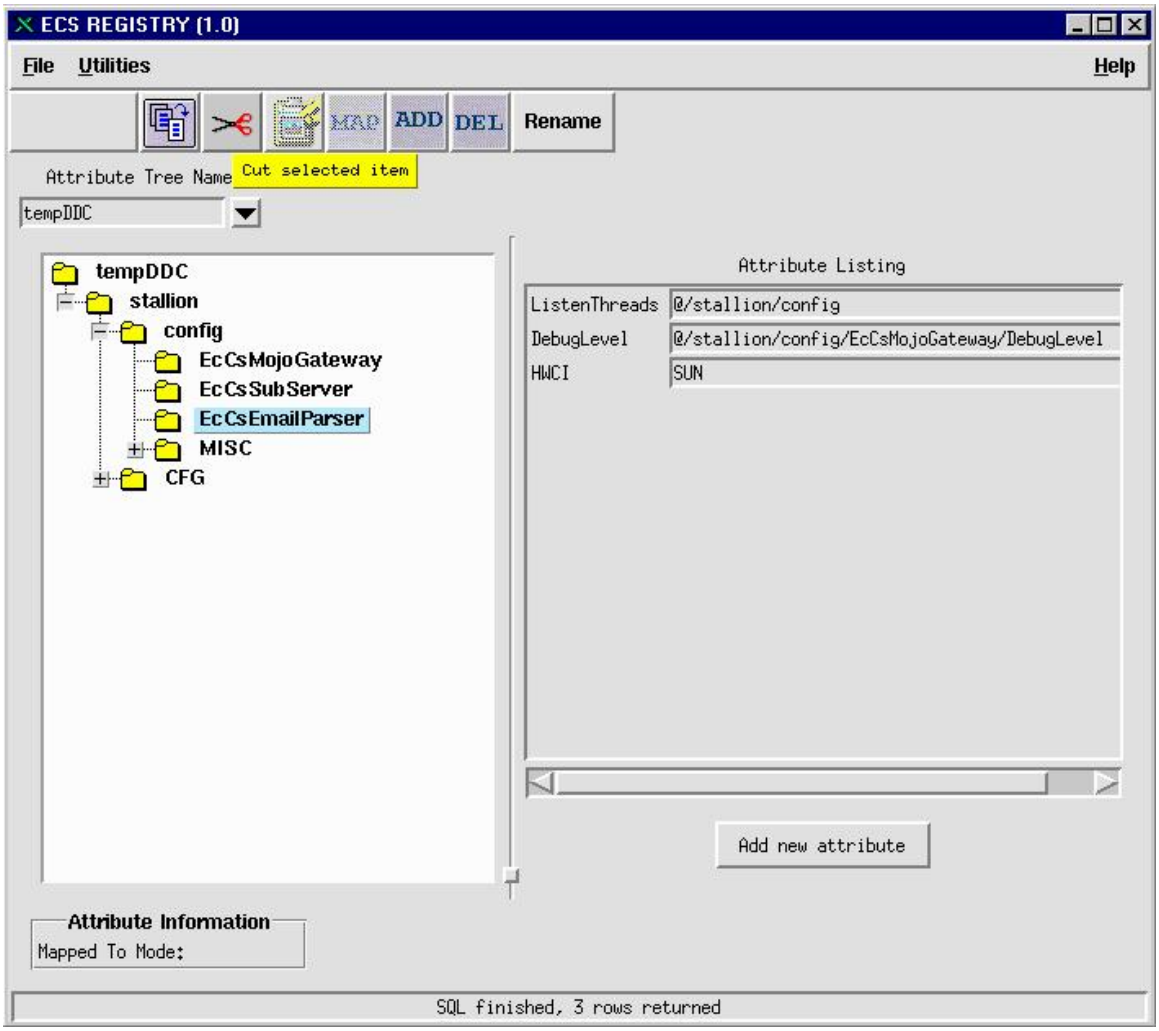

Figure 4.1.6-14. Cut Button is Pressed

Clicking the Cut button prepares the move operation as depicted in the Figure 4.1.6-15.

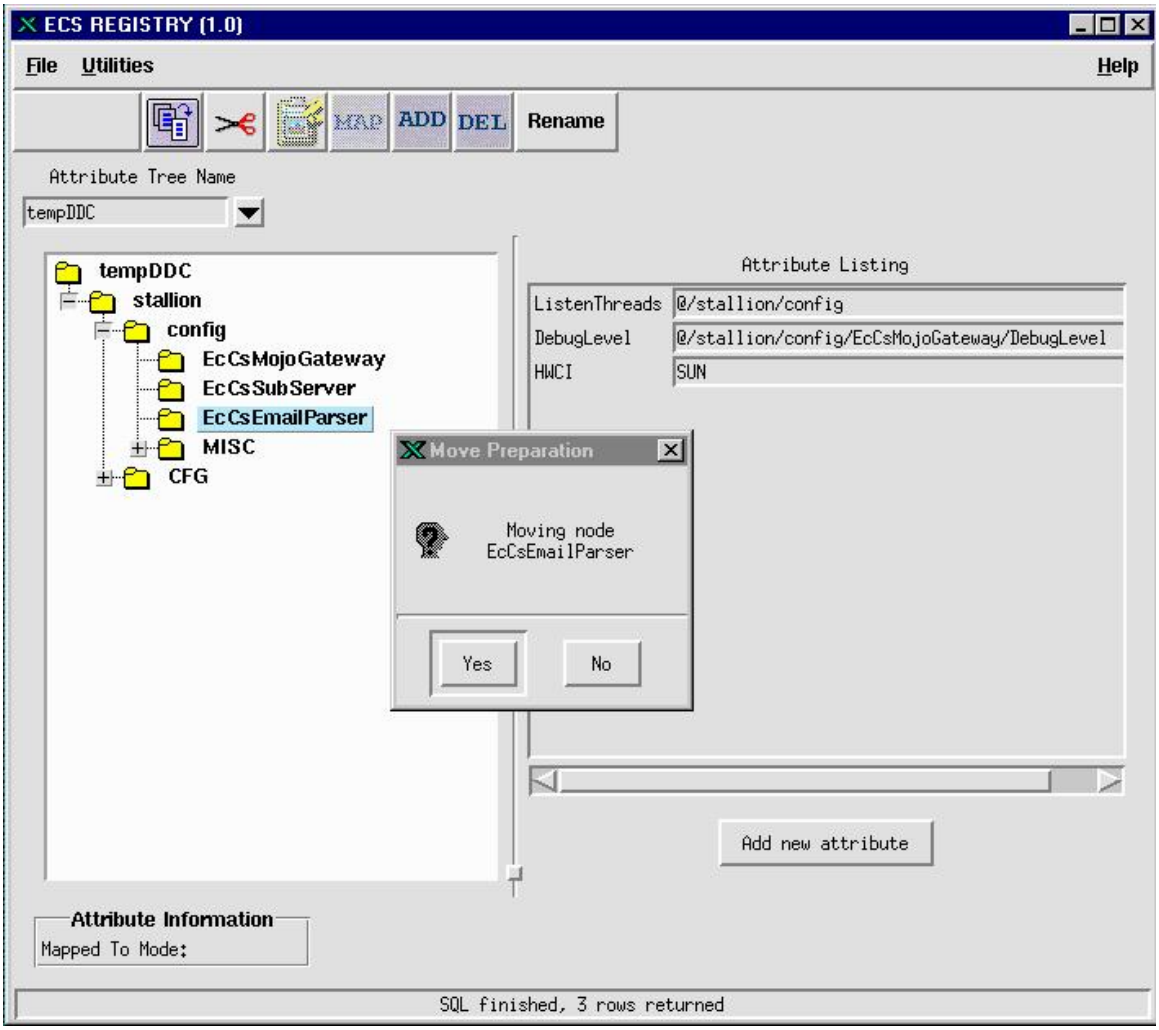

Figure 4.1.6-15. Result of Pressing the Cut Icon in the Move Subtree Operation

Table 4.1.6-7 describes the fields in the Move Preparation window.

Table 4.1.6-7. Move Preparation Field Definitions

Field Name	Data Type	Size	Description
“Move Preparation”	Display Only	-	Window title
“Yes”	Button	-	Accepts the transaction
“No”	Button	-	Cancels the transaction

Figure 4.1.6-16 represents final confirmation before the move.

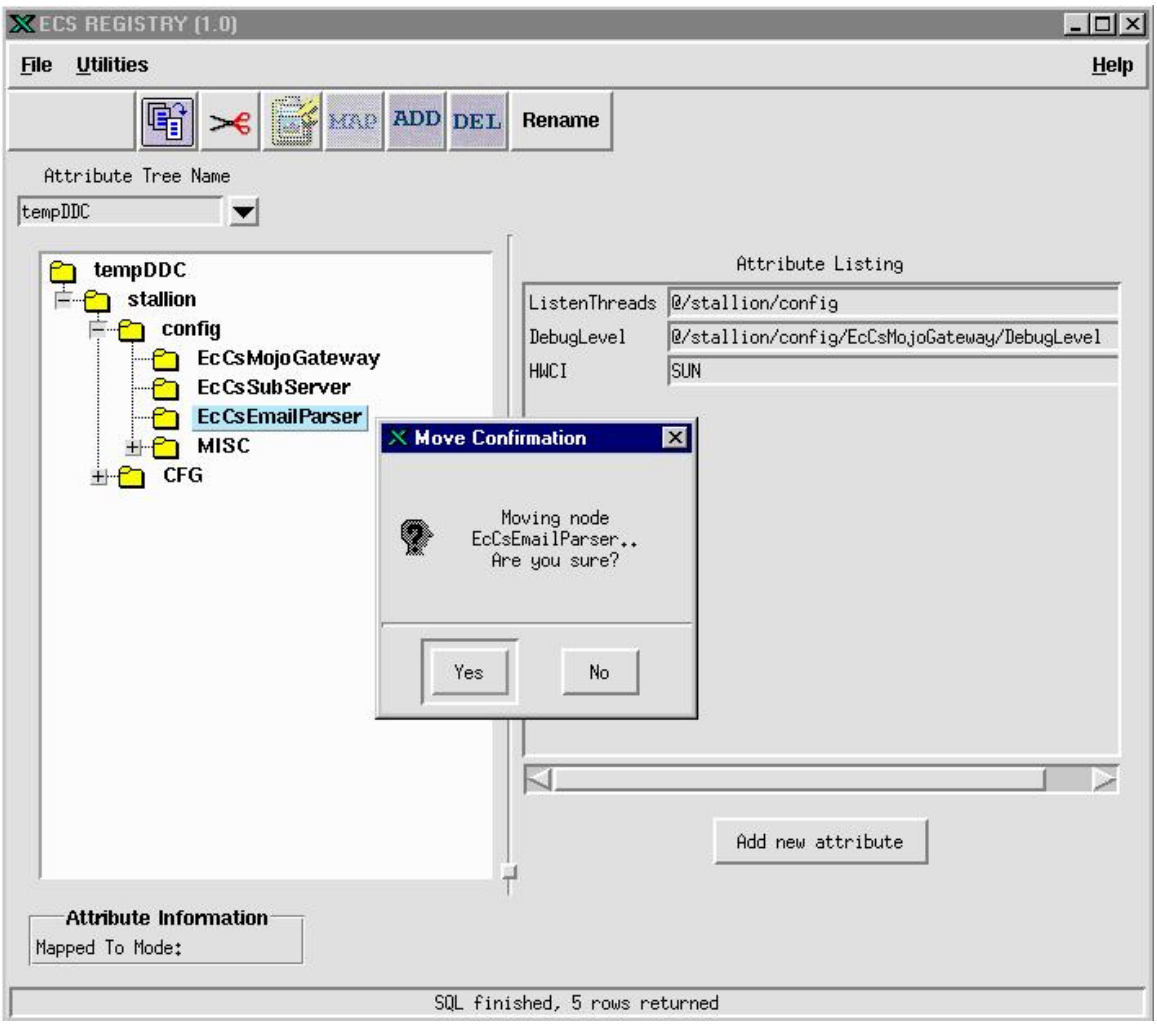

Figure 4.1.6-16. Final Confirmation for the Move Operation

Table 4.1.6-8 describes the field in the Move Confirmation window.

Table 4.1.6-8. Move Confirmation Window Fields

Field Name	Data Type	Size	Description
“Move Confirmation”	Display Only	-	Window title.
“Yes”	Button	-	Accepts the transaction.
“No”	Button	-	Cancels the transaction.

Select the target node for the move as depicted in Figure 4.1.6-17. In this case, the target node is “CFG.”

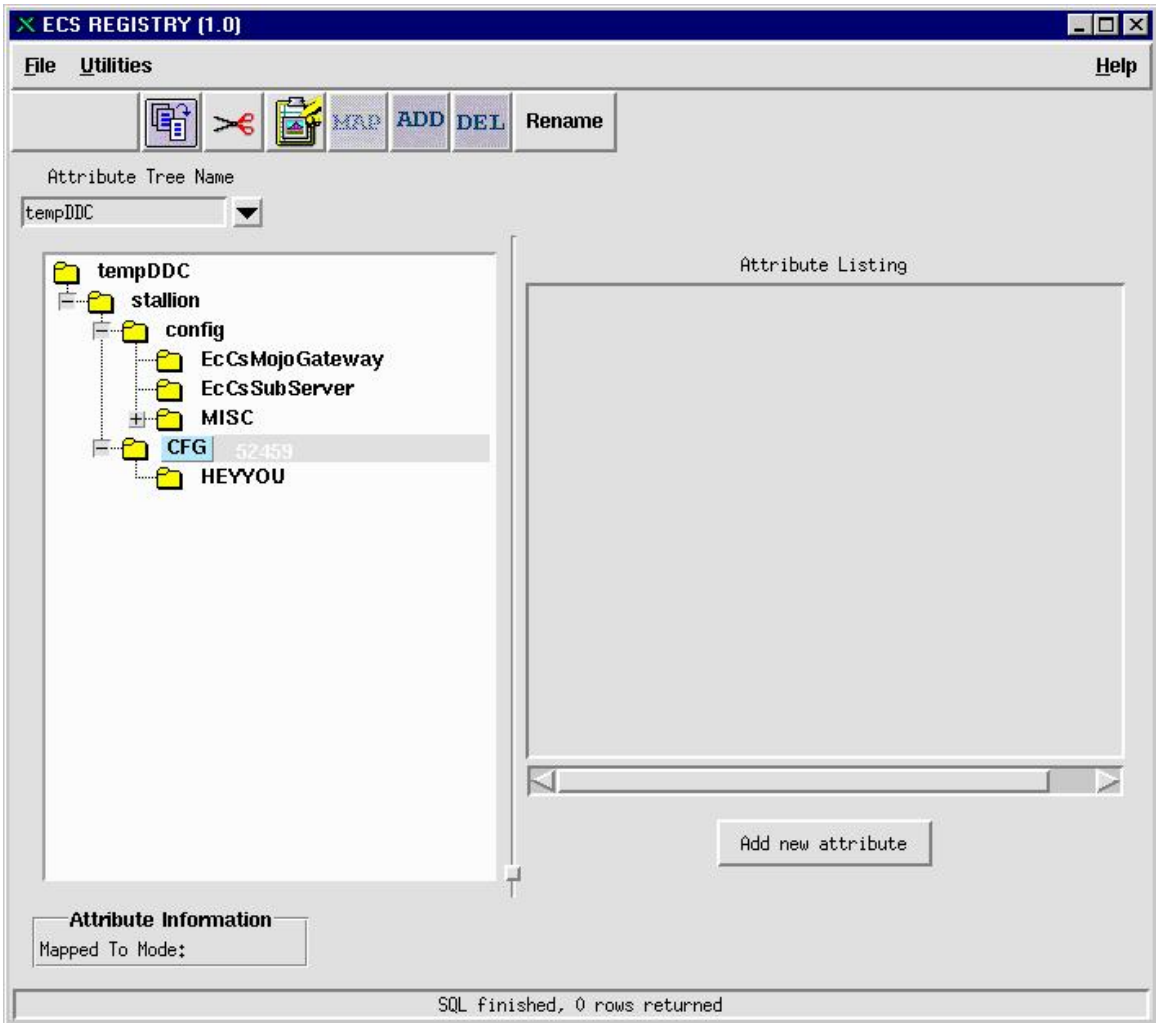

Figure 4.1.6-17. Selecting the Target of the Move

Click the Paste button to finalize the move to the target node as depicted in Figure 4.1.6-18.

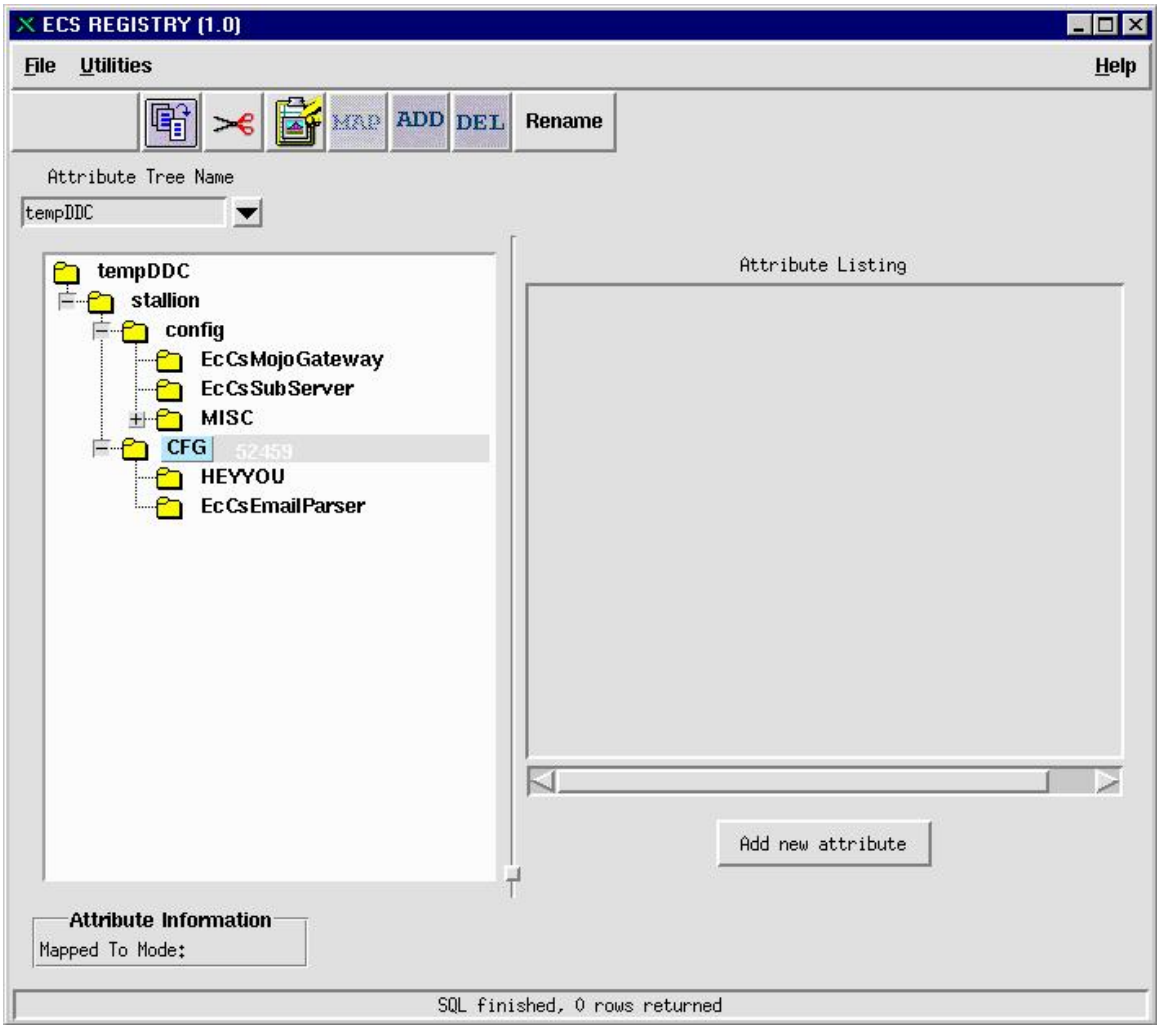

Figure 4.1.6-18. Result of the Paste in the Move Operation

To move a node to a node within another attribute tree:

1. Select an attribute tree of choice.
2. Select a node within the selected attribute tree.
3. Click the "Paste" button.

4.1.6.2.5 Rename Nodes

Select the attribute tree to be renamed. In this case, the *root* node "EXAMPLE" is selected as depicted in Figure 4.1.6-19.

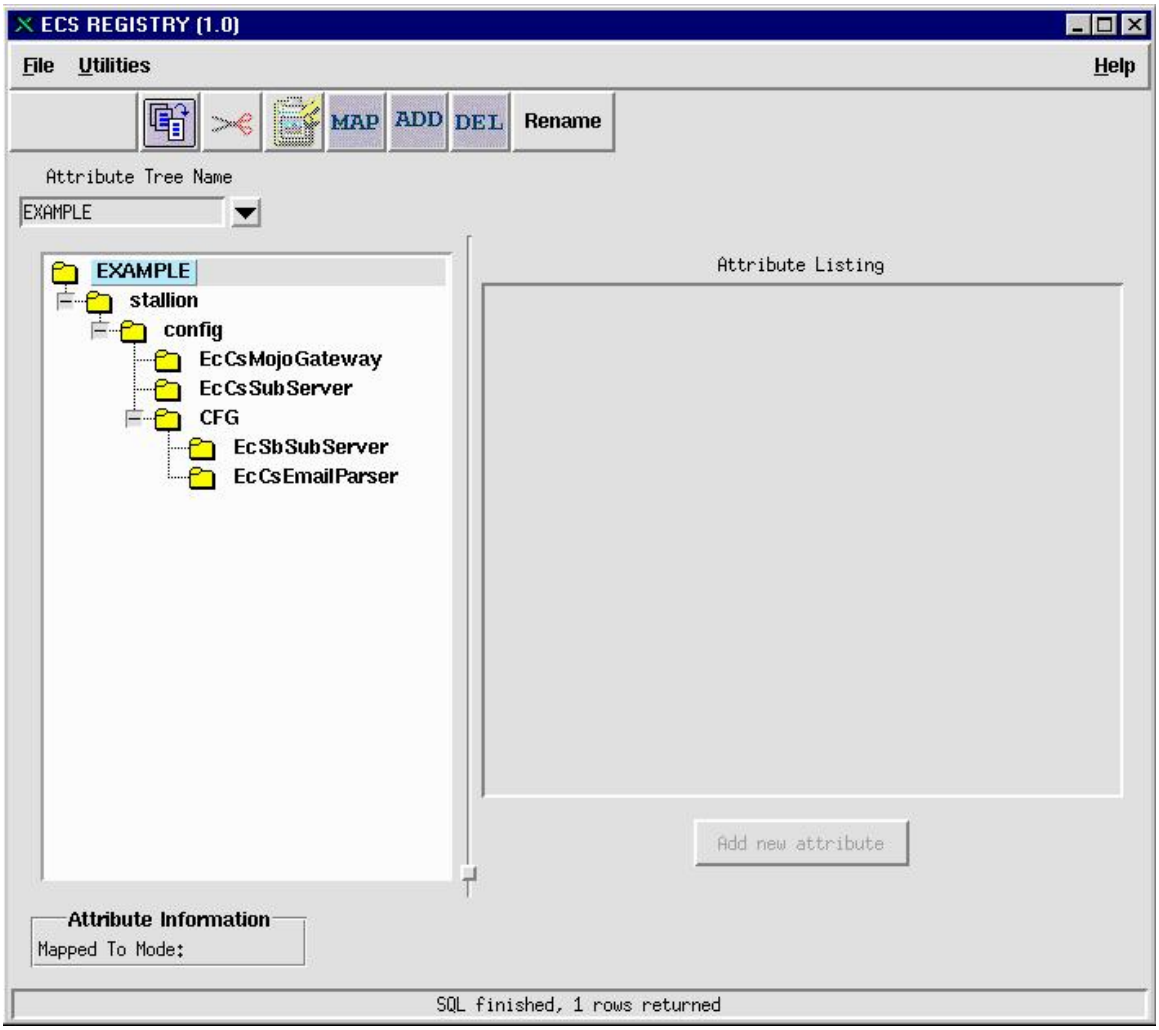

Figure 4.1.6-19. Rename Operation

Click the Rename button from the toolbar and the Rename dialog box is displayed as represented in Figure 4.1.6-20. Enter the new name and click the OK button.

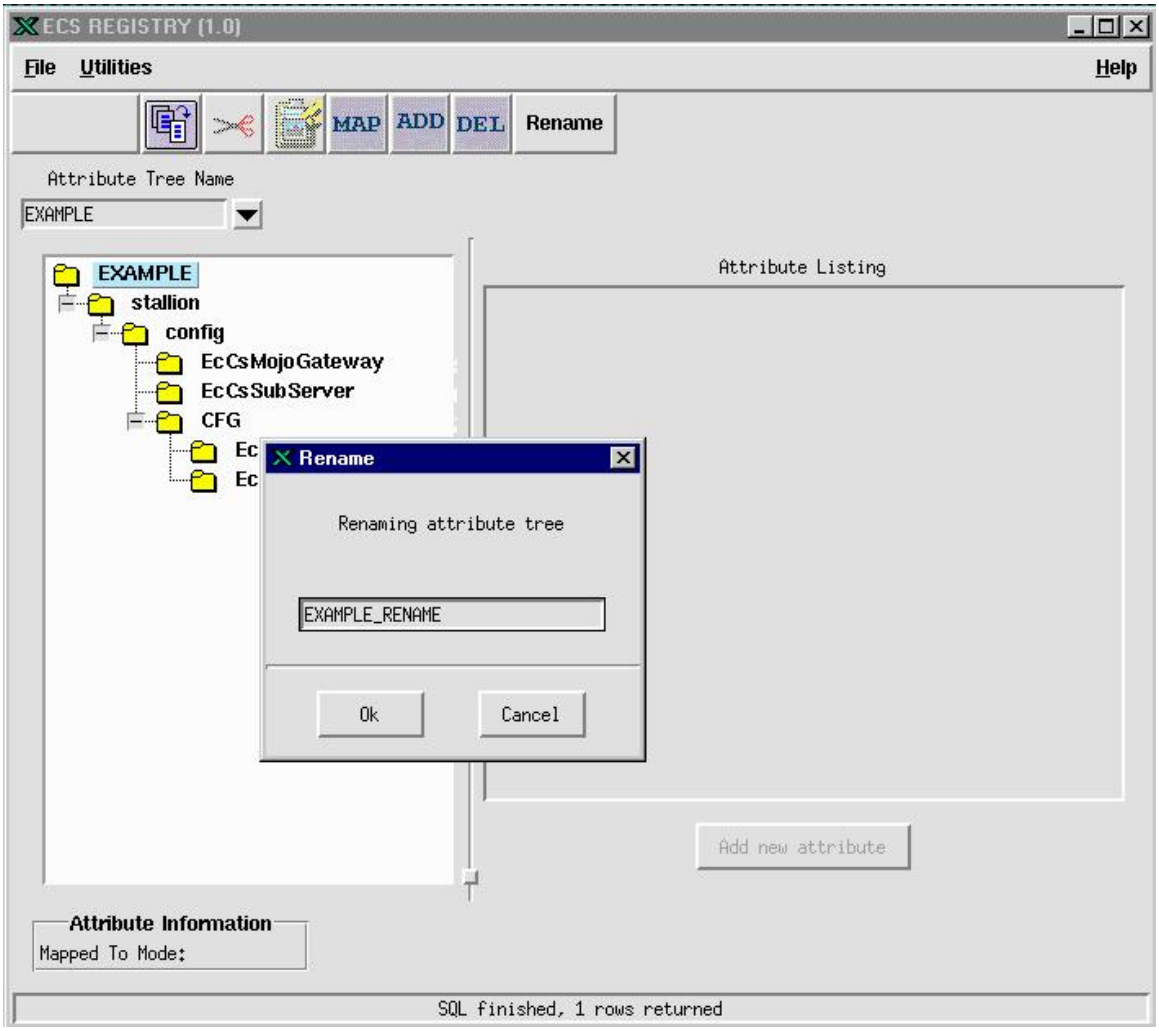

Figure 4.1.6-20. Rename Dialog Box

Table 4.1.6-19 describes the fields in the Rename Dialog box.

Table 4.1.6-9. Rename Attribute Tree

Field Name	Data Type	Size	Description
“Rename”	Display Only	-	Window title.
New Name	Text	-	New Name.
“Ok”	Button	-	Accepts the transaction.
“Cancel”	Button	-	Cancels the transaction.

Figure 4.1.6-21 represents the final results of renaming an attribute tree.

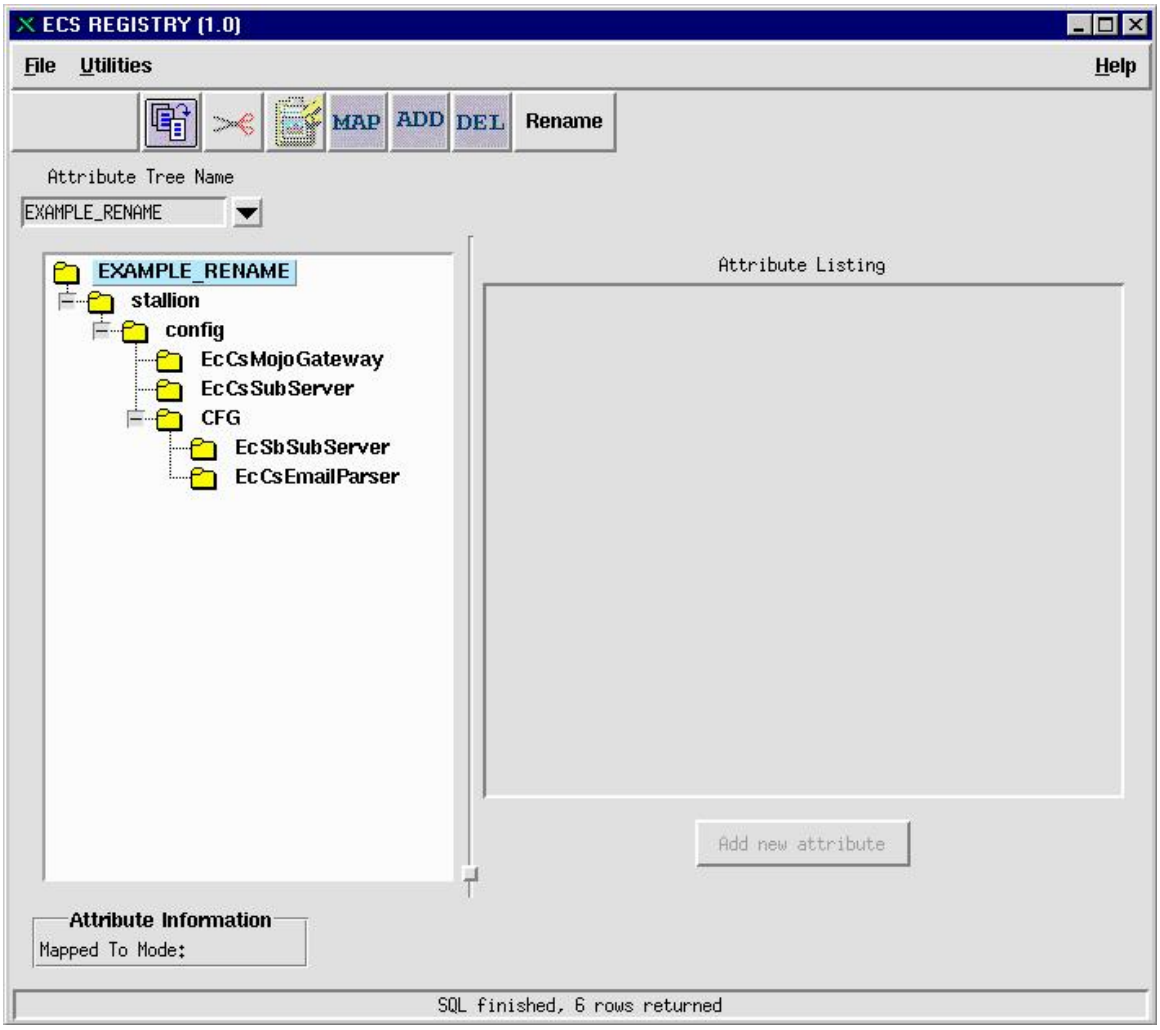

Figure 4.1.6-21. Result of the Rename Attribute Tree Operation

Select a node and click the Rename button from the toolbar. Enter the new name and click the Ok button as depicted in Figure 4.1.6-22.

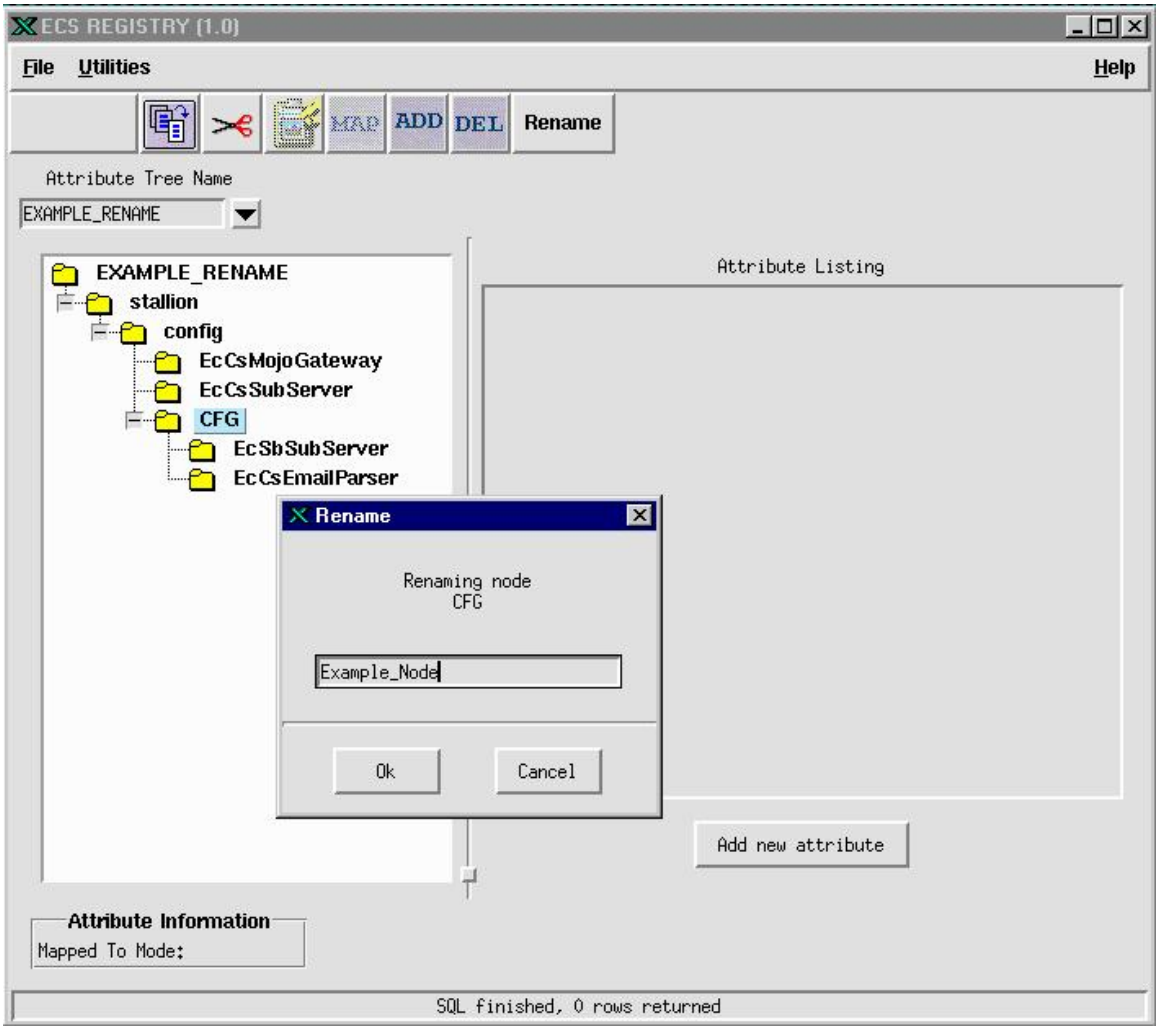

Figure 4.1.6-22. Rename Dialog Box for Changing the "CFG" Node

Figure 4.1.6-23 represents the final results of renaming a node.

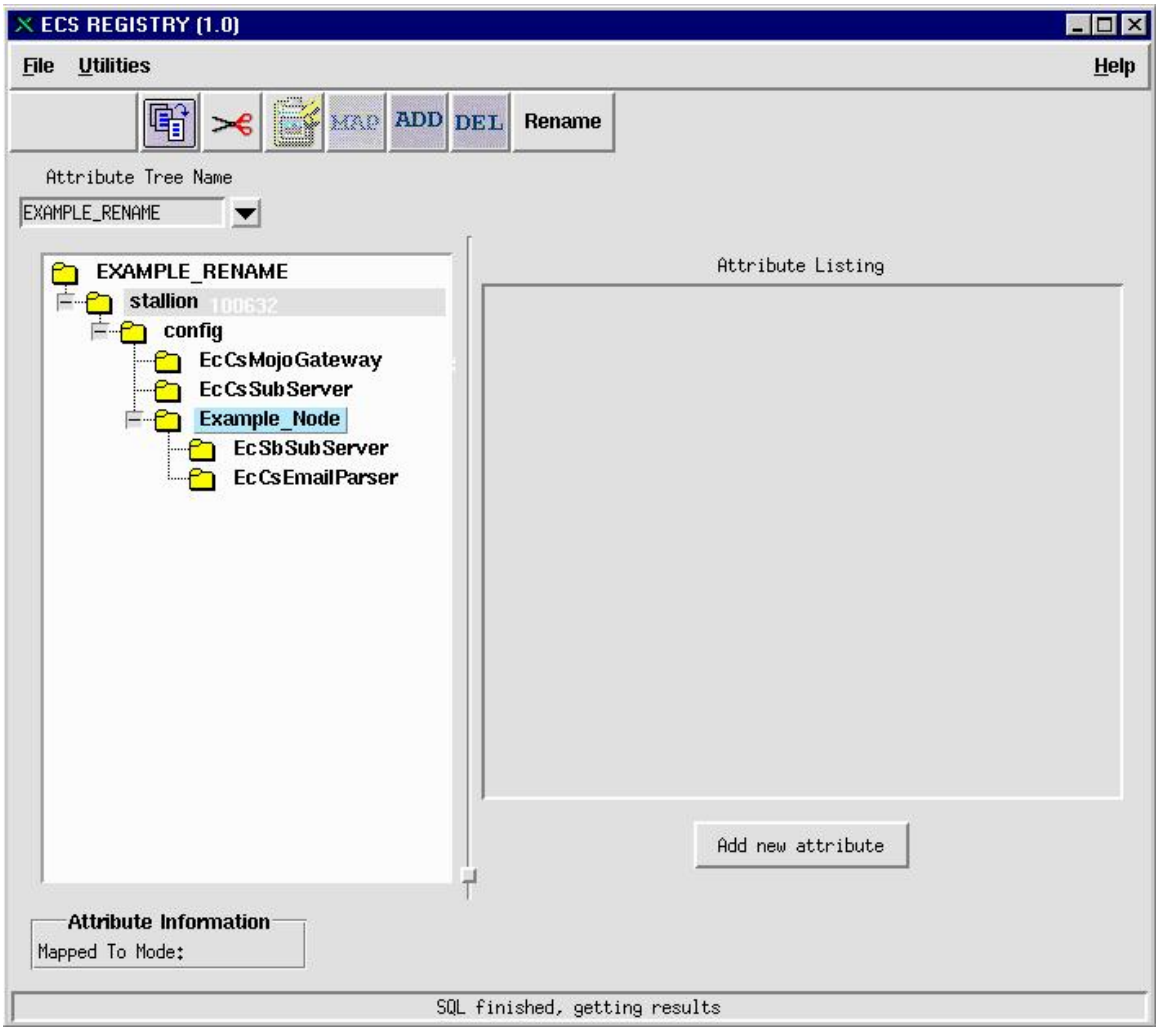

Figure 4.1.6-23. Results of Renaming the "CFG" Node to "Example_Node"

4.1.6.2.6 Deleting Nodes

Figure 4.1.6-24 represents the initiation of a node deletion. Select a node and click the "DEL" button to initiate deletion of a node. A Delete confirmation dialog box is displayed. Click "Ok" to delete the selected node.

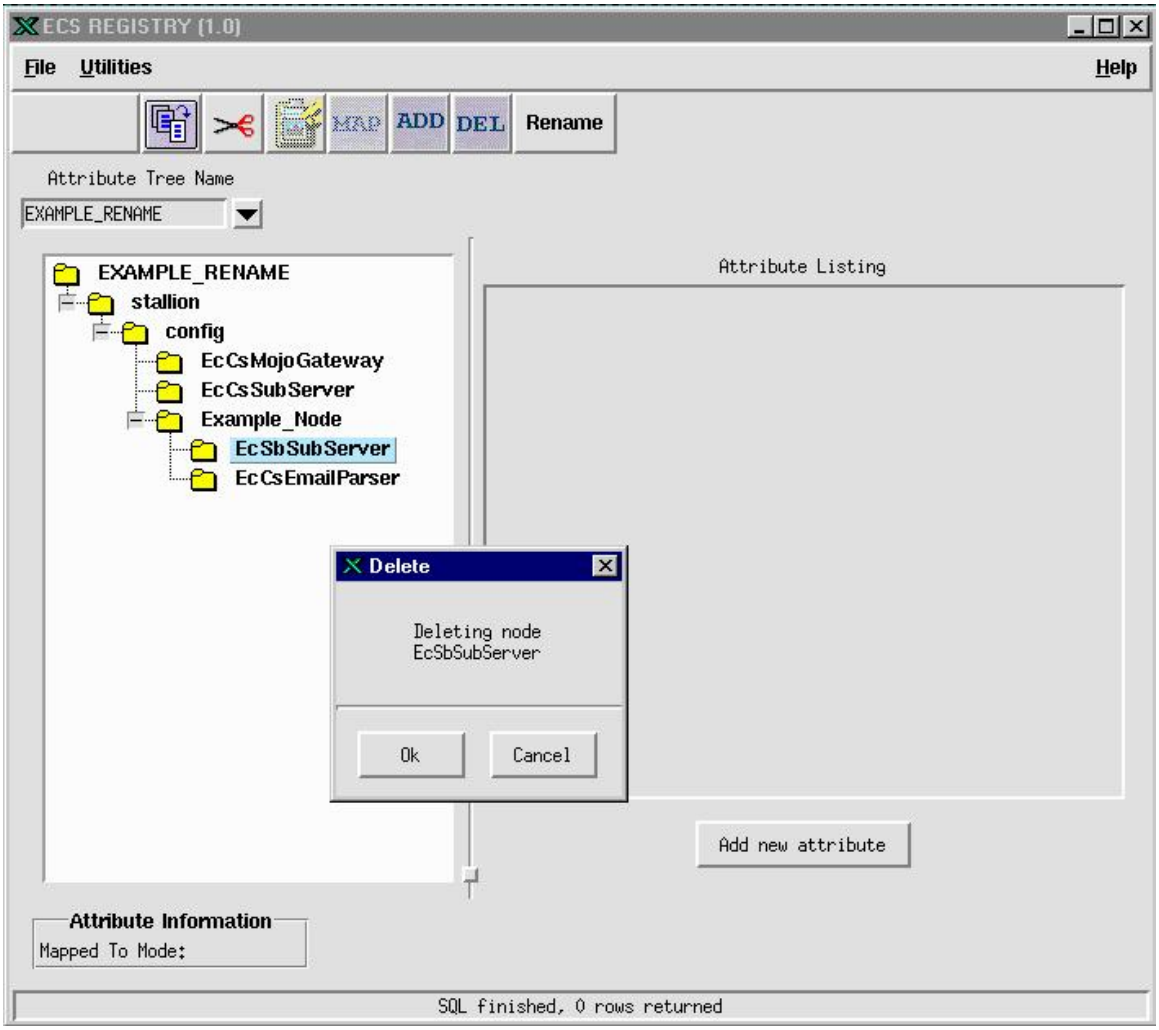

Figure 4.1.6-24. Delete Node Confirmation Dialog Box

Table 4.1.6-10 describes the fields in the Delete dialog box.

Table 4.1.6-10. Delete Node

Field Name	Data Type	Size	Description
“Delete”	Display Only	-	Window title
“Ok”	Button	-	Accepts the transaction
“Cancel”	Button	-	Cancels the transaction

Figure 4.1.6-25 represents the final results when deleting a node.

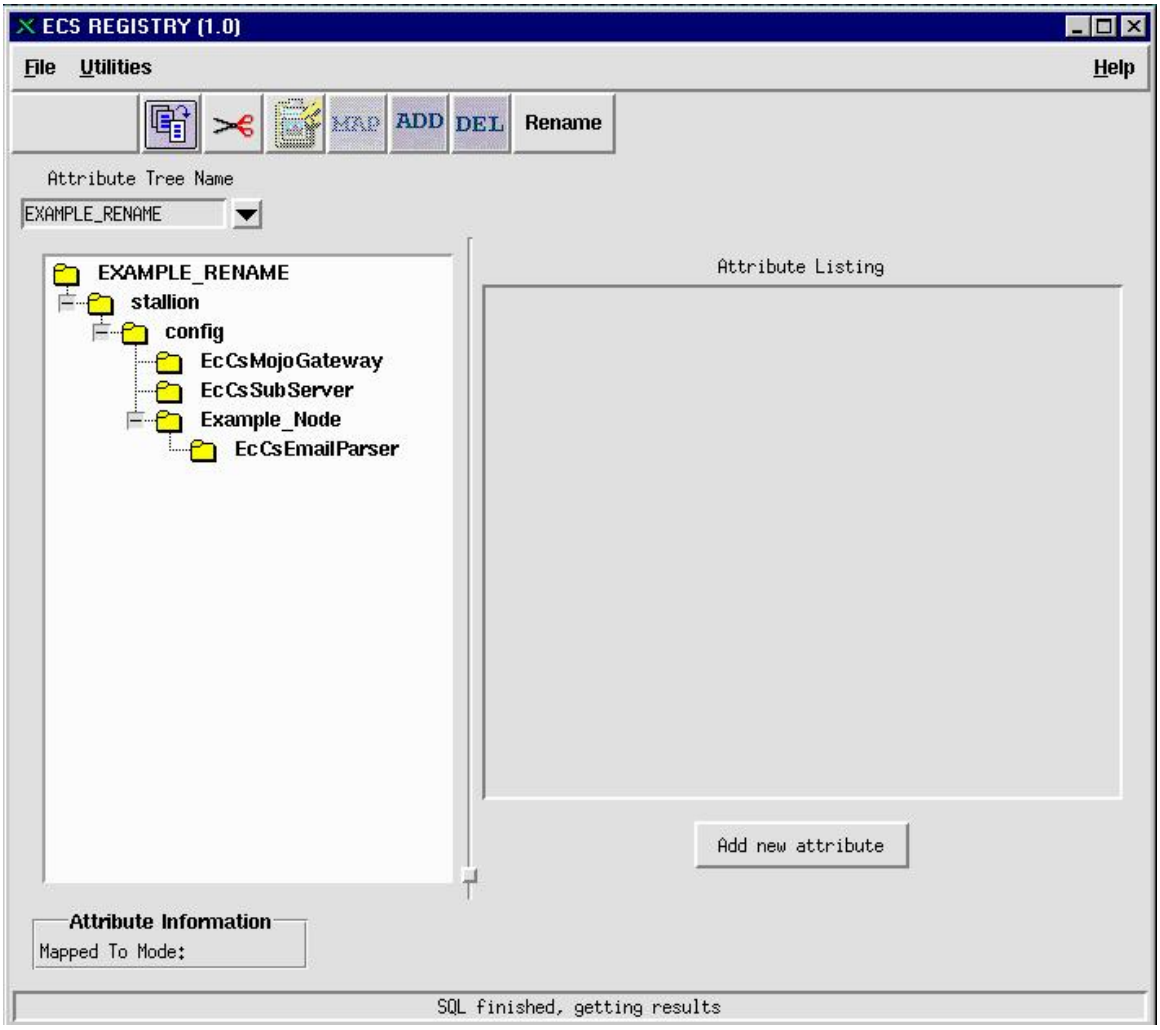

Figure 4.1.6-25. Result of a Confirmed Delete on the Attribute Tree

In Figure 4.1.6-26, node "EcCsEmailParser" has been selected. Node "EcCsEmailParser" has three associated "Attributes." These attributes contain configurable information used by the ECS application software. An attribute is a node with a type "*Attribute*."

To delete an attribute, select it from the "Attribute Listing." In the example, attribute "HWCI" is selected.

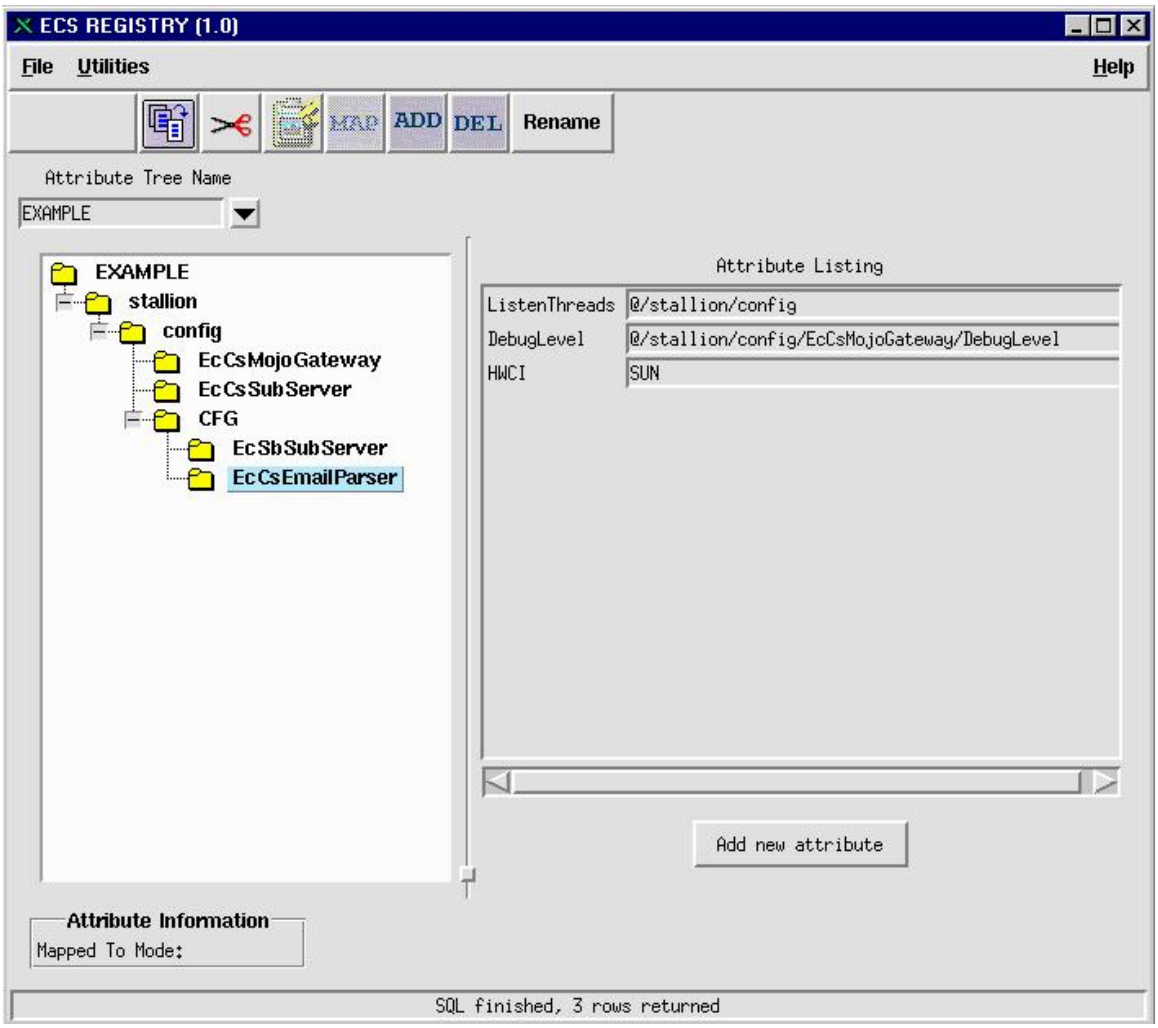

Figure 4.1.6-26. Deleting an Attribute Operation

Table 4.1.6-11 describes the fields for the Delete attribute operation.

Table 4.1.6-11. Fields in the Delete Attribute Dialog

Field Name	Data Type	Size	Description
"Attribute Listing"	Display Only	-	Window title.
Attribute Name(s) list	Display ENTRY	-	Attribute Name.
Add new attribute	Button	-	Launches the attribute information dialog.
"Ok"	Button	-	Accepts the transaction.
"Cancel"	Button	-	Cancels the transaction.

Figure 4.1.6-27 shows the Attribute Information window.

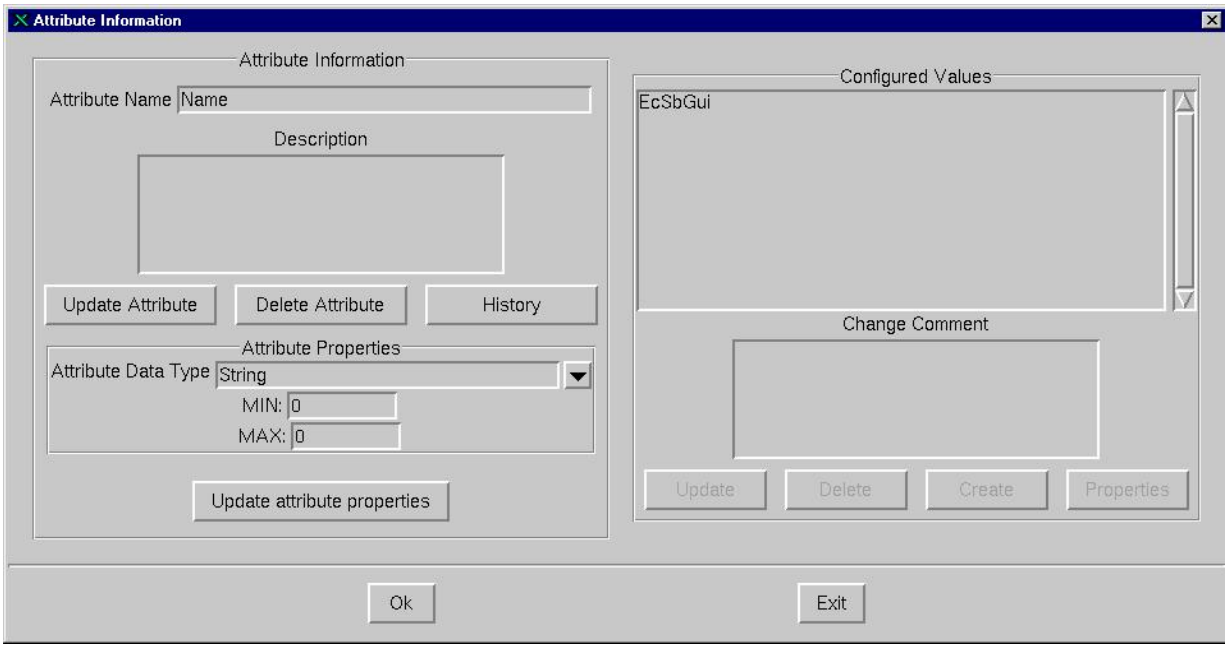

Figure 4.1.6-27. Attribute Information Window

Table 4.1.6-12 describes the fields in the Attribute Information window.

Table 4.1.6-12. Attribute Information Window Fields (1 of 2)

Field Name	Data Type	Size	Description
"Attribute Information"	Display Only	-	Window title.
Attribute Information	Grouping of attribute parameters	-	Heading for the characteristics of a specific attribute.
Attribute Name	Text	-	Attribute Name.
Description	Text	-	Attribute Description.
Update Attribute	Button	-	Updates the registry database with new attribute information.
Delete Attribute	Button	-	Deletes an attribute from the registry database.
History	Button	-	When this button is enabled, a list of historical data related to a selected attribute is displayed. Refer to Figure(s) 4.1.6-33 and 4.1.6-34.
Attribute Properties	Display Only	-	Heading.
Attribute Data Type	String, integer, etc	-	Displays a list of data types using a Combo Box.

Table 4.1.6-12. Attribute Information Window Fields (2 of 2)

Field Name	Data Type	Size	Description
MIN	Integer/float min value	-	Used for Integer and Float data types. Sets up a minimum value.
MAX	Integer/float max value	-	Used for Integer and Float data types. Sets up a maximum value.
Update attribute properties	Button	-	Updates the registry database with new attribute property information.
Configured Values	Grouping of attribute value info.	-	Collection of configured values associated with an attribute.
Value	-	-	Displays a list of values associated with the attribute.
Change Comment	Text	-	Upon adding new values or changing the state of a value, this field should contain the supporting information.
Update	Button		Updates a selected value with a new value.
Delete	Button		Deletes a selected value from list.
Create	Button		Inserts a new value into the list.
Properties	Button		Displays property information for a selected configuration value.
Ok	Button		Saves changes to the Registry Database; removes the attribute information dialog.
Exit	Button		Aborts any changes; removes the attribute information dialog.

When the “Delete Attribute” button is clicked, a Delete Confirmation dialog showing the attribute to be deleted is displayed as shown in Figure 4.1.6-28. The user hits the “Yes” button to confirm the deletion or the “No” button to cancel the deletion.

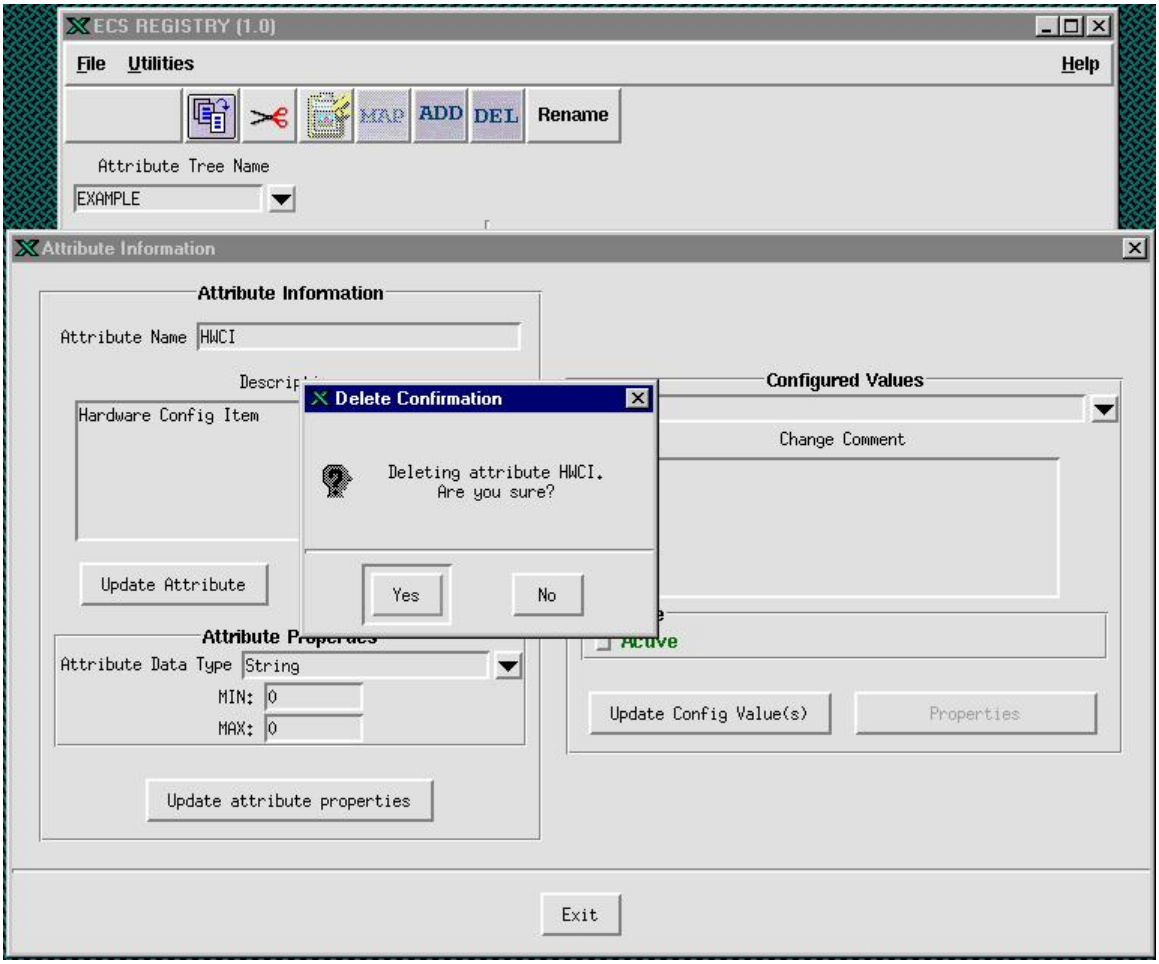

Figure 4.1.6-28. Delete Attribute Confirmation Dialog Box

Figure 4.1.6-29 represents the final results when deleting an attribute. Attribute "HWCI" has been deleted.

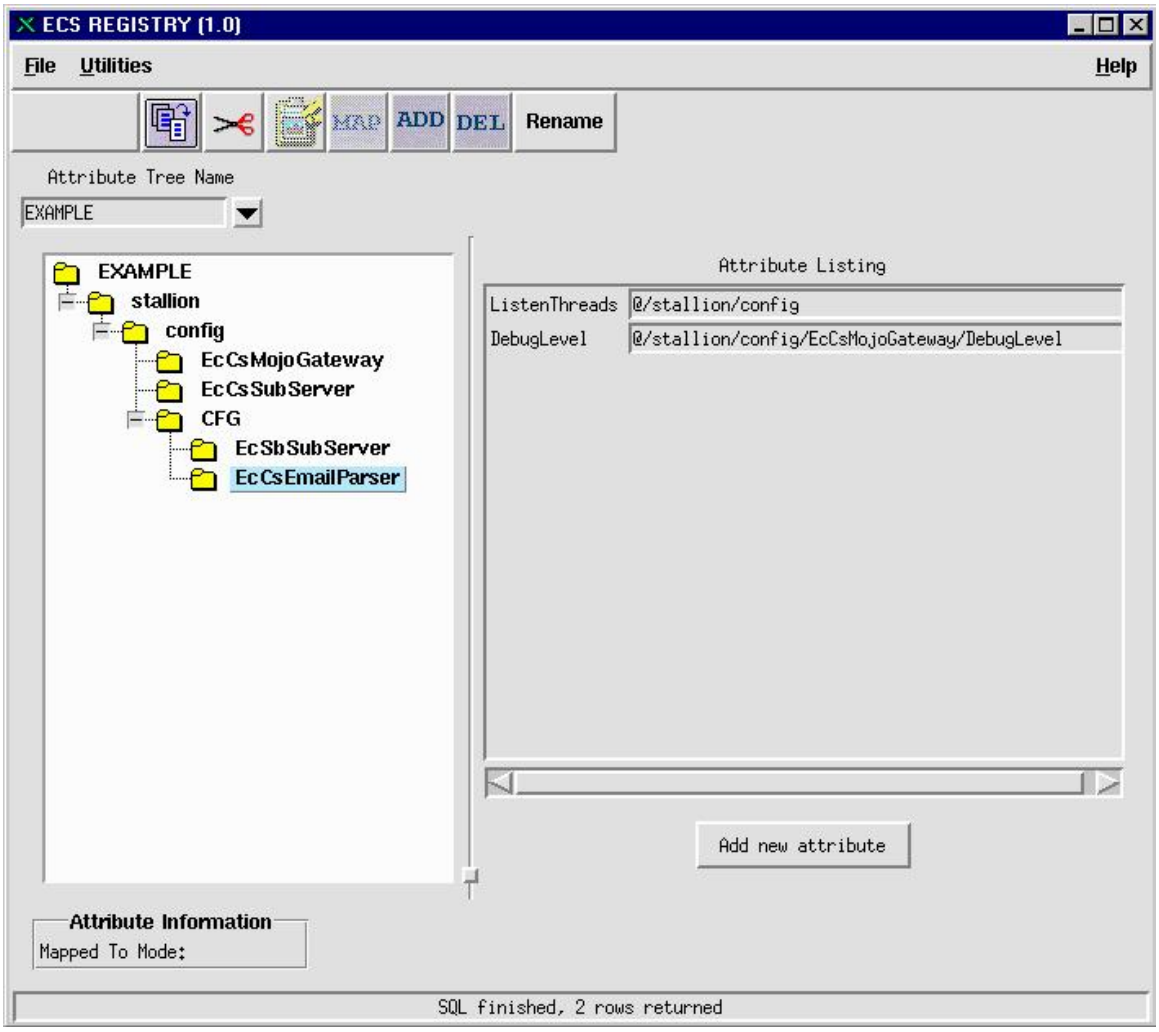

Figure 4.1.6-29. Final Result of the Delete "HWCI" Attribute Operation

4.1.6.2.7 Creating a New Attribute Tree

Open the "Attribute Tree Name" combo box and scroll down to the bottom as shown in Figure 4.1.6-30. There is an element called "Add_New." Clicking on this element allows the creation of a new attribute tree.

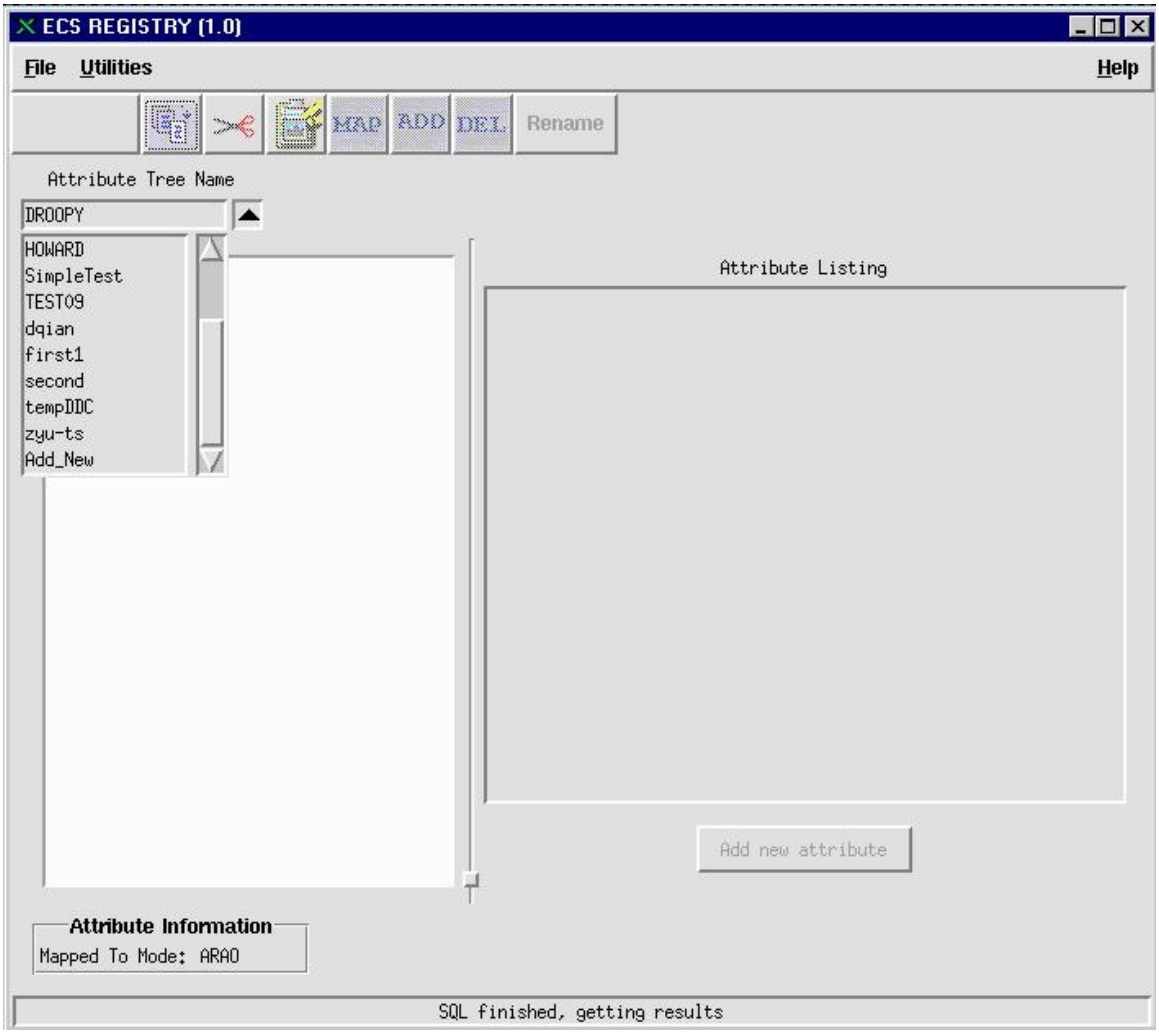

Figure 4.1.6-30. Creating a New Attribute Tree

Clicking on the element “Add_New” in the list invokes the “Creating a new attribute tree” dialog as depicted in Figure 4.1.6-31. Enter the new attribute tree name, a description and click “Ok.”

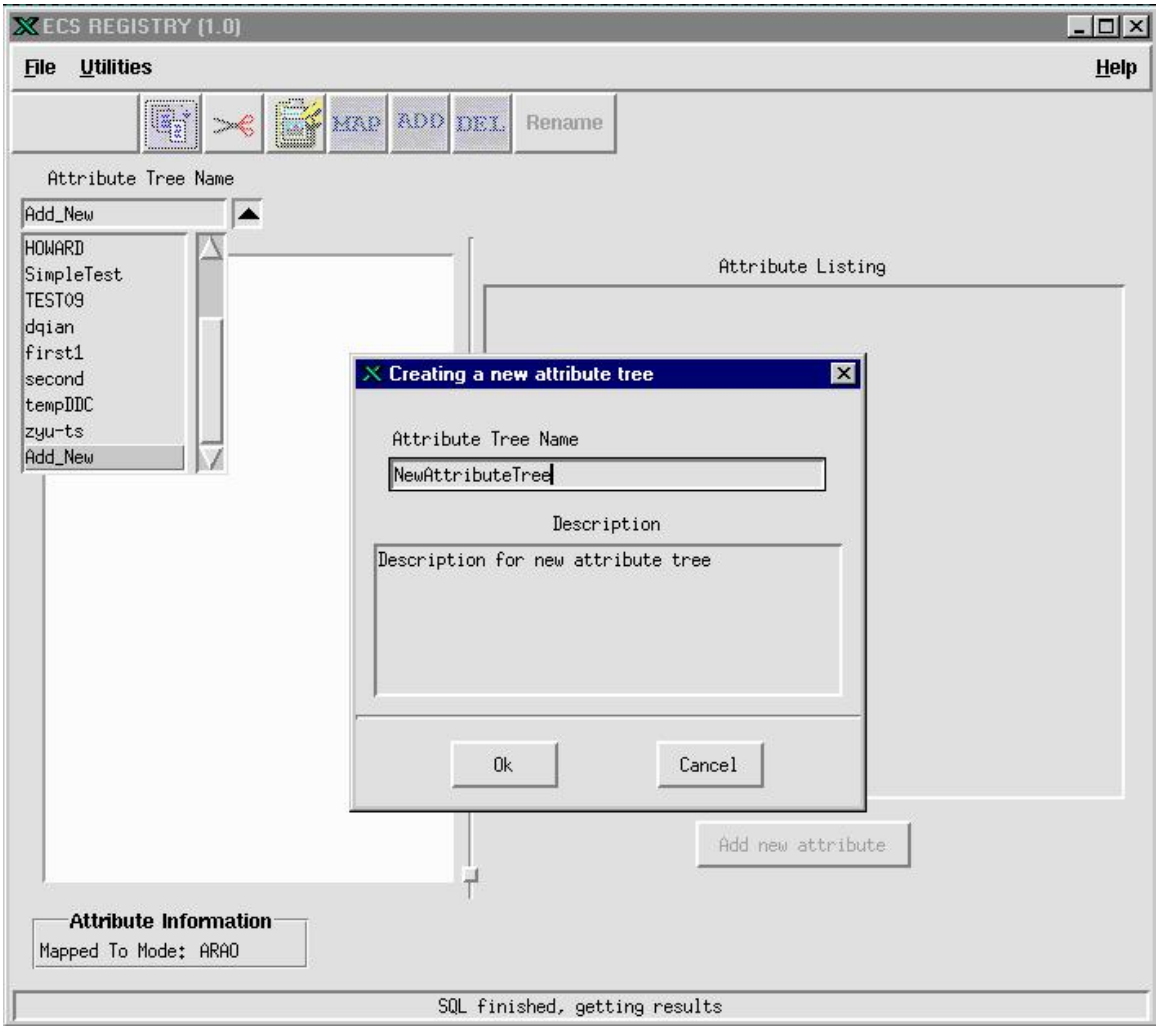

Figure 4.1.6-31. "Creating a new attribute tree" Dialog Box

Table 4.1.6-13 describes the fields in the "Create new attribute tree" dialog box.

Table 4.1.6-13. Fields in the "Creating a new attribute tree" Dialog Box

Field Name	Data Type	Size	Description
"Creating a new attribute tree"	Text	-	Dialog box title.
Attribute Name	Text	-	The user enters the name of the attribute tree.
Description	Text	-	The user enters a brief description of the attribute tree.
Ok	Button	-	Initiates the addition of the new tree.
Cancel	Button	-	Cancels the addition operation.

Figure 4.1.6-32 represents the final results when creating a new attribute tree.

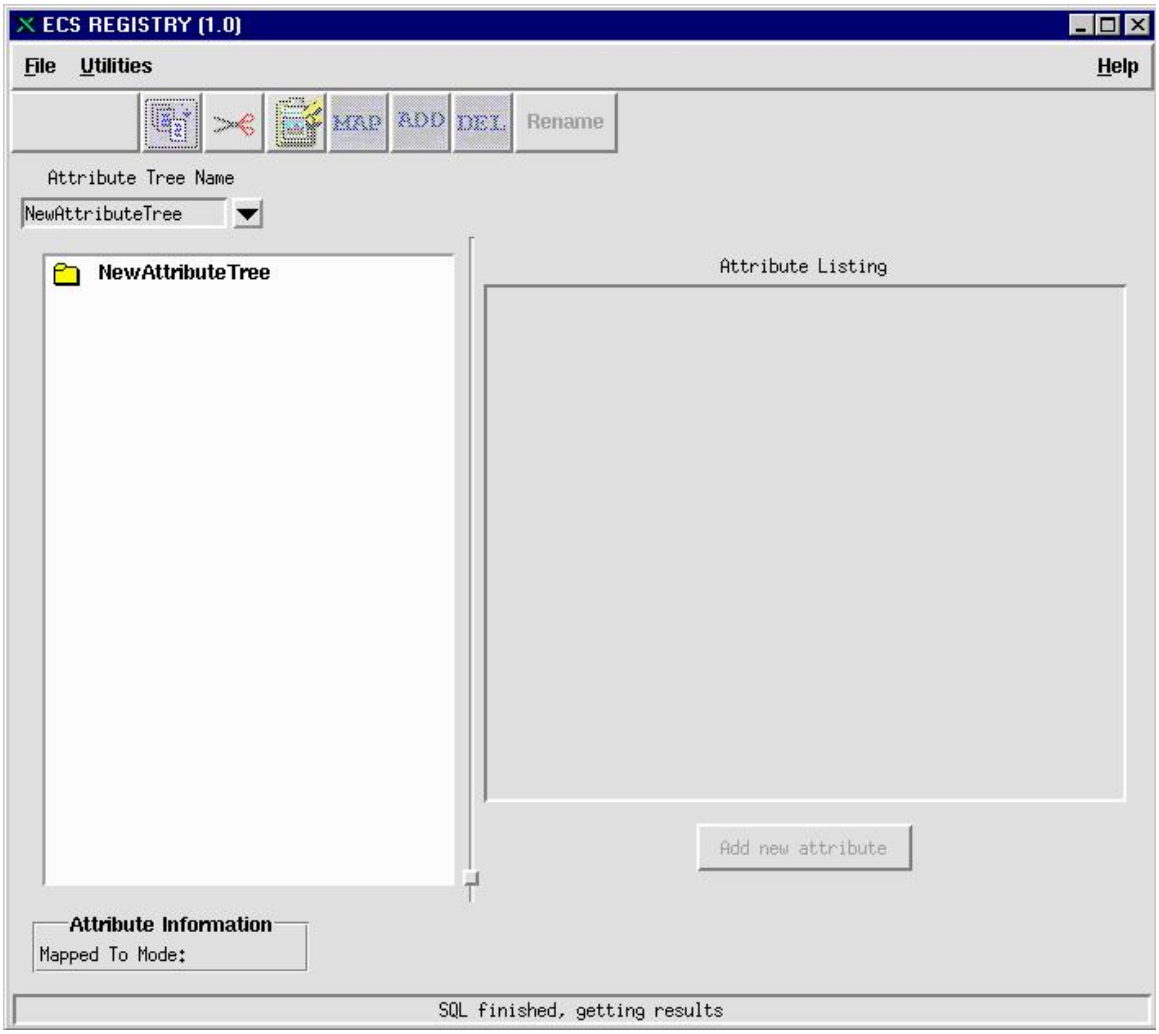

Figure 4.1.6-32. Final Result of Adding a New Attribute Tree

When the History button is enabled on the Attribute Information window (Figure 4.1.6-27), the operator can click on it resulting in a dialog presenting the historical data related to the selected attribute as shown in Figure 4.1.6-33/34.

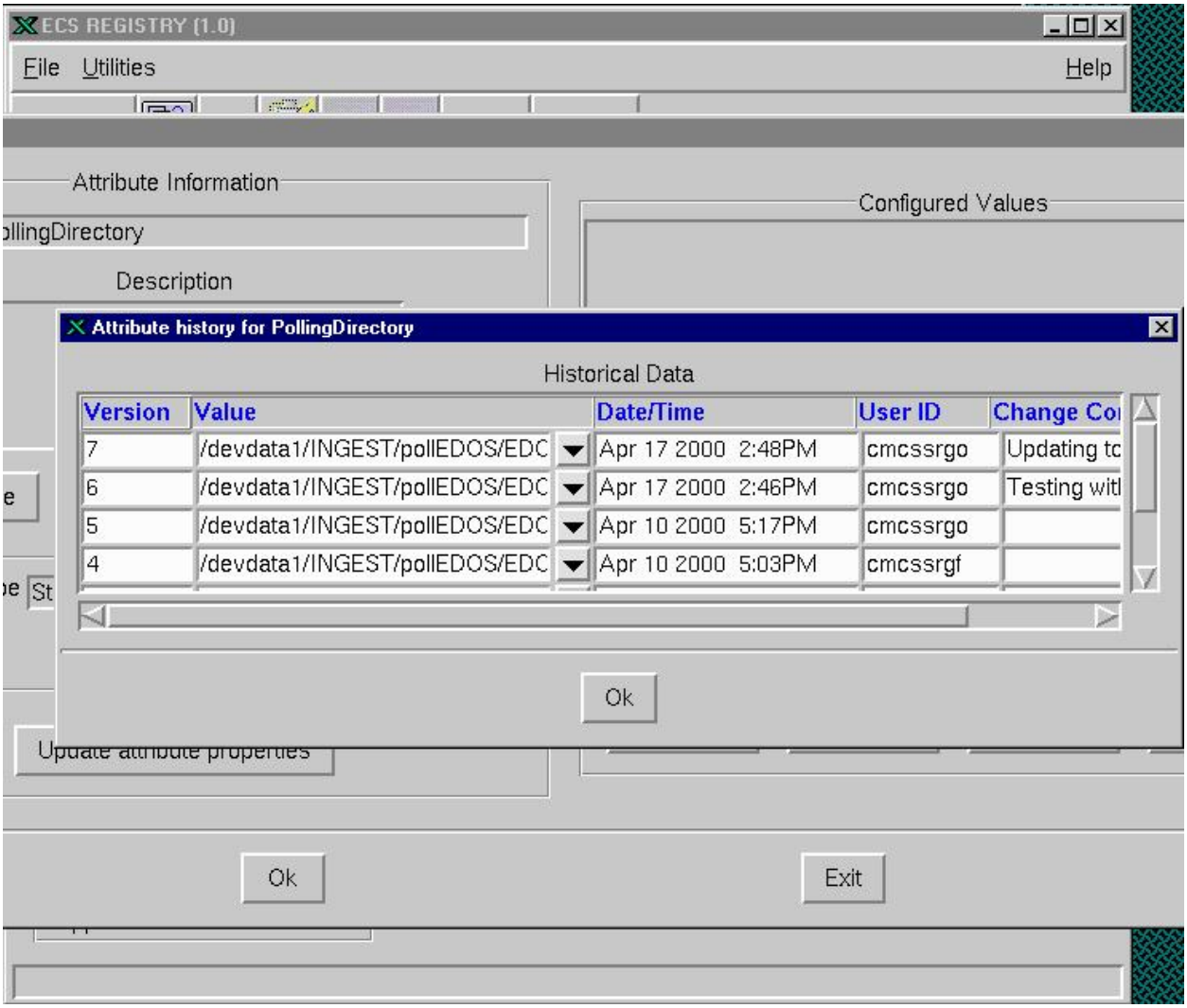

Figure 4.1.6-33. Attribute Historical Data View 1

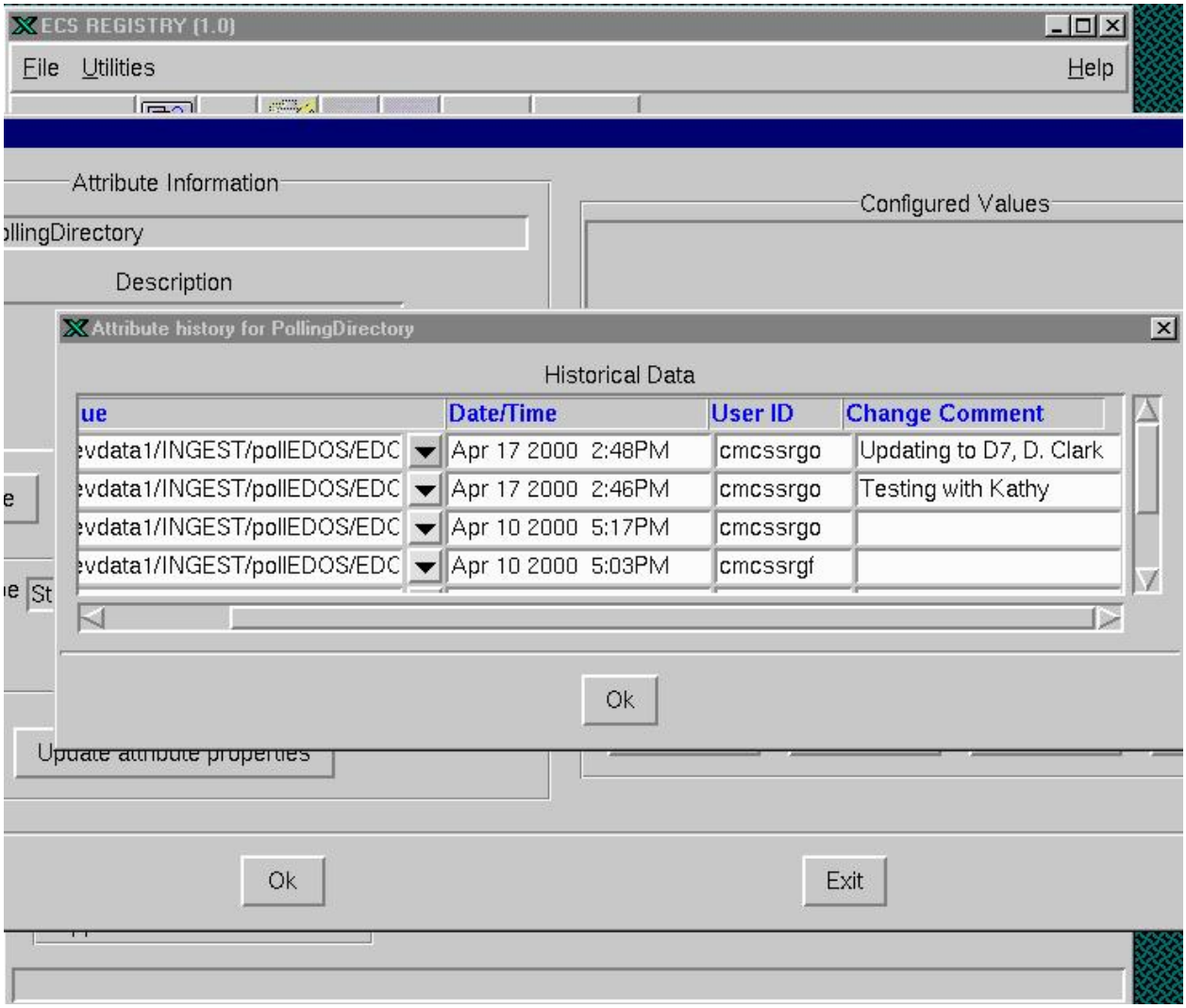

Figure 4.1.6-34. Attribute Historical Data View 2

Table 4.1.6-14 describes the Attribute Historical Data window fields.

Table 4.1.6-14. Attribute Historical Data Fields for Views 1 and 2 (1 of 2)

Field Name	Data Type	Size	Description
"Attribute history for "***Attribute Name***""	Display Only	-	Window title
Historical Data	Display Only	-	Heading
Version	Display Only	-	Heading
Value	Display Only	-	Heading
Date/Time	Display Only	-	Heading

Table 4.1.6-14. Attribute Historical Data Fields for Views 1 and 2 (2 of 2)

Field Name	Data Type	Size	Description
User ID	Display Only	-	Heading
Comment	Display Only	-	Heading
Version	Read only entry field	-	Displays version number (Descending order)
Value	Read only entry field	-	List of Previous values before the change. Click arrow to review list.
Date/Time	Read only entry field	-	Displays Date and Time of change
User ID	Read only entry field	-	User ID responsible for the change
Comment	Read only entry field	-	Reason for the change. For a complete view click the "Comment" entry box. See Figure 4.1.6-35. "Reason for change dialog"

Figure 4.1.6-35 shows the Reason for Change dialog box.

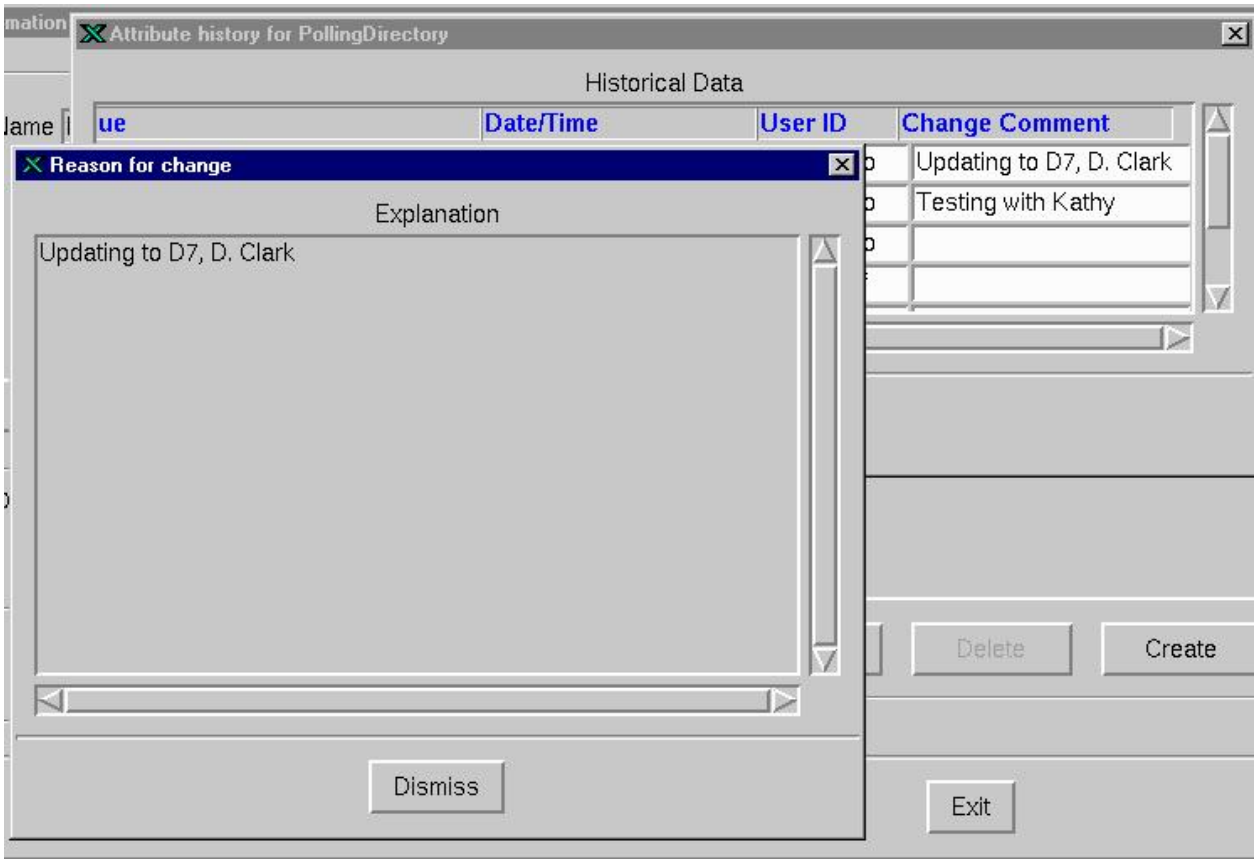

Figure 4.1.6-35. Reason for Change Dialog

Table 4.1.6-15 describes fields in the Reason for change dialog.

Table 4.1.6-15. Reason for Change

Field Name	Data Type	Size	Description
“Reason For Change”	Display Only	-	Window title
“Explanation”	Display Only	-	Heading
Text	Read only text box	-	Complete view of comment.
Dismiss	Button	-	Closes reason for change dialog

4.1.6.3 Required Operating Environment

The required operating environment is a UNIX OS on IRIX 6.5 and SUN 5.5

4.1.6.3.1 Interfaces and Data Types

Not Applicable

4.1.6.4 Database Schema

The name of the Registry database used is not fixed. DAAC management determines the name of the Registry database.

4.1.6.5 Special Constraints

The ECS Registry GUI allows only one user to write to the database at a time.

4.1.6.6 Outputs

None

4.1.6.7 Event and Error Messages

Error dialogs are displayed when mandatory fields are missing.

4.1.12.8 Reports

No reports are generated.

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4.1.7 Whazzup GUI

Whazzup is a tool that monitors and displays the execution status and related performance statistics associated with ECS programs. It is implemented using the Perl language and uses a Common Gateway Interface (CGI)-based web interface to display information to the user.

4.1.7.1 Quick Start Using Whazzup

There are two programs running in the background to collect the data Whazzup displays. The first is the Perl script collecting the performance and custom application/COTS status for each host listed in the **Host Status** pull-down menu on the main screen. This script called CollectDaemon.pl, runs on host [xx]ins01 where “xx” is a site unique host-naming prefix. It collects performance statistics every 5 minutes by using a Secure Shell (SSH) call to each host. The calls are done in parallel and are executed on the "fives" of every hour (e.g., :00., :05, :10…) An additional script runs on host g0ins01 and collects information for each of the custom code servers listed in the **Verify Mode** list. This script, called ServerSizeDaemon.pl runs on the quarter of the hour (i.e., :00, :15, :30, :45).

To connect to the main GUI, enter the following URL in the browse location field:

http://[xx]ins01:5150

If [xx]ins01 is rebooted, the following scripts need to be started as the user "allmode":

/home/cmshared/Wz/utilities/EcMsWzStartApacheServer

/home/cmshared/Wz/utilities/EcMsWzStartServerSizeCollection

/home/cmshared/Wz/utilities/EcMsWzStartHostStatusCollection

4.1.7.2 Whazzup Main Screen

Figure 4.1.7-1 is the Whazzup main screen. It provides an introductory explanation of Whazzup usage and the meaning of specific color codes used. At the bottom of the screen are the **Host Status:** and **Mode Status:** pull-down menus for selecting a configured host or mode for detailed information. The **Verify Mode:** pull-down allows for determining the status of ECS programs configured as critical. Additionally, there is the **Performance** button and the **Management** buttons. The Performance button is used to bring up the Host Performance Statistics screen. The **Management** button is used to bring up the Whazzup Management Interface screen. Finally, an **Update** button is used to manually update Whazzup displayed information.

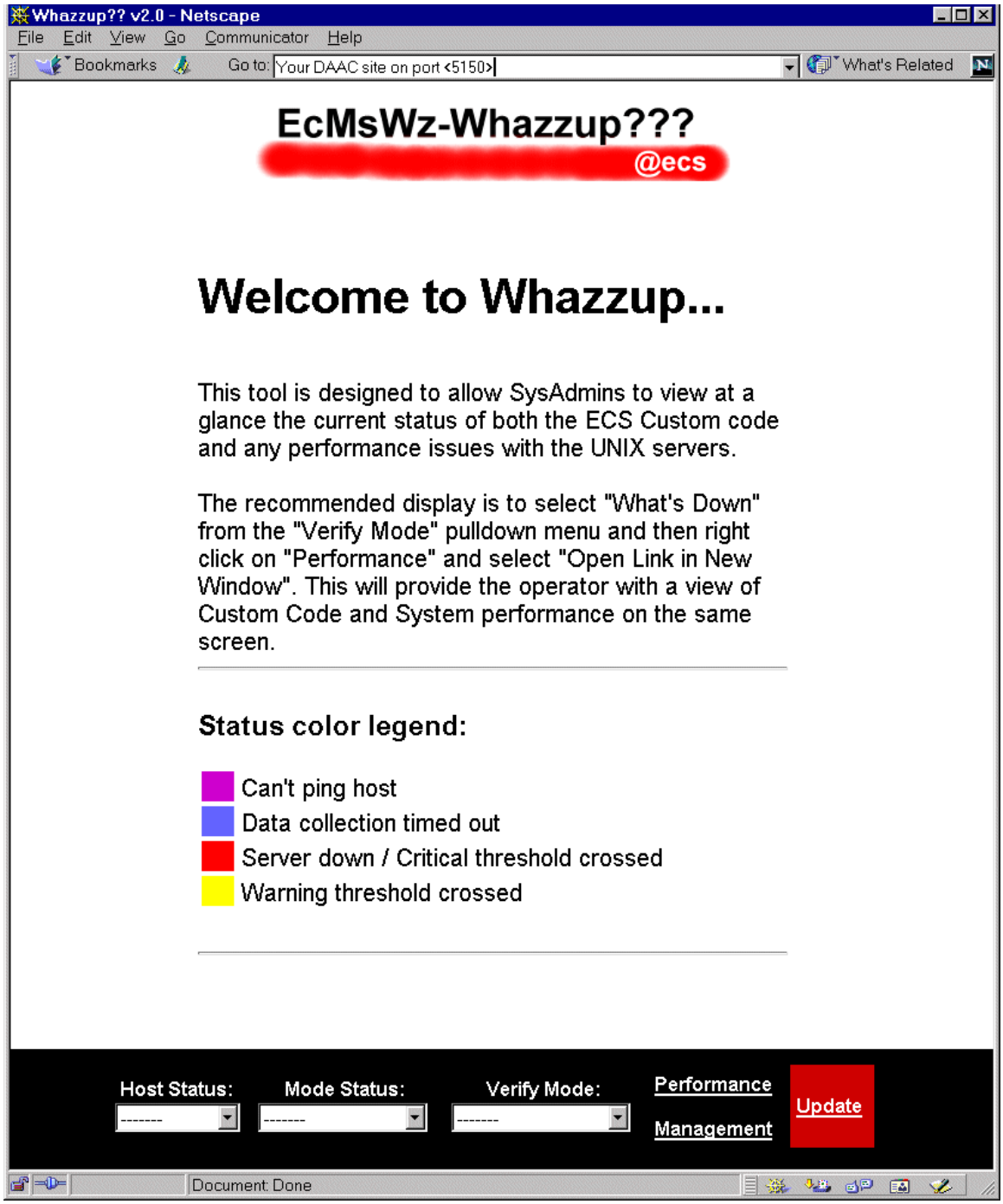
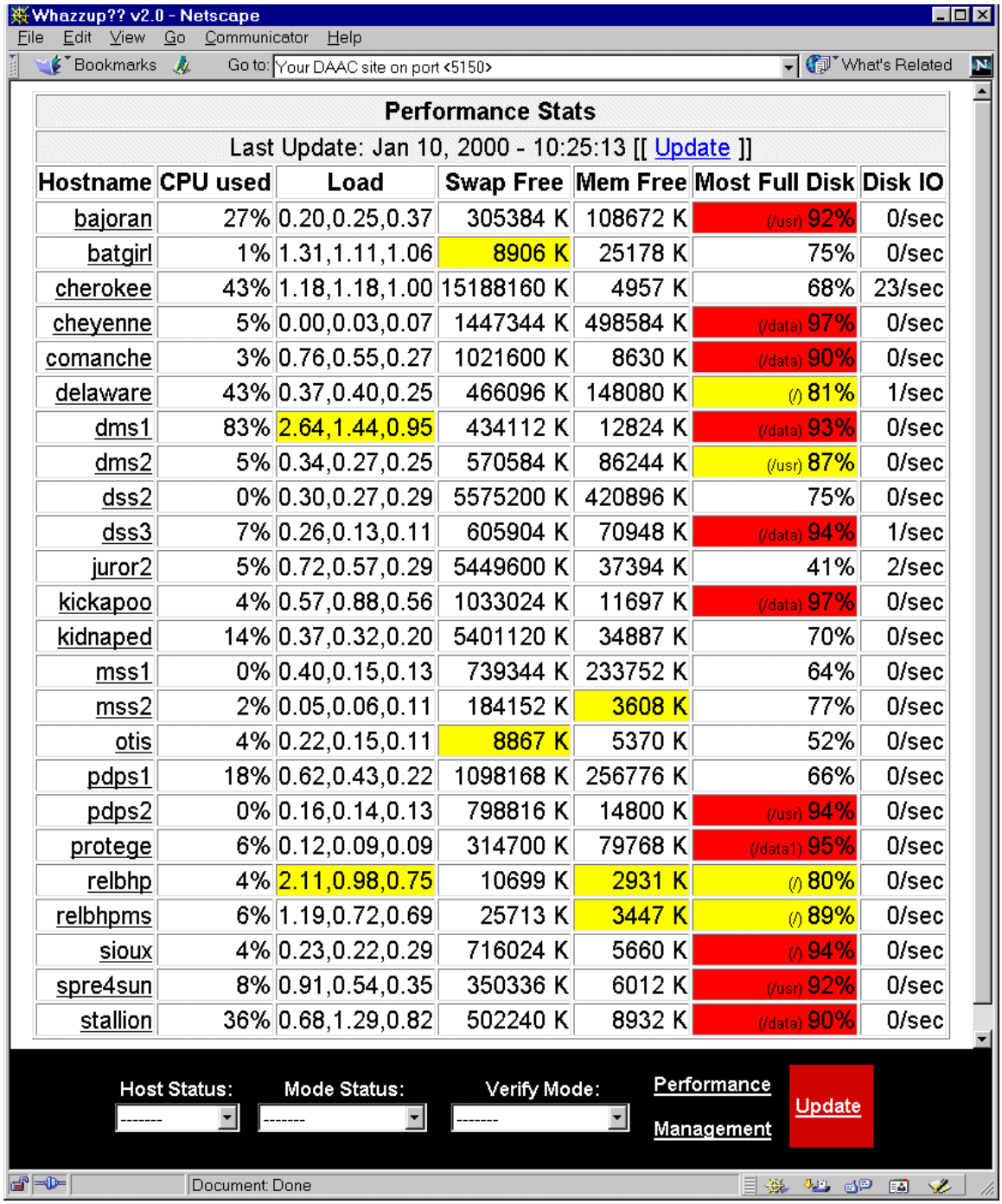


Figure 4.1.7-1. Whazzup Main Screen

4.1.7.2.1 Host Performance Statistics Screen

Figure 4.1.7-2 is the Host Performance Statistics Summary screen. It appears when the **Performance** button is pressed. The screen displays each monitored host and its associated performance information.



Hostname	CPU used	Load	Swap Free	Mem Free	Most Full Disk	Disk IO
bajoran	27%	0.20,0.25,0.37	305384 K	108672 K	(/usr) 92%	0/sec
batgirl	1%	1.31,1.11,1.06	8906 K	25178 K	75%	0/sec
cherokee	43%	1.18,1.18,1.00	15188160 K	4957 K	68%	23/sec
cheyenne	5%	0.00,0.03,0.07	1447344 K	498584 K	(/data) 97%	0/sec
comanche	3%	0.76,0.55,0.27	1021600 K	8630 K	(/data) 90%	0/sec
delaware	43%	0.37,0.40,0.25	466096 K	148080 K	(/) 81%	1/sec
dms1	83%	2.64,1.44,0.95	434112 K	12824 K	(/data) 93%	0/sec
dms2	5%	0.34,0.27,0.25	570584 K	86244 K	(/usr) 87%	0/sec
dss2	0%	0.30,0.27,0.29	5575200 K	420896 K	75%	0/sec
dss3	7%	0.26,0.13,0.11	605904 K	70948 K	(/data) 94%	1/sec
juror2	5%	0.72,0.57,0.29	5449600 K	37394 K	41%	2/sec
kickapoo	4%	0.57,0.88,0.56	1033024 K	11697 K	(/data) 97%	0/sec
kidnaped	14%	0.37,0.32,0.20	5401120 K	34887 K	70%	0/sec
mss1	0%	0.40,0.15,0.13	739344 K	233752 K	64%	0/sec
mss2	2%	0.05,0.06,0.11	184152 K	3608 K	77%	0/sec
otis	4%	0.22,0.15,0.11	8867 K	5370 K	52%	0/sec
pdps1	18%	0.62,0.43,0.22	1098168 K	256776 K	66%	0/sec
pdps2	0%	0.16,0.14,0.13	798816 K	14800 K	(/usr) 94%	0/sec
protege	6%	0.12,0.09,0.09	314700 K	79768 K	(/data1) 95%	0/sec
relbhp	4%	2.11,0.98,0.75	10699 K	2931 K	(/) 80%	0/sec
relbhpms	6%	1.19,0.72,0.69	25713 K	3447 K	(/) 89%	0/sec
sioux	4%	0.23,0.22,0.29	716024 K	5660 K	(/) 94%	0/sec
spre4sun	8%	0.91,0.54,0.35	350336 K	6012 K	(/usr) 92%	0/sec
stallion	36%	0.68,1.29,0.82	502240 K	8932 K	(/data) 90%	0/sec

Figure 4.1.7-2. ECS Host Performance Statistics Summary Screen.

The following color codes are used for hosts and custom servers to display statuses:

Host status:

Red - Server is down / Critical threshold crossed
Yellow - Warning threshold crossed
Blue - The ssh timed out while connecting to the server
Purple - The host running the server or the host itself cannot be pinged

Performance stats:

CPU: >= 95% - red, >= 90% - yellow
Load: >= 4.0 - red, >= 2.0 - yellow
Free Swap: <= 5000 K - red, <= 10000 K - yellow
Most Full Disk: >= 90% - red, <= 80% - yellow

The status screens refresh every 2 minutes automatically. This does not change the underlying data that creates the pages. The underlying data is regenerated every 5 minutes by the collection scripts. You can force a regeneration of the data by clicking any of the **Update** links. The time stamp of the last update can be seen at the top of each status page.

Output of the daemons that collect the data presented via the web interface can be found at:

/home/cmshared/Wz/output/HostStatus - performance and mode status

/home/cmshared/Wz/output/CustomServerSize/ - sever size and memory growth output

Most frequently used links are:

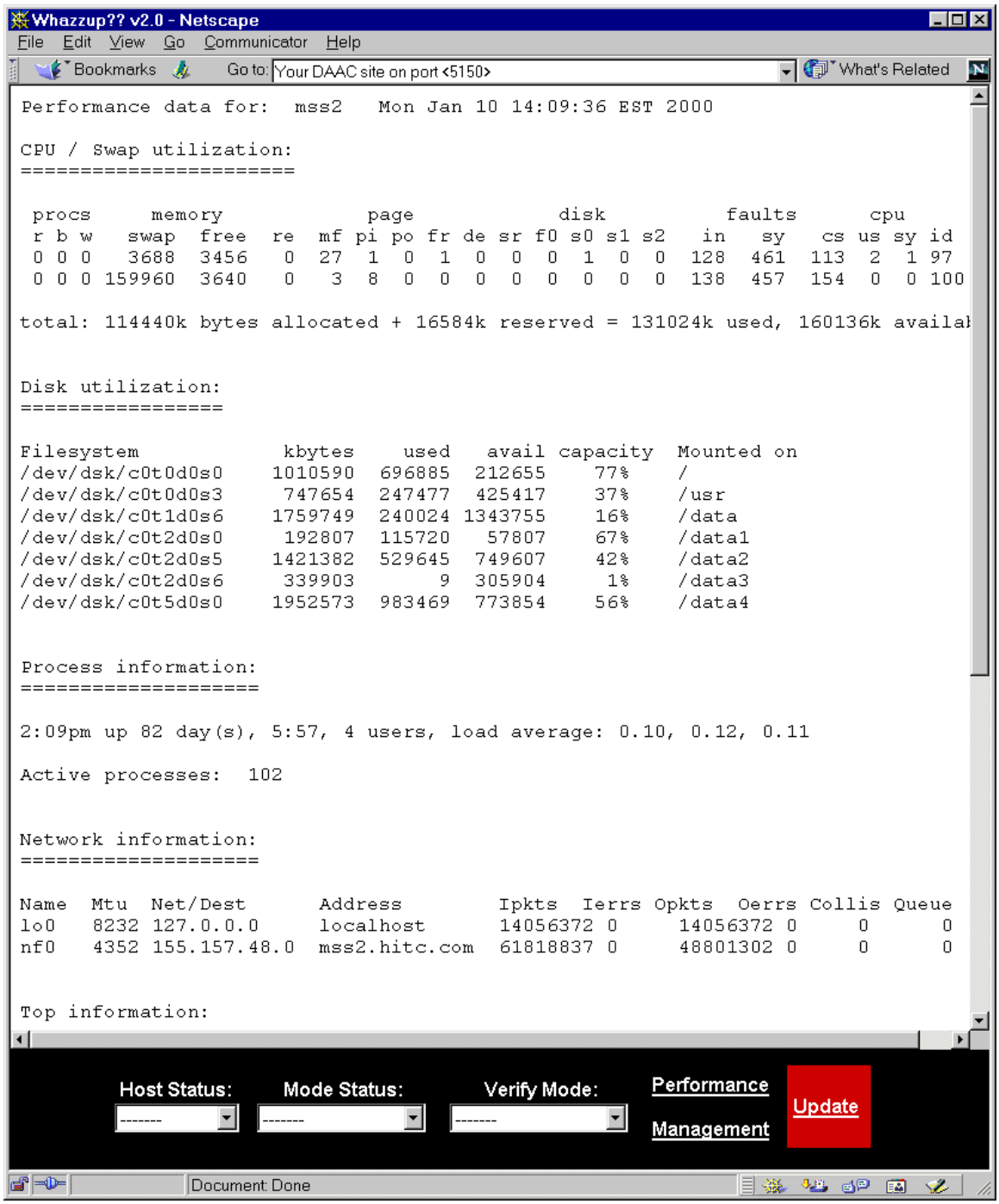
Performance

Verify Mode->what is down

Frequently, when monitoring the lab, we right-click on the Performance link and select "Open link in new window" and keep that off to the side and then select **Verify Mode->What's down**. This provides a quick view of what's happening on the servers and whether or not any custom code has crashed.

4.1.7.2.2 Host Performance Information Screen

Figure 4.1.7-3 shows the performance information on a specific host. It is generated when a particular host is selected on the Performance Stats screen (Figure 4.1.7-2). It gives a quick overview of what is currently happening on a machine to assist with troubleshooting.



```
Performance data for:  mss2   Mon Jan 10 14:09:36 EST 2000

CPU / Swap utilization:
=======================

 procs     memory            page            disk          faults      cpu
 r b w   swap  free  re  mf pi po fr de sr f0 s0 s1 s2   in   sy   cs us sy id
 0 0 0   3688  3456   0  27  1  0  1  0  0  0  1  0  0  128  461  113  2  1 97
 0 0 0 159960  3640   0   3  8  0  0  0  0  0  0  0  0  138  457  154  0  0 100

total: 114440k bytes allocated + 16584k reserved = 131024k used, 160136k availa


Disk utilization:
=================

Filesystem            kbytes    used   avail capacity  Mounted on
/dev/dsk/c0t0d0s0    1010590  696885  212655    77%    /
/dev/dsk/c0t0d0s3     747654  247477  425417    37%    /usr
/dev/dsk/c0t1d0s6    1759749  240024 1343755    16%    /data
/dev/dsk/c0t2d0s0     192807  115720   57807    67%    /data1
/dev/dsk/c0t2d0s5    1421382  529645  749607    42%    /data2
/dev/dsk/c0t2d0s6     339903       9  305904     1%    /data3
/dev/dsk/c0t5d0s0    1952573  983469  773854    56%    /data4


Process information:
====================

2:09pm up 82 day(s), 5:57, 4 users, load average: 0.10, 0.12, 0.11

Active processes:  102


Network information:
====================

Name  Mtu  Net/Dest      Address        Ipkts  Ierrs Opkts  Oerrs Collis Queue
lo0   8232 127.0.0.0     localhost      14056372 0     14056372 0     0      0
nf0   4352 155.157.48.0  mss2.hitc.com  61818837 0     48801302 0     0      0


Top information:
```


Figure 4.1.7-3. Host Performance Detail Report

4.1.7.2.3 Host Status Screen

Figure 4.1.7-4 is the Host Status screen displaying a summary of the performance statistics for the host as well as COTS software execution status and the status of the ECS applications running in each ECS mode on the host. This screen is brought up when the Host Status is selected.

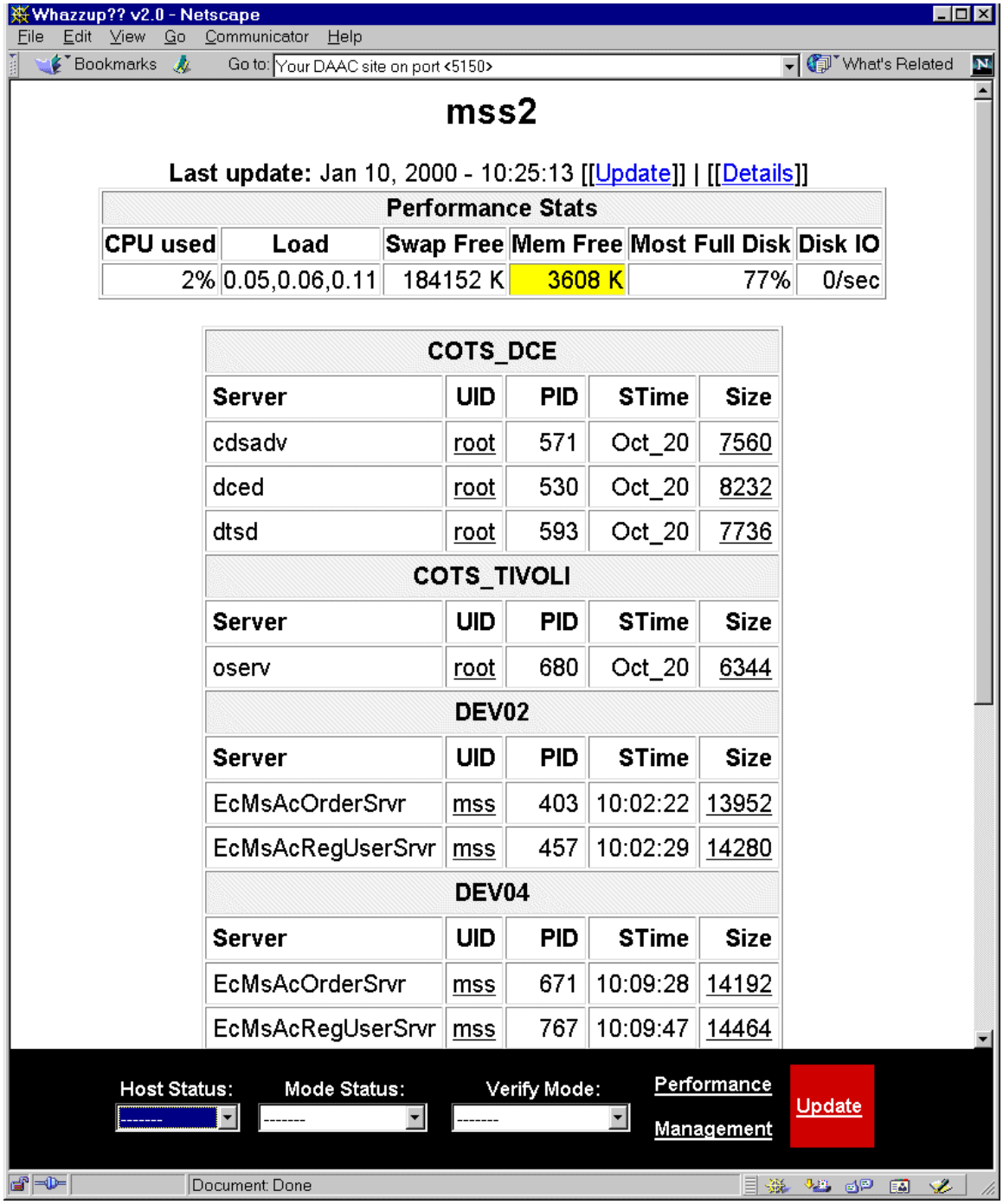
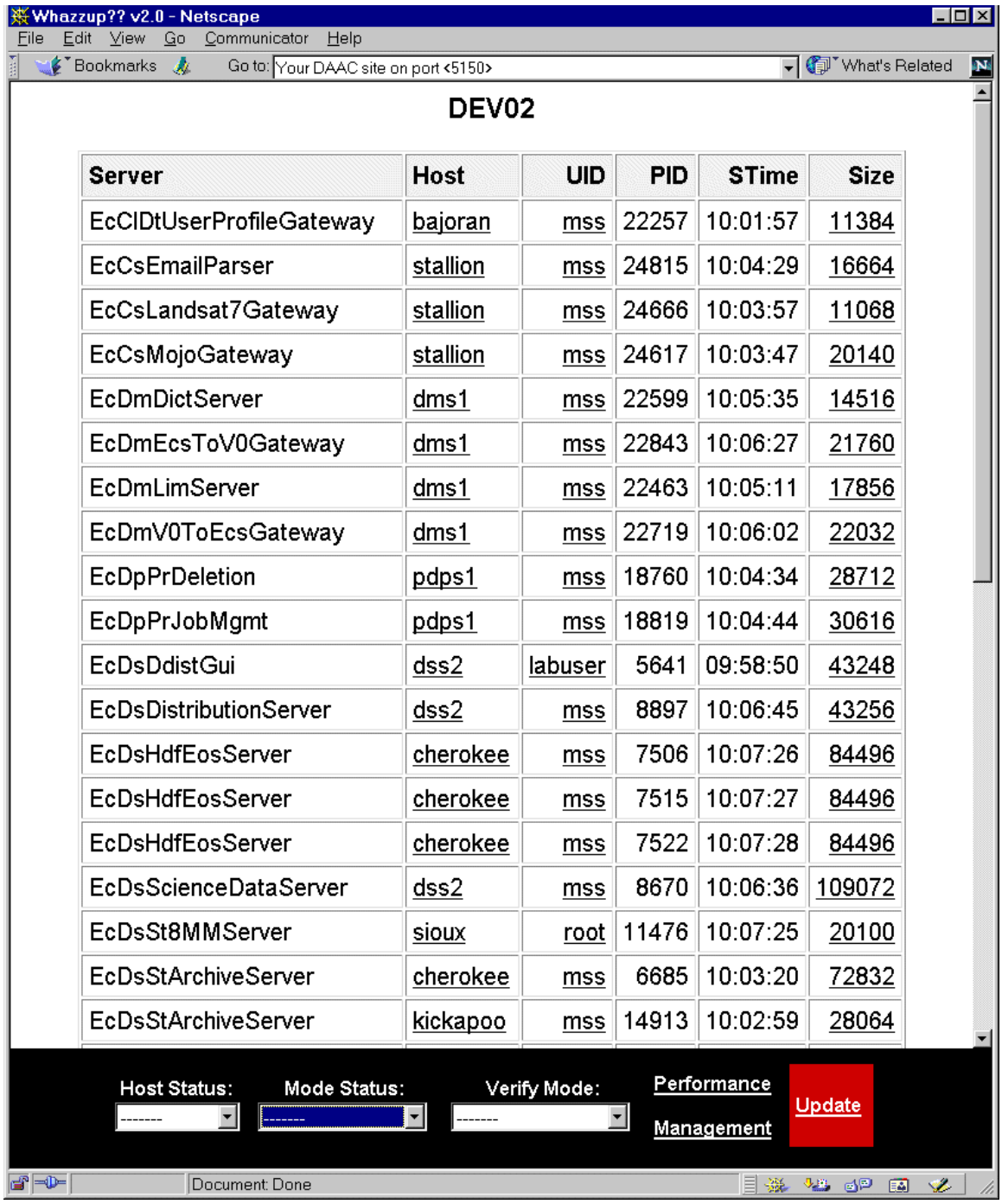


Figure 4.1.7-4. Host Status Screen

4.1.7.2.4 Mode Status Screen

Figure 4.1.7-5 is the Mode Status screen. Selecting an ECS mode in the **Mode Status** pull-down menu brings up the **Mode Status** screen. It displays the execution status of all ECS servers on all hosts for the selected mode.

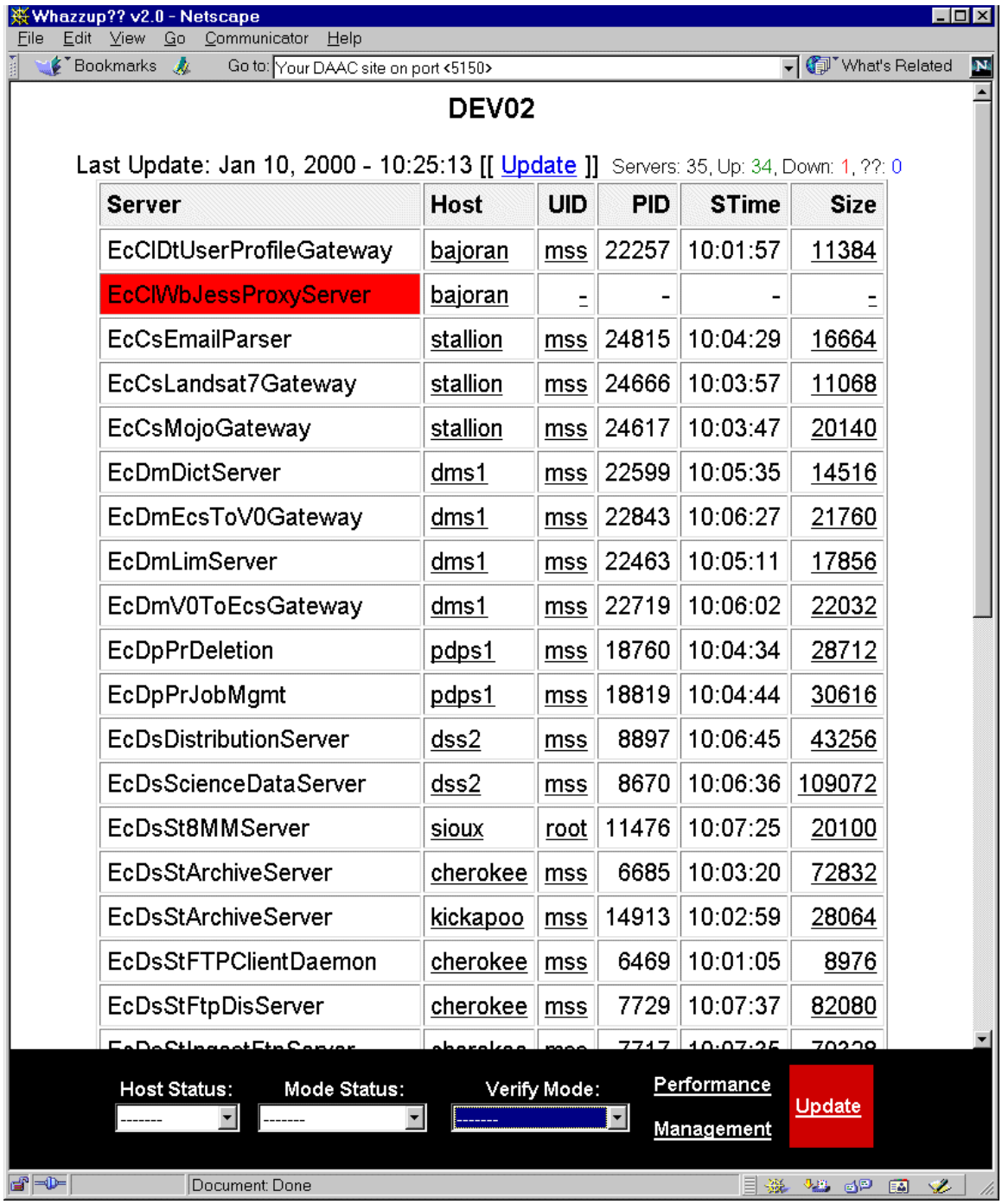


Server	Host	UID	PID	STime	Size
EcCIDtUserProfileGateway	bajoran	mss	22257	10:01:57	11384
EcCsEmailParser	stallion	mss	24815	10:04:29	16664
EcCsLandsat7Gateway	stallion	mss	24666	10:03:57	11068
EcCsMojoGateway	stallion	mss	24617	10:03:47	20140
EcDmDictServer	dms1	mss	22599	10:05:35	14516
EcDmEcsToV0Gateway	dms1	mss	22843	10:06:27	21760
EcDmLimServer	dms1	mss	22463	10:05:11	17856
EcDmV0ToEcsGateway	dms1	mss	22719	10:06:02	22032
EcDpPrDeletion	pdps1	mss	18760	10:04:34	28712
EcDpPrJobMgmt	pdps1	mss	18819	10:04:44	30616
EcDsDdistGui	dss2	labuser	5641	09:58:50	43248
EcDsDistributionServer	dss2	mss	8897	10:06:45	43256
EcDsHdfEosServer	cherokee	mss	7506	10:07:26	84496
EcDsHdfEosServer	cherokee	mss	7515	10:07:27	84496
EcDsHdfEosServer	cherokee	mss	7522	10:07:28	84496
EcDsScienceDataServer	dss2	mss	8670	10:06:36	109072
EcDsSt8MMServer	sioux	root	11476	10:07:25	20100
EcDsStArchiveServer	cherokee	mss	6685	10:03:20	72832
EcDsStArchiveServer	kickapoo	mss	14913	10:02:59	28064

Figure 4.1.7-5. Mode Status Screen

4.1.7.2.6 Verify Mode Screen

Figure 4.1.7-6 is the Verify Mode screen. It appears when a particular mode is selected from the **Verify Mode** pull-down menu.



Server	Host	UID	PID	STime	Size
EcClDtUserProfileGateway	bajoran	mss	22257	10:01:57	11384
EcClWbJessProxyServer	bajoran	-	-	-	-
EcCsEmailParser	stallion	mss	24815	10:04:29	16664
EcCsLandsat7Gateway	stallion	mss	24666	10:03:57	11068
EcCsMojoGateway	stallion	mss	24617	10:03:47	20140
EcDmDictServer	dms1	mss	22599	10:05:35	14516
EcDmEcsToV0Gateway	dms1	mss	22843	10:06:27	21760
EcDmLimServer	dms1	mss	22463	10:05:11	17856
EcDmV0ToEcsGateway	dms1	mss	22719	10:06:02	22032
EcDpPrDeletion	pdps1	mss	18760	10:04:34	28712
EcDpPrJobMgmt	pdps1	mss	18819	10:04:44	30616
EcDsDistributionServer	dss2	mss	8897	10:06:45	43256
EcDsScienceDataServer	dss2	mss	8670	10:06:36	109072
EcDsSt8MMServer	sioux	root	11476	10:07:25	20100
EcDsStArchiveServer	cherokee	mss	6685	10:03:20	72832
EcDsStArchiveServer	kickapoo	mss	14913	10:02:59	28064
EcDsStFTPClientDaemon	cherokee	mss	6469	10:01:05	8976
EcDsStFtpDisServer	cherokee	mss	7729	10:07:37	82080

Figure 4.1.7-6. Verify Mode Screen

The difference between the Verify Mode and Mode Status screen is subtle. Mode Status shows all custom code running in a particular mode including GUIs and non-monitored servers. The Verify Mode screen shows servers, which are not running and should be. It only lists the servers designated as important to monitor using the management interface and whether they are currently running or not. Pressing the Management button accesses the management interface.

4.1.7.2.6 Memory Growth Screen

Figure 4.1.7-7 shows an example of the window displayed after a server's size listed in the last column of Verify Mode or Mode Status is clicked. It shows memory growth over time and presents the option of viewing previous days memory usage. Additionally, this is useful for determining when a server had crashed.

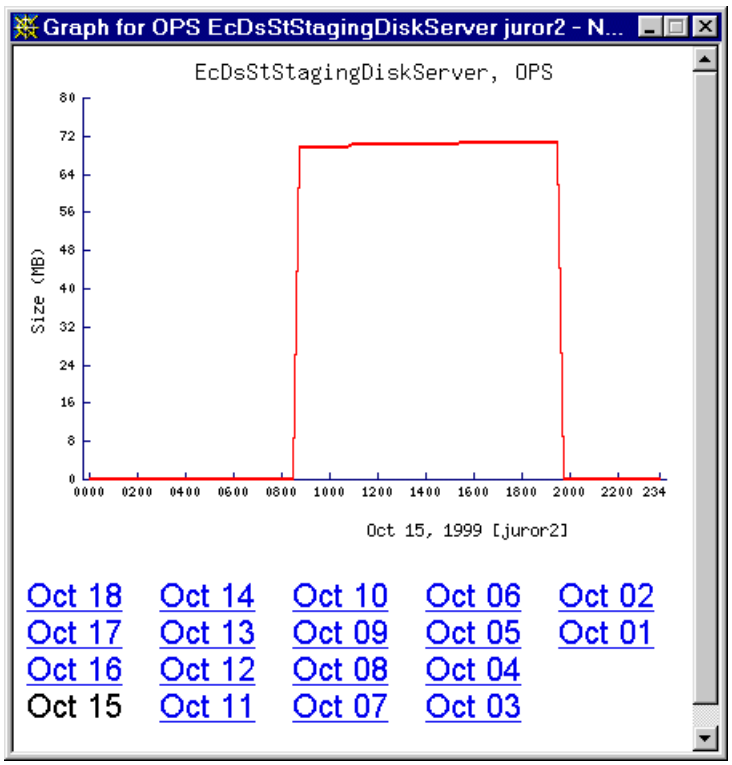


Figure 4.1.7-7. Memory Growth Screen

4.1.7.2.7 Management Interface Main Screen

Figure 4.1.7-8 is the Management screen. Pressing the Management button accesses the Management screen. It displays links to the Hosts and Modes associated with the ECS.

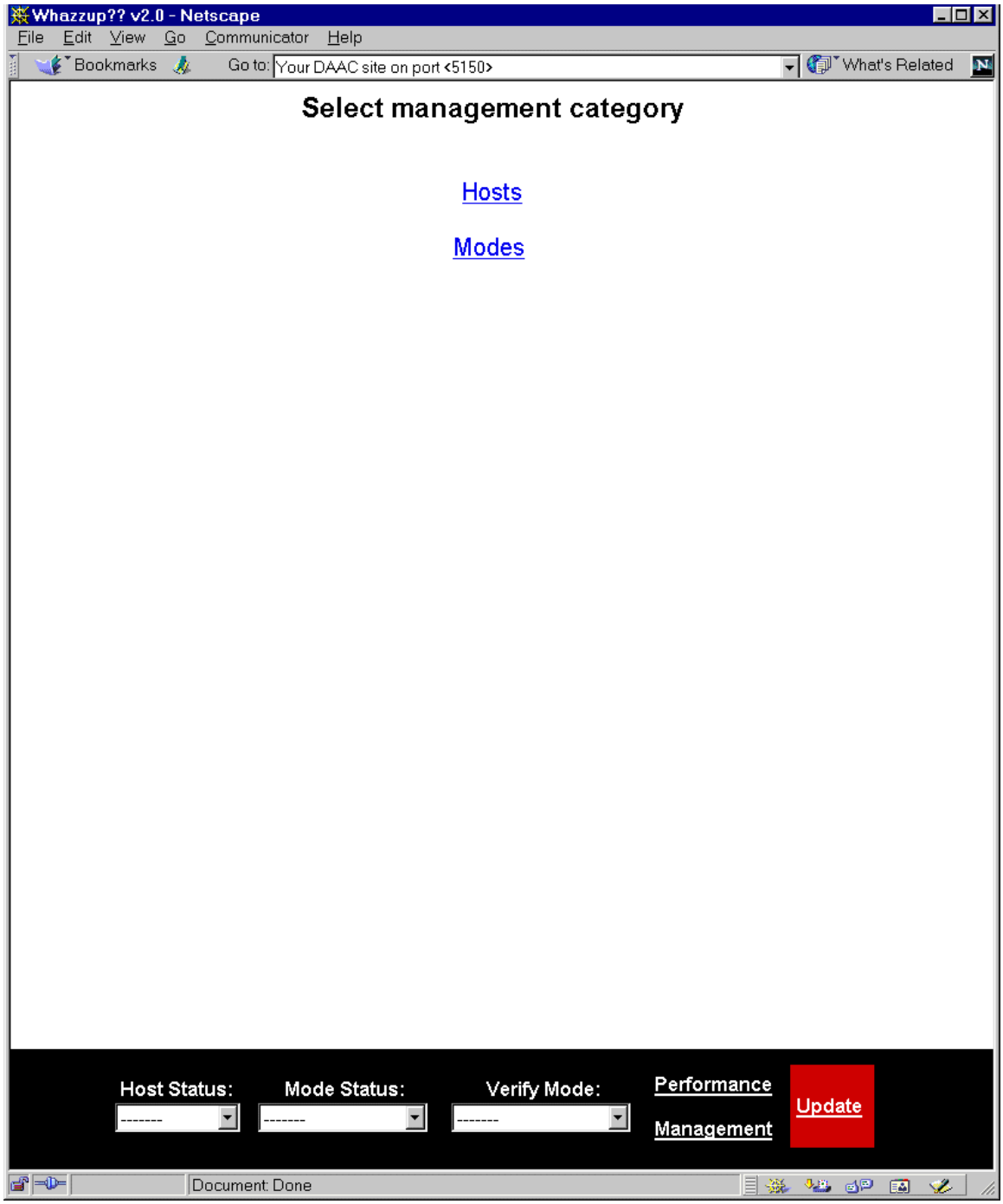


Figure 4.1.7-8. Management Screen

The management interface of Whazzup only affects the Whazzup configuration and not the ECS.

4.1.7.2.8 Manage Hosts Interface

Figure 4.1.7-9 is the Manage Hosts screen, which is accessed by clicking on the **Hosts** link on the Management Interface main screen.

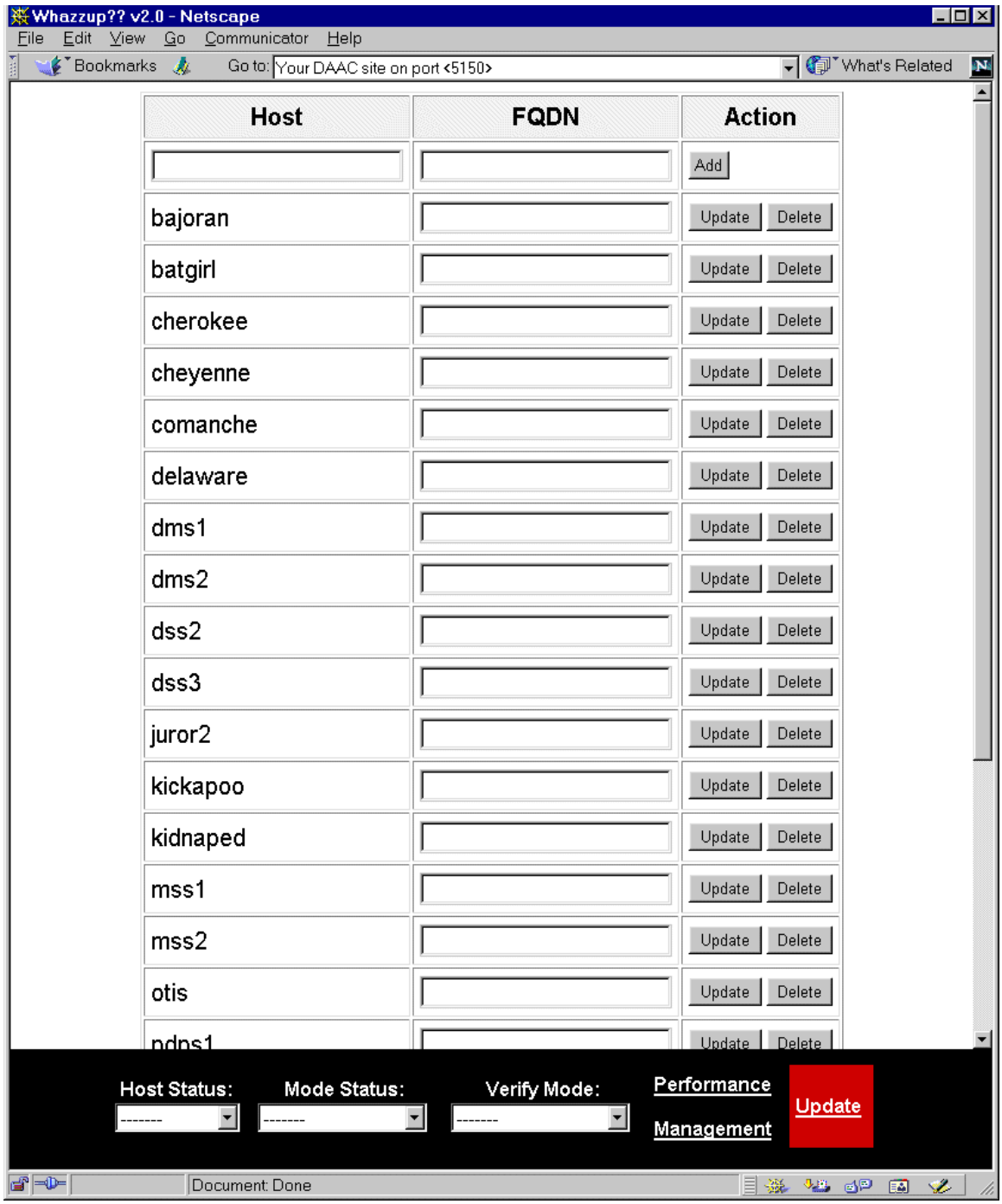


Figure 4.1.7-9. Manage Hosts Interface Screen

From here hosts can be added to the list of monitored hosts. These are the hosts displayed in the **Host Status** column of the GUI. If the host is in another domain, use a label for the host name and add a Fully Qualified Domain Name (FQDN). This allows the GUI display to be much more usable and prevents wide columns for only several machines.

4.1.7.2.9 Manage Modes Interface

Figure 4.1.7-10 is the Manage Modes Interface, which is accessed by clicking on the **Modes** link on the Management Interface main screen. It lists the shared COTS products and each ECS mode supported.

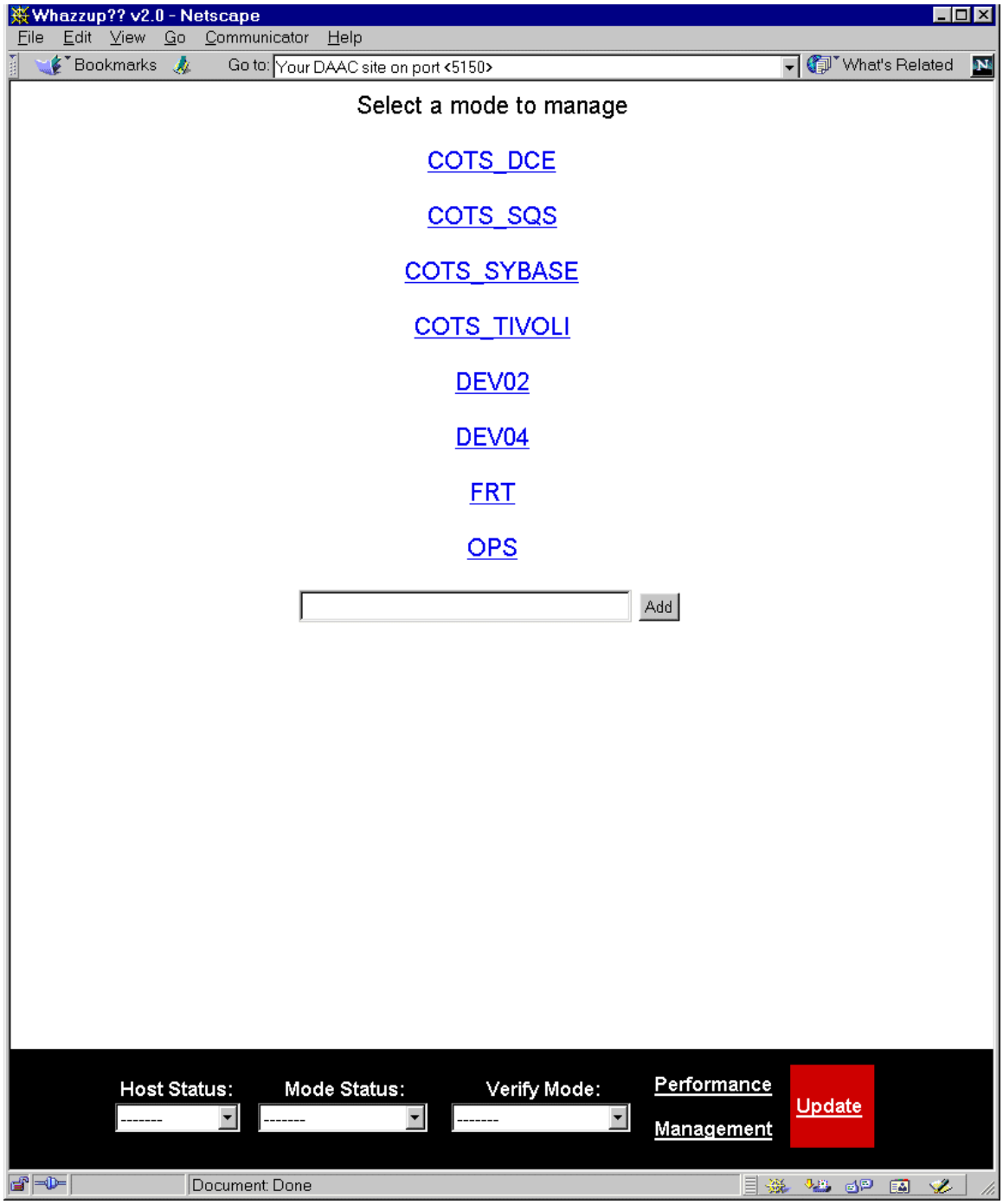


Figure 4.1.7-10. Manage Modes Interface Screen

4.1.7.2.10 Hosts Associated with Mode Screen

Figure 4.1.7-11 is the Hosts Associated with Mode screen, which displays the hosts configured to support a mode selected.

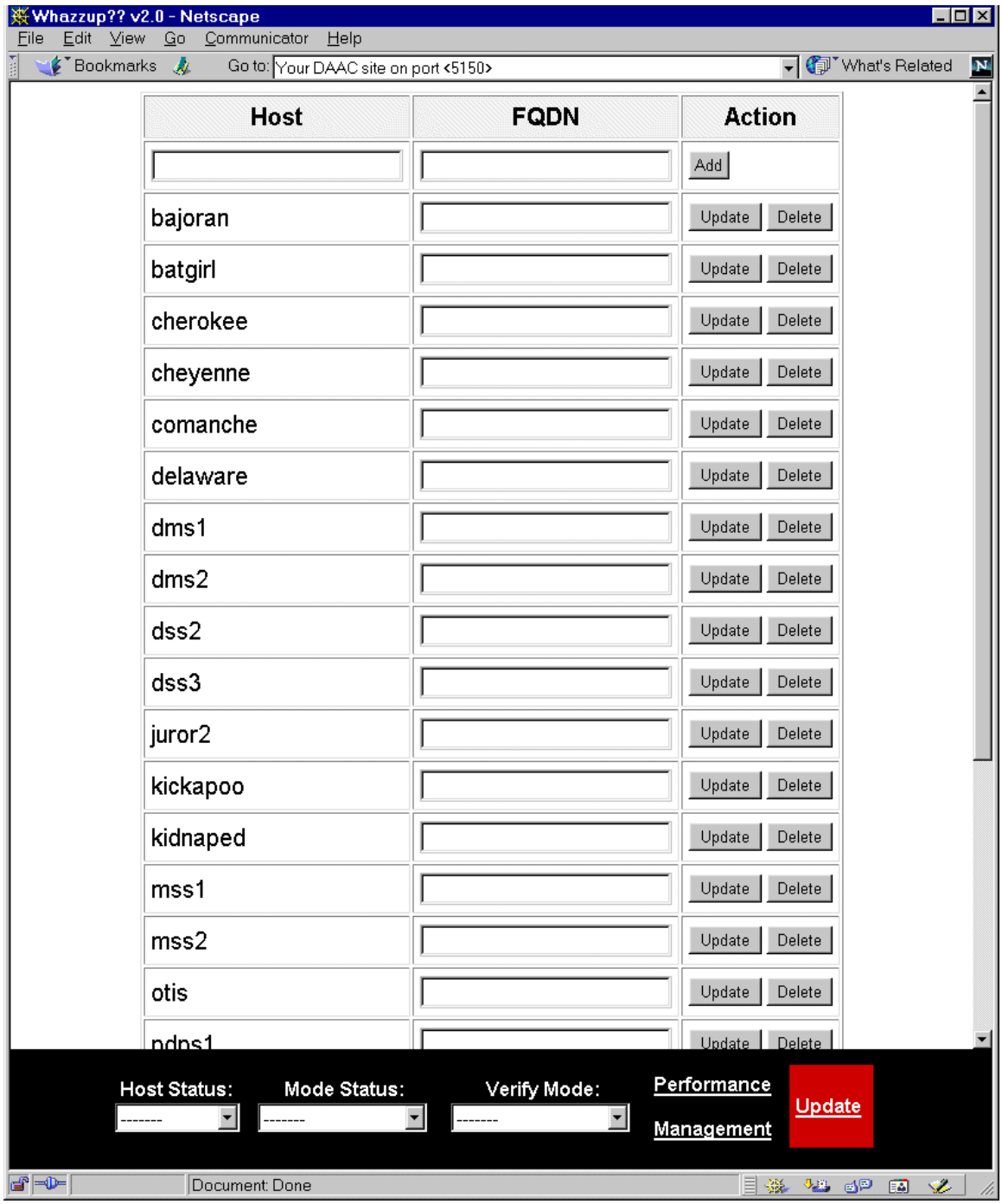


Figure 4.1.7-11. Hosts Associated with Mode Screen

4.1.7.3 Required Operating Environment

The Whazzup program uses its internal configuration file information to control status display. The following lists the steps in installing and configuring Whazzup:

Obtain the tar file EcMsWzWhazzup_v2.tar from the SMC

Login to the XXins01 machine as cmshared and extract the tar file to create the /home/cmshared/Wz directory by typing:

```
>tar xvfo EcMsWzWhazzup_v2.tar

>chgrp -R allmode Wz
```

After the /home/cmshared/Wz has been created, the configuration needs to take place. Go to the ~/Wz/conf/Wz directory:

```
>cd /home/cmshared/Wz/conf/Wz
```

There is an empty file named "monitored_hosts." Obtain a list of all hosts in the DAAC to be monitored and edit the "monitored_hosts" file to list the hosts in the following format:

```
host01:

host02:

host03:
```

That is one host per line with a colon following the shortname for the host. After this initial configuration, you can add hosts through the GUI, by clicking on the "Management" link on the menu bar of the Whazzup tool.

Now configure the cgi-bin scripts.

```
>cd /home/cmshared/Wz/cgi-bin/MSS/EcMsWzWhazzup/

>vi EcMsWzConfiguration
```

Change the $WWW_HOST line to point to the host you are using for the web server. Also note that the configuration is setup to use ssh, which is assumed to be located in /tools/bin and it is assumed it is working correctly for the cmshared account. It is assumed that if you type "ssh <any of the hosts in the monitored_hosts file> ls" a correct listing of the home directory is returned without having to prompt for any additional passwords.

That is it for the initial configuration. Data collection can start.

```
>cd /home/cmshared/Wz/utilities

>./EcMsWzStartApacheServer
```

test by browsing the URL: http://<hostname>:5150/

```
>./EcMsWzStartHostStatusCollection
```

test by waiting 5 minutes, then clicking on "Performance" on the whazzup page

```
>./EcMsWzStartServerSizeCollection
```

Now perform the initial population of the files in /home/cmshared/Wz/conf/Wz/mode_required to determine which custom server should be running on which hosts in a particular mode.

>cd /home/cmshared/Wz/scripts/initial

(It is assumed that "Performance" test from the previous step worked correctly)

```
>./ModeRequiredSetup.csh OPS

>./ModeRequiredSetup.csh TS1

>./ModeRequiredSetup.csh TS2

>./CotsPopulation.pl
```

Restart the Netscape browser and return to the main Whazzup page.

Click on the "Management" link. A prompt for a username and password appear. Enter:

Username: gonzales

Password: speedy

To change this username / passwd type the following:

```
>/home/cmshared/Wz/bin/htpasswd /home/cmshared/Wz/cgi-
bin/MSS/EcMsWzWhazzup/management/.htpasswd gonzales
```

Through vi editing of the file, the default "gonzales" user can be deleted and any usernames you desire can be added using the htpasswd utility.

Select the "Modes" link and a list of modes are displayed. For OPS, TS1 and TS2 click on the link and verify the information is correct. There can be servers being monitored you do not wish to monitor and there can be servers needing to be added if they were not running during the initial configuration of Whazzup.

Verify the COTS_* modes are setup correctly. You may need to delete some Tivoli hosts from the initial list prepared when running the CotsPopulation.pl script. To configure COTS_SQS, add the host and "sqsserver" as the server for each host that runs SQS. Do the same for COTS_SYBASE using "dataserver" for the server.

This concludes the initial configuration of Whazzup. Further adjustments to refine the list of monitored servers can be done.

Testing of the server size graphing. After starting the Server Size Collection script, wait approximately 45 minutes to make sure you have at least 2 data points collected. Now, choose a mode in the "Verify Mode" pull-down menu (other than COTS) and select a server such as ScienceDataSrvr. A graph should appear displaying the memory utilization for the chosen custom server.

4.1.7.3.1 Threshold Settings

Thresholds used in the "Performance" link are set in the file: /home/cmshared/Wz/cgi-bin/MSS/EcMsWzWhazzup/EcMsWzThresholds. Defaults are:

```
$CPU_WARN = 90;

$CPU_CRIT = 95;

$LOAD_WARN = 2.0;

$LOAD_CRIT = 4.0;

$SWAP_WARN = 10000;

$SWAP_CRIT = 5000;

$MEM_WARN = 4000;

$MEM_CRIT = 2000;

$MF_WARN = 80;

$MF_CRIT = 90;

$IO_WARN = 100;

$IO_CRIT = 200;
```

Currently, the vi editor must be used to make changes to the thresholds in this file. This is planned to be added to the Management section in the next release of Whazzup.

To view the code used to determine the current utilization on a monitored host, view the file: /home/cmshared/Wz/scripts/HostPerformance.

4.1.7.3.2 Interfaces and Data Types

Whazzup interfaces through the network operating system to obtain the status of executing programs.

4.1.7.4 Databases

None

4.1.7.5 Special Constraints

None

4.1.7.6 Outputs

Whazzup outputs are the program execution status information displayed through the web.

4.1.7.7 Event and Error Messages

None

4.1.7.8 Reports

The User Account Manager application does not generate reports.

4.2 System Monitoring

This section describes the system monitoring tools used by DAAC operators:

1. WhatsUp Professional
2. ECS Health Check Utility

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4.2.1 WhatsUp Professional

WhatsUp Professional is a graphical network mapping, monitoring, and notification COTS application. DAAC network administrators use it to monitor network devices and the services on those devices and to get feedback on their network's performance. WhatsUp Professional provides the following capabilities:

- Creates a graphical representation of a network - using the auto discovery wizard, WhatsUp Professional creates an accurate representation of your network devices and services. WhatsUp Professional uses standard protocols (TCP/IP, SNMP, ICMP, etc.) to map and monitor a network.
- Monitors devices and services – polls the mapped devices and services on the devices. Services that can be monitored include: DNS, FTP, HTTP, SMTP, POP3 and others.
- Provides notification of problems – notifies system administrator when a problem is detected. Notification can be made via desktop alarm, beeper, pager, e-mail or telephone.
- Generates reports - keeps track of device and service availability and response times; presents information via reports or graphs.
- Monitors network via the web - Interactive Web interface allows you to check the status of network devices and perform routine administrative tasks via the Web.

WhatsUp Gold can be configured to perform network device and service monitoring in a variety of different ways. The EMD WhatsUp Professional 2006 Premium Maintenance Upgrade (914-TDA-337) provides one way of configuring WhatsUp Professional. Details of the configuration described in the release notes and other ways are provided in the WhatsUp Professional 2006 Premium User's Guide. The common WhatsUp Professional functions used by the DAAC network administrators are listed in Table 4.2.1-1.

Table 4.2.1-1. Common ECS Operator Functions Performed with WhatsUp Professional

Operating Function	GUI	Description	When and why to Use
View network devices/services status	View icon color and shape on GUI; view quick status dialog box.	Icon color and shape indicates the status of network devices and services.	To verify that all network devices and services on the devices are operational. To ascertain network devices and services that are not operating properly.
View network devices/services performance data	Logs and Report menus on GUI	A set of reports that can be viewed, printed, and/or its content transmitted to a file.	To obtain status information about monitored devices and services.

4.2.1.1 Quick Start using WhatsUp Professional

WhatsUp Professional is a PC based COTS application used to monitor network devices and services on the EMD Production LANs. WhatsUp Professional capabilities are executed through the use of WhatsUp Professional GUIs.

4.2.1.2.1 Invoking WhatsUp Professional

To execute WhatsUp Professional, the operator must be logged on to the WhatsUp Professional PC. Click the **Start** button on the PC monitor; select **Programs** from the pop-up menu; select **Ipswitch WhatsUp Professional 2006 Premium Edition** from the pop-up menu; select **WhatsUp Professional Premium Edition** from the pop-up menu. This brings up the WhatsUp Professional main window. If the network map is not already opened, click **File** -> **Open** and find and open the network map (assuming the network's map was created shortly after the installation of the WhatsUp Professional software.

4.2.1.2 WhatsUp Professional Main Screen

The main screen shown in Figure 4.2.1-1 shows an example of a network map. The network map has an icon for each device to be monitored. There is a toolbar at the top and bottom of the screen. The top toolbar provides a series of menus and submenus used to configure and control the activities of WhatsUp Professional. On the bottom tool bar, **Map View** tab is used to place WhatsUp Professional in an active polling mode. In the active polling mode, one can get current device status by simply placing the mouse pointer on a device's icon. The status is shown in the line just below the bottom toolbar. A summary of statistics can be obtained for all of devices by clicking the **Report View** tab and navigating through.

4.2.1.2.1 Indications of a Service Problem

WhatsUp Professional automatically provides notification of device and device service problems. The device icons remain green if the device and its services are responding to the WhatsUp Professional polls. The device icon turns yellow if it misses two polls and red if it misses four or more polls. If a service on a device is down, the shape of the background of this device's icon changes from a diamond to starburst shape as shown in Figure 4.2.1-1.

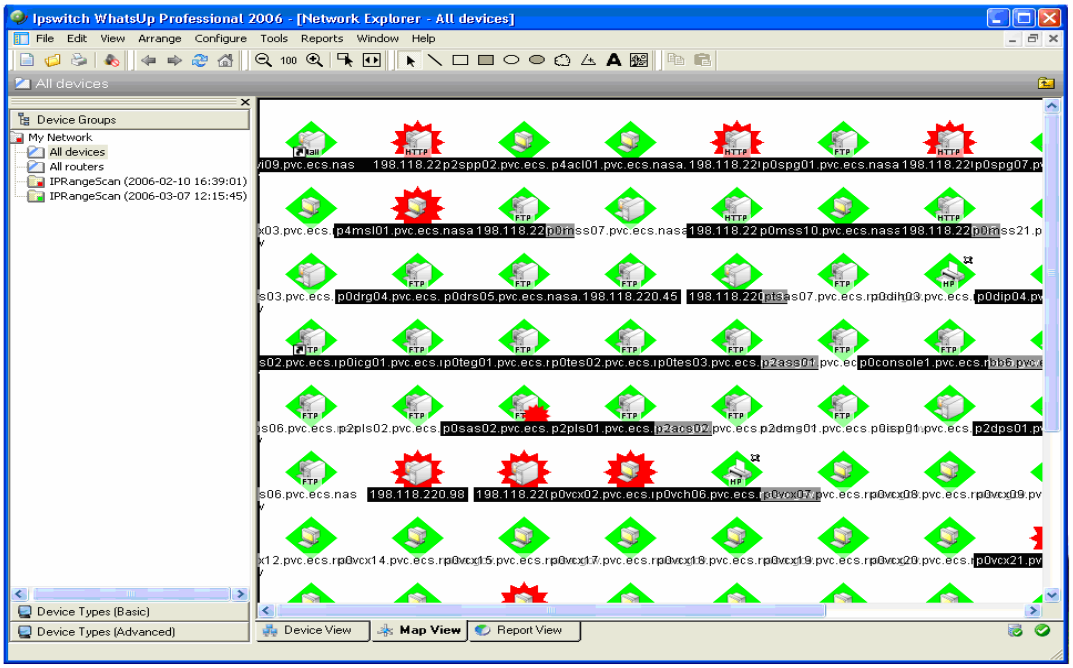

Figure 4.2.1-1. WhatsUp Professional Main Screen with Network Map

Using the mouse, right click the device's icon to get a device menu as shown in Figure 4.2.1-2. This menu provides access to a lot of information about the selected device. Refer to Device Discovery chapter in the installation guide for more information about the device's menu.

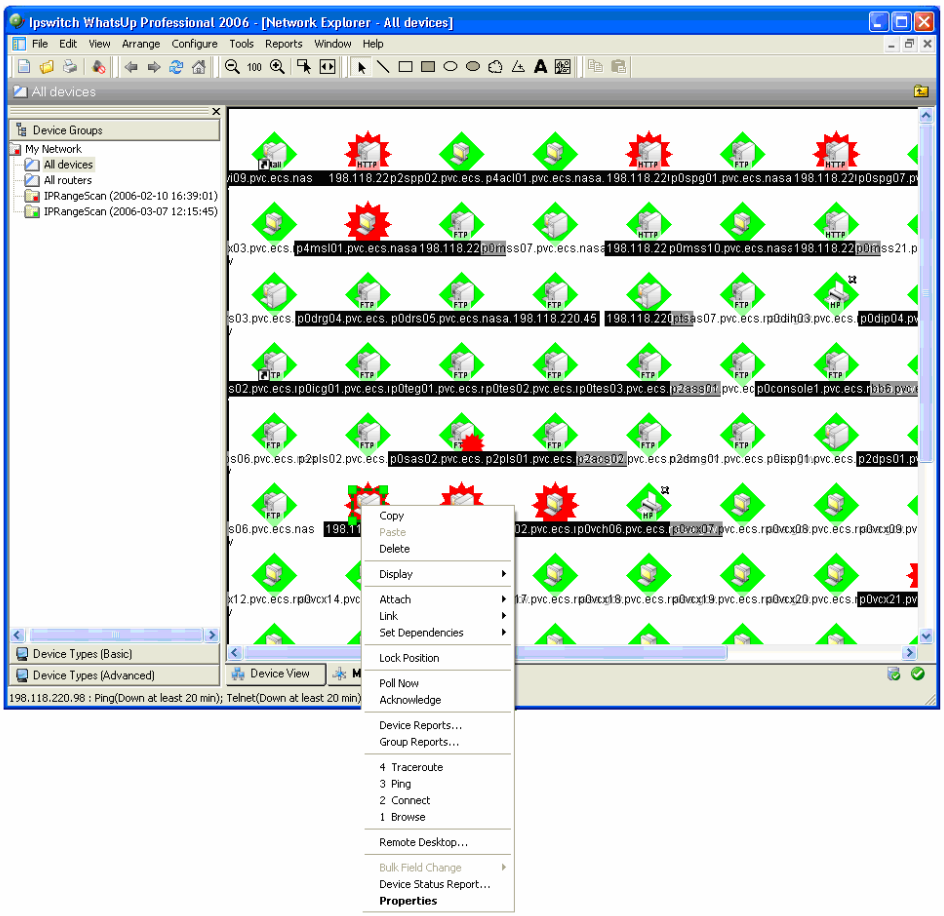

Figure 4.2.1-2. Device's Icon Pulldown Menu

To determine which of the services are down on the highlighted device and to get logged information, select the **Device Status Report…** option and a Device Status Report window for the selected device is displayed as shown in Figure 4.2.1-3.

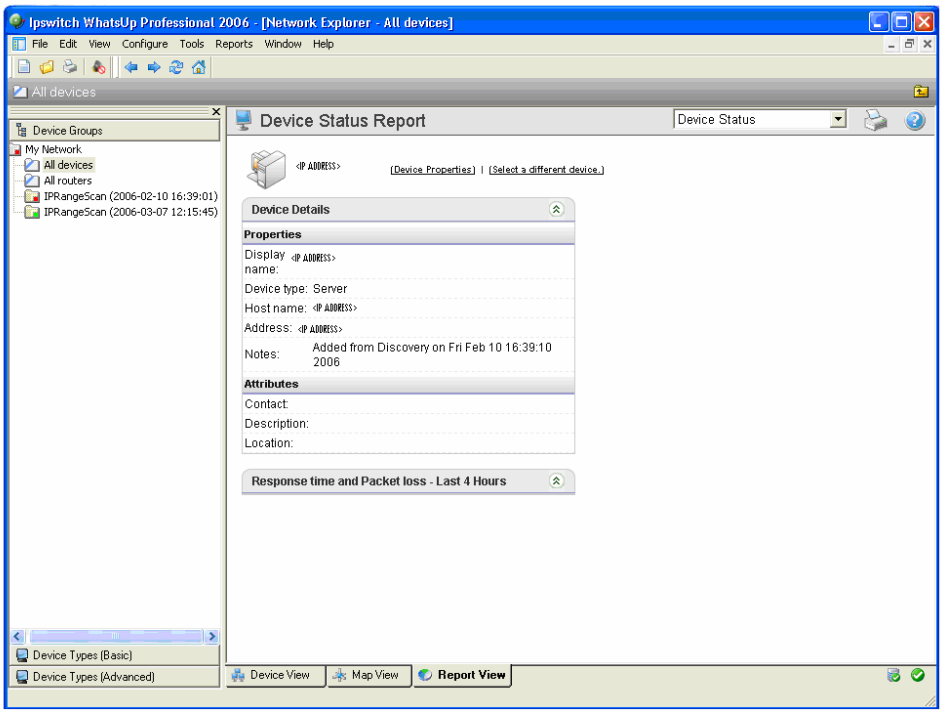

Figure 4.2.1-3. Selected Device's Status Report Window

4.2.1.2.2 Indications of a Device Problem

When a network device goes down, the color and shape of the device's icon changes. The icon's background shape changes to a starburst shape and the color becomes red as shown in Figure 4.2.1-4. This is one form of alert notification that WhatsUp Professional uses to alert the network administrator a device is down. There are other forms of alerts that can be configured.

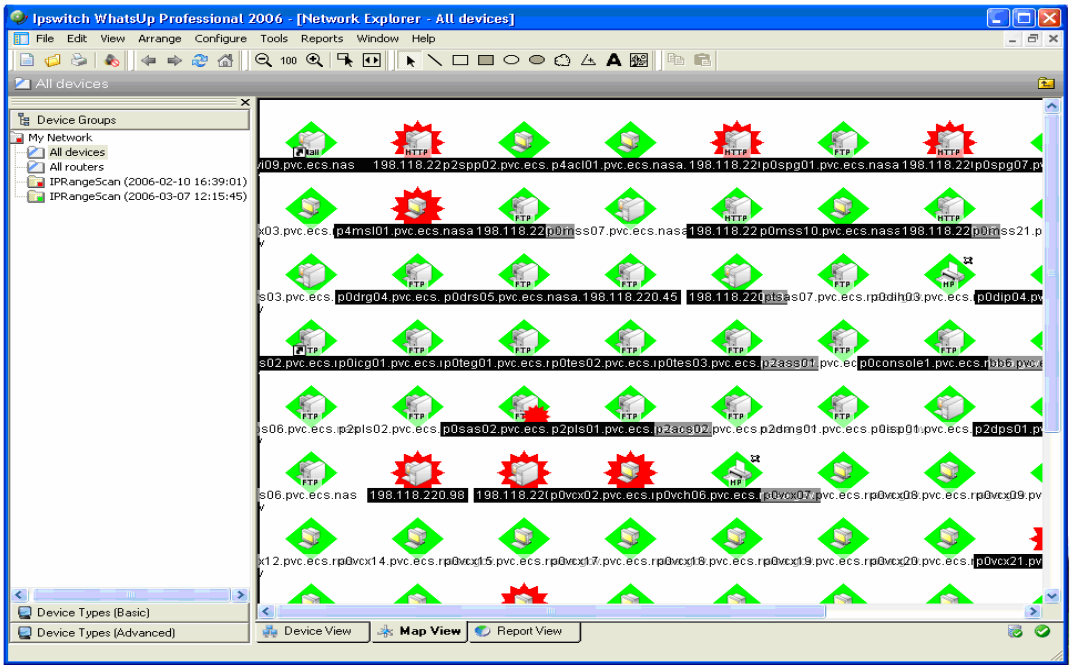

Figure 4.2.1-4. Network Devices Status

One other form of alert notification is the WinPopup message. This message can be configured to provide additional information about the device, such as date and time that it went down, a point of contact, vendor phone number, etc.

After the problem on the device has been resolved, the device is restarted. Once WhatsUp Professional detects the device is operational again; the shape of the device's icon becomes square and its color changes back to green.

4.2.1.2.3 WhatsUp Professional Reports

WhatsUp Professional logs changes in the network devices' status and their polling statistics. From the logged data, WhatsUp Professional can create System Reports, Group Reports, and Device Reports. An example of a General Error Log is shown in Figure 4.2.1-5. This report will display the date, category, source, and details information.

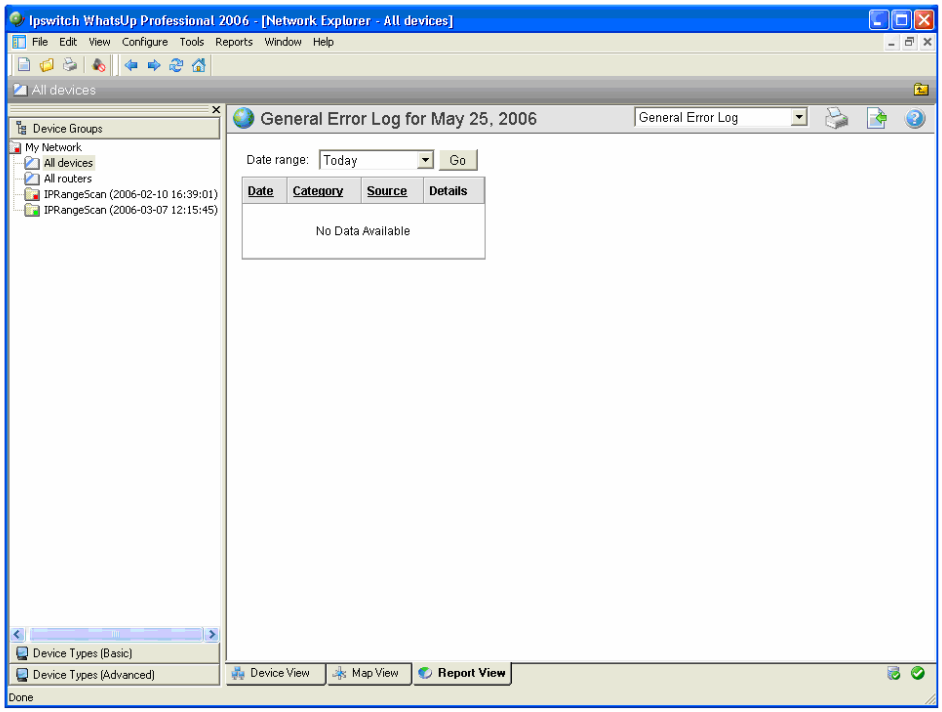

Figure 4.2.1-5. WhatsUp Professional General Error Log Screen

The Reports menu in the top toolbar provides access to the different types of reports and the variations of the reports. Refer to the Reports chapter of the WhatsUp Professional User's Guide for explanations of these reports and the instructions for creating and adding new reports to the WhatsUp Professional reports menus.

4.2.1.3 Required Operating Environment

The required operating environment is provided in the WhatsUp Professional 2006 Premium Release Notes. These release notes can be found on the EMD Baseline Information System web page, URL http://pete.hitc.com/baseline/index.html.

4.2.1.3.1 Interface and Data Type

WhatsUp Professional interfaces with the network devices through use of its Internet Control Message Protocol (ICMP) polling method. It conducts its poll through use of the devices' IP addresses.

4.2.1.3.2 Databases

WhatsUp Professional captures its event data in log files. These files are read only type files.

4.2.1.3.3 Special Constraints

None

4.2.1.3.4 Outputs

Outputs from WhatsUp Professional come in the form of System Reports, Group Reports, and Device Reports. These items can be displayed on the monitor and/or sent to the printer.

4.2.1.3.5 Event and Error Messages

WhatsUp Professional logs network event information in event logs. It changes the appearance of devices' icons on the network map to alert the network administrator something is not working properly. It updates the device's properties Status and Log dialog boxes. It sends out other types of notifications to designated persons if it is configured to do so. Refer to the Reports chapter of the WhatsUp Professional User's Guide for detailed information about WhatsUp Professional event and message activities.

4.2.1.3.6 Reports

WhatsUp Professional produces three types of reports: System Reports, Group Reports, and Device Reports.

4.2.2 ECS Health Check Utility

The EcCsHealthCheck Utility allows operators to monitor the state of various ECS custom components. In this release, two components can be monitored via the intrusive technique of submitting requests and monitoring the response.

The EcDmV0ToEcsGateway can be monitored via the submission of Inventory Requests.

The ECS Datapool drilldown search engine can be monitored via the submission of granule search requests.

EcCsHealthCheck must be run as cmshared using the start script described in section 4.2.2.1

4.2.2.1 Invoking the ECS Health Check Utility

The EcCsHealthCheck Utility can be invoked in the following way only.

By entering the following command from the **/usr/ecs/<MODE>/CUSTOM/bin/CSS** directory:

Note: **This location differs from most other ECS start script. The reason for this is that the COTS dependency on the V0ImsClientSimulator application requires that the parent application be run in the same directory as the V0ImsClientSimulatory binary.**

EcCsHealthCheckStart <MODE>

Table 4.2.2-1 provides a description of these parameters.

Table 4.2.2-1. ECS Health Check Tool Command Line Parameters

Parameter Name	Description
MODE	An input parameter specifying the mode of operation. This must be the first parameter on the command line, and it must be a valid, existing ECS mode (i.e., OPS, TS1, or TS2).

4.2.2.2 Running the ECS Health Check Utility

Once the start script has been invoked the operator will be presented with a GUI screen that is divided into tabbed panes. See Figure 4.2.2.1

4.2.2.2.1 Tabs

There is one such pane for each component the operator wishes to test. The current deployment contains tabs for the EcDmV0ToEcsGateway and the ECS Datapool drilldown search engine.

4.2.2.2.2 Dormant Screen

In describing the operation of this utility we will focus on the EcDmV0ToEcsGateway pane. Note that the operational procedure once configuration is complete is the same for each tab.

First, an operator can select a repetition period and a timeout period in the “Control” frame.

Note: The operator can elect to configure default values for these elements. See section 4.2.2.6 for configuration instructions.

Repetition period specifies how often the gui will send an inventory search to the EcDmV0ToEcsGateway.

Timeout period specifies how long the GUI will wait for a response from the current search before flagging an error.

The “Visual Warning” pane contains the current state of the processing and can display a log of errors received from the IMS V0 Client simulator.

The “Mail Warnings” pane displays a list of email recipients. In the event of an error an email will be sent to each of those recipients detailing the error in question.

The ‘Audible warnings’ pane displays a list of possible alarms. The operator can elect (and can do this at any time during the lifetime of the GUI) to check that the audible alarm is working. They can do this by clicking on the ‘Test’ button in the “Audible Warnings” frame. Note that the audible alarm capability has not yet been deployed and will form part of a subsequent release.

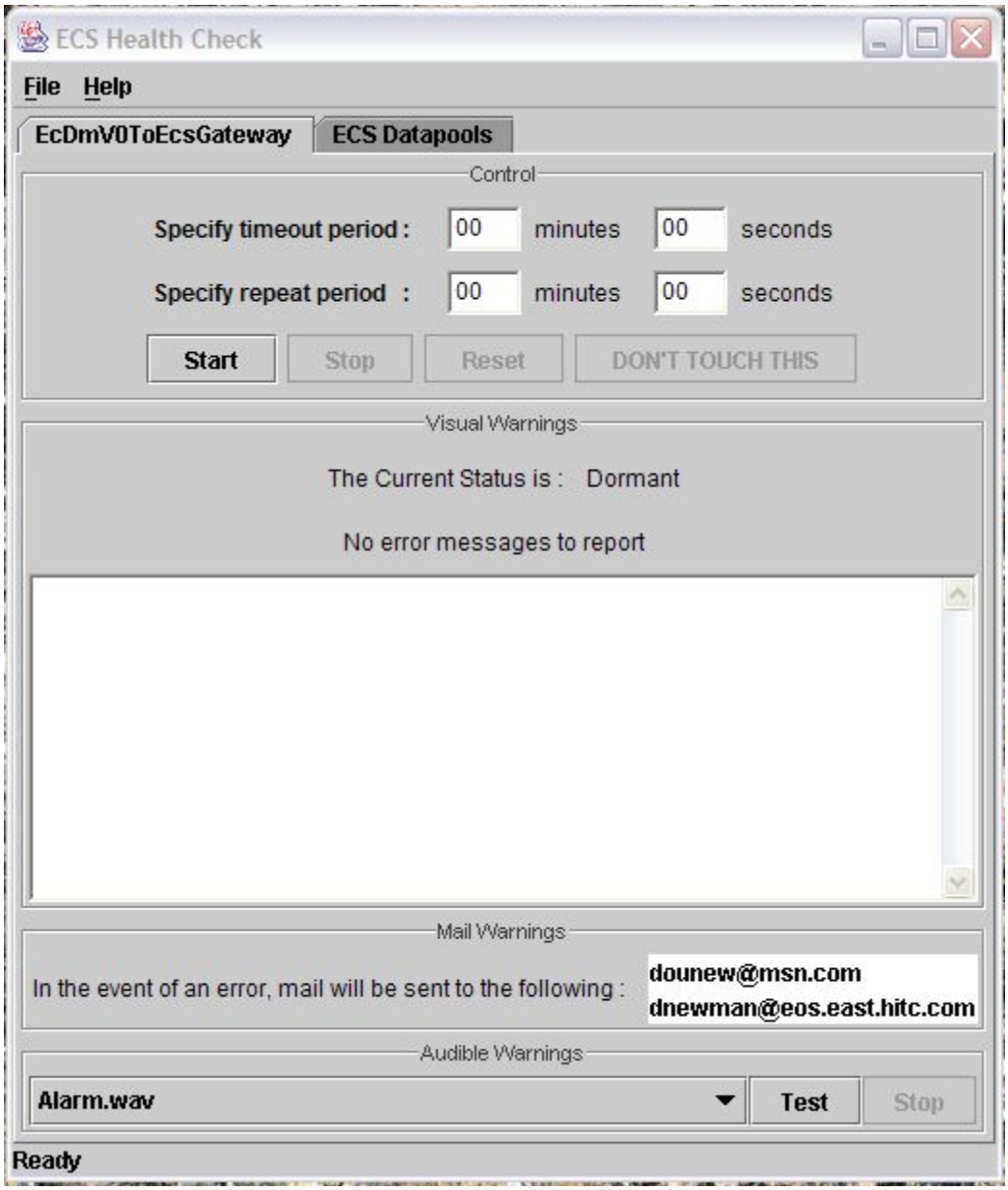

Figure 4.2.2-1. Dormant State of ECS Health Check Utility

4.2.2.2.3 Start screen

The operator can then start the inventory search cycle by clicking on the 'Start' button in the 'Control' frame (see Figure 4.2.2.2). This will continuously send inventory searches to the EcDmV0ToEcsGateway at the defined frequency until one of the following exit conditions are met.

- The operator clicks the “Stop” button in the “Control” pane. The run can be restarted by clicking on the “Start” button in the “Control” pane.
- A failure is registered by the GUI during the current inventory search. See section 4.2.2.2.4 for details regarding this.

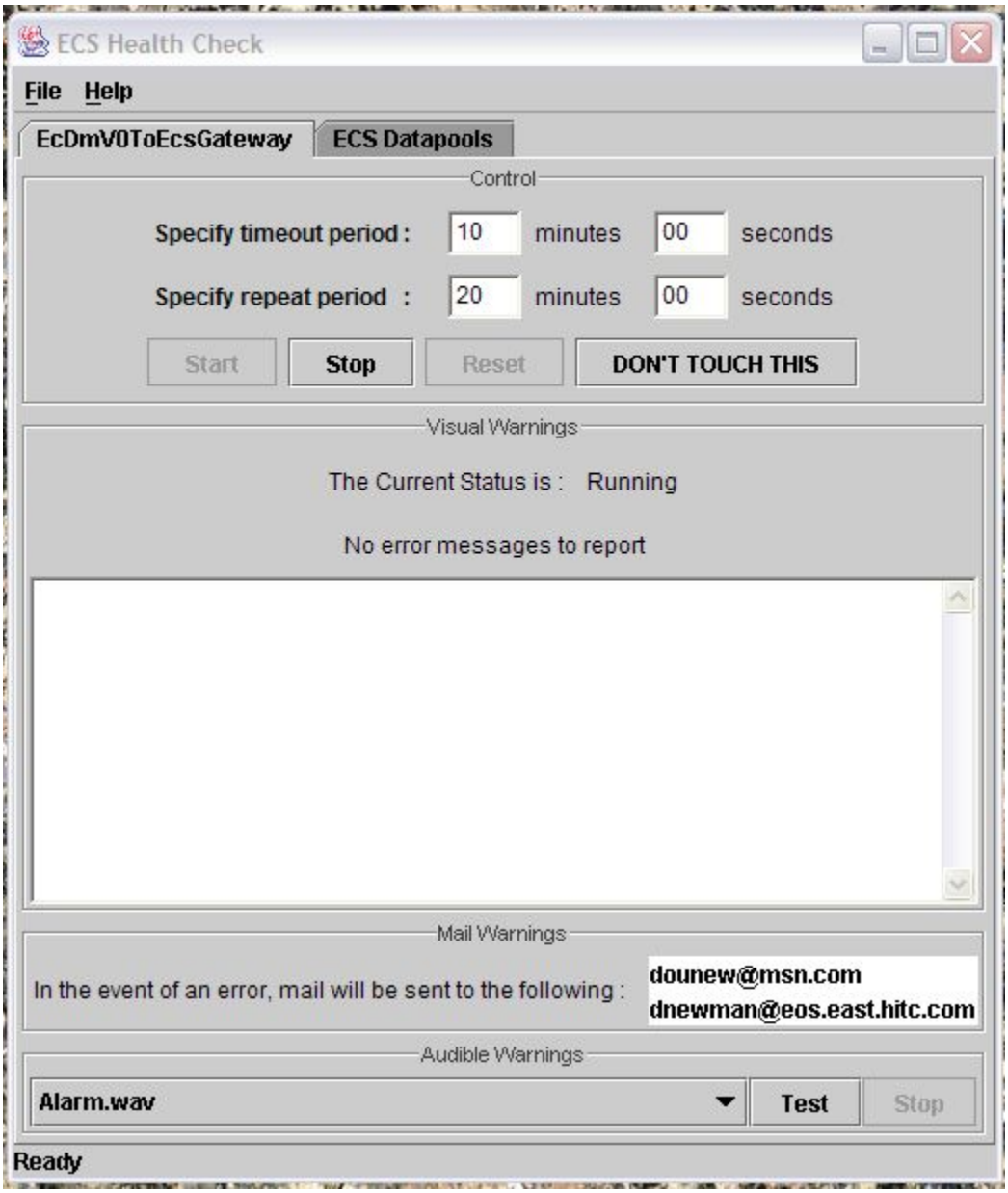

Figure 4.2.2-2. Running State of ECS Health Check Utility

4.2.2.2.4 Error Screen

In the event of an error the GUI will report in a number of ways (see Figure 4.2.2.3)

- The ‘Visual Warnings’ pane will change its’ state to Failed. This will be displayed in red.
- The ‘Visual Warnings’ pane will detail the time and nature of the error in the ‘Visual Warnings’ text pane.
- Mail will be sent to the configured list of recipients detailing the error.
- The ‘Mail Warnings’ pane will indicate that mail has been sent successfully.
- A repeating audible alarm will be generated. (Future)
- The ‘Audible Warnings’ pane will enable its’ ‘stop’ button so the audible alarm can be disabled. (Future)

A detailed, time stamped, description of the error will be recorded in the **EcCsHealthCheck.ALOG file**.

The operator may elect to clear the error information by clicking on the ‘Reset’ button. The operator may elect to continue the testing, once the fault has been identified, by clicking on the ‘Start’ button.

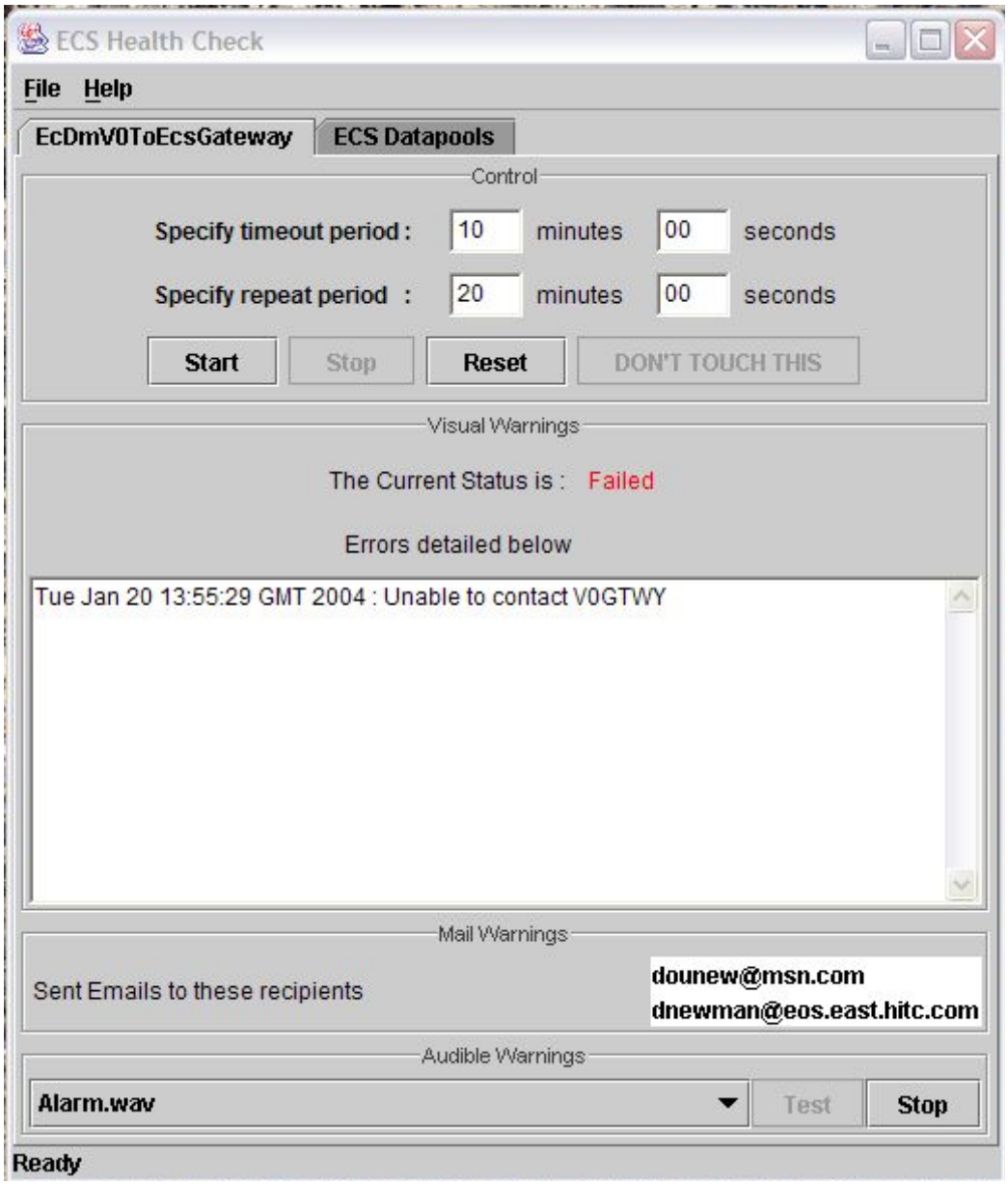

Figure 4.2.2-3. Failed State of ECS Health Check Utility

4.2.2.3 Required Operating Environment

The ECS Health Check Utility runs on Sun platforms.

4.2.2.4 Databases

The ECS Health Check Tool utility does not interact with any databases.

4.2.2.5 COTS Dependencies

COTS dependencies required by the ECS Health Check utility are listed in Table 4.2.2-2

Table 4.2.2-2. ECS Health Check Tool Interface Protocols

Product Dependency	Protocols Used	Comments
Java	jre – java runtime environment	Requires proper installation of base-lined version of jre.
Java Mail	smtp	Requires proper installation of base-lined version of Javamail-1.2
Java Activation Framework	n/a	Requires proper installation of base-lined version of Jaf-1.0.1

4.2.2.6 Configuration

These instructions assume that a successful, standard ECS install of the component EcCsHc has already been performed. The notes below refer to operational, transient, configuration modifications that may be needed.

4.2.2.6.1 Configuring the EcDmV0Gateway Health Check

The tool sends inventory searches to the EcDmV0ToEcsGateway by instructing an instance of the V0ImsClientSimulator application. This application has its' own configuration and, since it is not part of the ECS Custom code, requires separate configuration. Also, this configuration will not be overwritten in subsequent releases. The V0ImsClientSimulator configuration consists of the following files (due to certain COTS constraints, the location of these files should NOT be changed).

- /usr/ecs/<MODE>/CUSTOM/bin/CSS/v0clisim.cfg

  Several elements of this file are subject to modification.

  - SERVER_ADDRESS – this should refer to the IP address of the machine where the EcDmV0ToEcsGateway runs for the mode in which you want to monitor.
  - SERVER_PORT – this should refer to the port number that the EcDmV0ToEcsGateway is listening for requests on. This number is mode specific (i.e. OPS – 15000).

- /usr/ecs/<MODE>/CUSTOM/cfg/InventorySearch.cntl

  Modify this file so that the mode specific directories are valid.

  For example, if your mode is OPS it should read:

SEND /usr/ecs/OPS/CUSTOM/cfg/InventorySearch.odl;

ACK /usr/ecs/OPS/CUSTOM/cfg/Ack.odl;

- /usr/ecs/<MODE>/CUSTOM/cfg/InventorySearch.odl

  This file contains the actual inventory search odl message that will be used to ping the EcDmV0ToEcsGateway. A sample search is distributed with the installation. To customize your search you should refer to document 505-41-30 'ICD between the ECS and V0 System for Interoperability'

- /usr/ecs/<MODE>/CUSTOM/cfg/Quit.odl

  This file should not be modified.

- /usr/ecs/<MODE>/CUSTOM/cfg/Ack.odl

  This file should not be modified.

- /usr/ecs/<MODE>/CUSTOM/cfg/Abort.odl

  This file should not be modified.

4.2.2.6.2 Configuring the Datapool Drilldown Health Check

The tool uses an http request to send a drilldown request to the Datapool drill down server. The registry GUI can be used to configure the routing and content of this request. The following parameters are used to construct the search, and can be found in the configuration file **/usr/ecs/<MODE>/cfg/EcCsHealthCheck.properties**

- DPL.GROUP
  This parameter should contain a valid Datapool group name.

- DPL.ESDT
  This parameter should contain a valid Datapool ESDT name.

- DPL.END_DATE
  This parameter should contain a valid end date of the form "yyyy-mm-dd"
  (i.e. 2004-04-01 equates to 1st April 2004)

- DPL.BEGIN_DATE
  This parameter should contain a valid begin date of the form "yyyy-mm-dd"
  (i.e. 2004-04-01 equates to 1st April 2004)

- DPL.END_TIME
  This parameter should contain a valid end time of the form "hhmm"
  (i.e. 2300 equates to 11:00pm)

- DPL.BEGIN_TIME
  This parameter should contain a valid end time of the form “hhmm”
  (i.e. 0327 equates to 3:27am)

- DPL.NORTH_LATITUDE
  This parameter should contain a valid northern latitude of the form ‘x’ where
  0 < x < 90. (i.e. 83.108)

- DPL.SOUTH_LATITUDE
  This parameter should contain a valid southern latitude of the form x where -90 < x < 00. (i.e. -32)

- DPL.EAST_LONGITUDE
  This parameter should contain a valid eastern longitude of the form x where 0 < x < 180. (i.e. 112.1)

- DPL.WEST_LONGITUDE
  This parameter should contain a valid western longitude of the form x where -180 < x < 0. (i.e. -42.0)

- DPL.DAY_NIGHT
  This parameter should contain a valid day night value. Valid values are ‘D’ or ‘N’ for day and night.

Note: DPL.ESDT is the only mandatory element in the search construction. All other constraints are optional and should be left blank if your desired query does not need that particular constraint. (the inclusion of one spatial parameter requires the addition of the other three to form a valid spatial extent). All constraints are ‘AND’d’ together to form the query.

4.2.2.6.3 General configuration

The following parameters are used for general configuration and can be found in the configuration file **/usr/ecs/<MODE>/cfg/EcCsHealthCheck.properties**

Note: The example mnemonic XXX will be replaced by the subsystem mnemonic for each subsystem (i.e. DMS or DPL).

- **Request frequency**

Each subsystem can send requests at a configurable frequency. The frequency is specified via two configuration elements per subsystem.

XXX.FREQUENCY_MINUTES – the number of minutes between requests.

XXX.FREQUENCY_SECONDS – the additional number of seconds between requests.

The sum of the two values forms the actual frequency.

These values will form the default values for that subsystem in the GUI. These may be overridden in the GUI at run-time.

- **Request timeout**

  Each subsystem request can have a configurable timeout. If the duration of the request exceeds this value an error will be flagged. The timeout is specified via two configuration elements per subsystem.

  XXX.TIMEOUT_MINUTES – the number of minutes until error.

  XXX.TIMEOUT_SECONDS – the additional number of seconds until error.

  The sum of the two values forms the actual timeout.

  These values will form the default values for that subsystem in the GUI. These may be overridden in the GUI at run-time.

- **Sound**

  This feature will be provided in a later release.

- **Mail**

  Each subsystem can define its' own mail configuration. That configuration is separated into two components.

  - *Mail recipients*

    XXX.EMAIL - will contain a space-delimited list of email recipients. These recipients will receive an email notification in the event of an error.

  - *Mail content*

    XXX.FROM – will contain an email address indicating who sent the error email.

    XXX.SUBJECT – will contain a string that will be placed in the subject line of the email. Note that the mode and short error will also be appended to this subject line at run-time. Use the default example as a guideline when configuring this value.

    XXX.BODY – will contain a string that will be placed in the body text of the email. Note that the mode and long error will also be appended to this body text at run-time. Use the default example as a guideline when configuring this value.

One final element that is common to all subsystems is the location of the site's mail host.

mail.smtp.host – the value of this parameter should be supplied by the System Administrator.

4.2.2.7 Special Constraints

The ECS Health Check utility does not require any special constraints.

4.2.2.8 Outputs

The ECS Health Check utility does not produce any outputs other than its' application log file.

The utility produces a log files called **EcCsHealthCheck.ALOG** in the **/usr/ecs/<mode>/CUSTOM/logs** directory. A new log file with this name is automatically created, and the old log files are renamed with a timestamp.

4.2.2.9 Event and Error Messages

Events are written to the application log file. Events are generated whenever a request is sent. The details of that request, including request type, content and duration are also logged. Errors are reported in a number of ways. See section 4.2.2.2.4 for details on this.

4.2.2.10 Reports

There are no reports generated by the ECS Health Check utility.

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4.3 Configuration Management

This section describes the configuration management tools used by DAAC operators:

1. ClearCase
2. CDDTS
3. ClearCase BLM
4. Remedy (Inventory, Logistics and Maintenance {ILM}Manager)
5. FLEXlm
6. Remedy's Action Request System

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4.3.1 ClearCase

This section presents an orientation of ClearCase. ClearCase terminology such as VOB (Versioned Object Base, public storage area for files) and views (operator private storage), etc., is used throughout this section. Refer to the *ClearCase User's Manual* for both a more detailed description of ClearCase and an explanation of the terminology used. Refer to the *ClearCase User's, Administrative, and Reference Manuals* for detailed explanations of ClearCase functionality.

ClearCase is a COTS product used on ECS to perform the Software Change Manager functions. It provides the staffs at the SMC and the DAAC sites the capability to organize and store software in a software library, to control software changes and versions, and to assemble sets of software for release purposes. Specifically, ClearCase is used at Landover to regulate access to custom code files; to control and log file changes; to perform builds of software and keep a record of the build's content (files, compiler, and other resources used). ClearCase is used to perform a variety of operator functions. The most frequently used functions are listed in Table 4.3.1-1.

Table 4.3.1-1. Common Operator Functions Performed with ClearCase (1 of 2)

Operating Function	Command/Script or GUI	Description	When and Why to Use
Establish a View	Setview /GUI (View Menu, Set Option) selection	The command or the GUI selection activates a view and allows user access to controlled files.	(1) Used to activate a reproducible workspace for a developer for working with specific file versions and directories for a task (2) Used to assemble sets of software for release purposes
Checkout Software	Checkout/GUI (Checkout) selection	The command or the GUI creates a view private, modifiable copy of a file version.	Used when a developer/maintainer needs to modify an existing version of software.
Checkin Software	Checkin/GUI (Checkin) selection	The command or the GUI selection creates a permanent new version of a file.	Used when a developer/maintainer needs to return a modified file version to the ClearCase software library.
Perform software builds	Clearmake/GUI (Building menu)	(1) ClearCase build utility that automates the process of software builds (2) Facilitates derived object sharing (3) Creates a record of the build so that it can be repeated	Used when it's time to build, integrate and/or test developed/revised software.

Table 4.3.1-1. Common Operator Functions Performed with ClearCase (2 of 2)

Operating Function	Command/Script or GUI	Description	When and Why to Use
Display the mount-point and storage directory of all VOBs on the system	Cleartool lsvob/GUI (Admin menu)	ClearCase utility that determines and displays default/specified information about all of the VOBs that have been established.	(1) Used to list one or more VOBs (2) Used to determine which VOBs are mounted (3) Used to determine which VOBs are private or public (refer to *ClearCase Reference Manual* for details)

4.3.1.1 Quick Start Using ClearCase

To invoke the ClearCase graphical user interface GUI from the command line prompt type:

/usr/atria/bin/xclearcase.

4.3.1.2 ClearCase Graphical User Interface

ClearCase has a Command Line Interface (CLI) and a GUI. The GUI enables execution of all the common functions and facilitates graphical examination of the version history of objects in VOBs. When ClearCase is invoked, a Transcript screen as shown in Figure 4.3.1-1 appears. The Transcript screen displays status of functions executed and displays warning and error messages. It automatically appears when the status of an activity needs to be displayed.

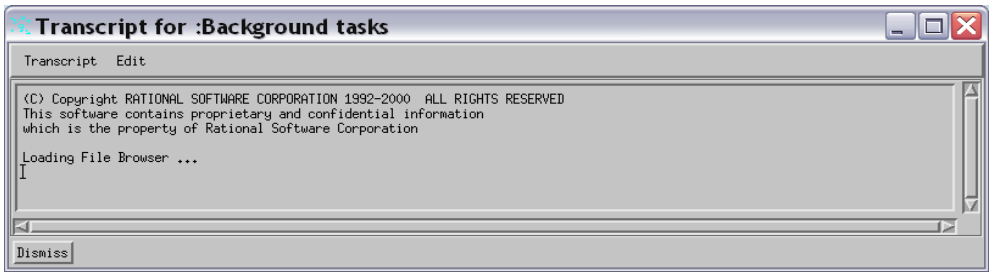

Figure 4.3.1-1. ClearCase Transcript Screen

4.3.1.2.1 Establish View

Operator access to versions of files in a VOB is facilitated by a view. When ClearCase is initiated, the operator is asked to select a view. Available views are displayed in the View Tag Browser Screen as shown in Figure 4.3.1-2. Select a view by highlighting the desired view and clicking the “Ok” button at the bottom of the screen.

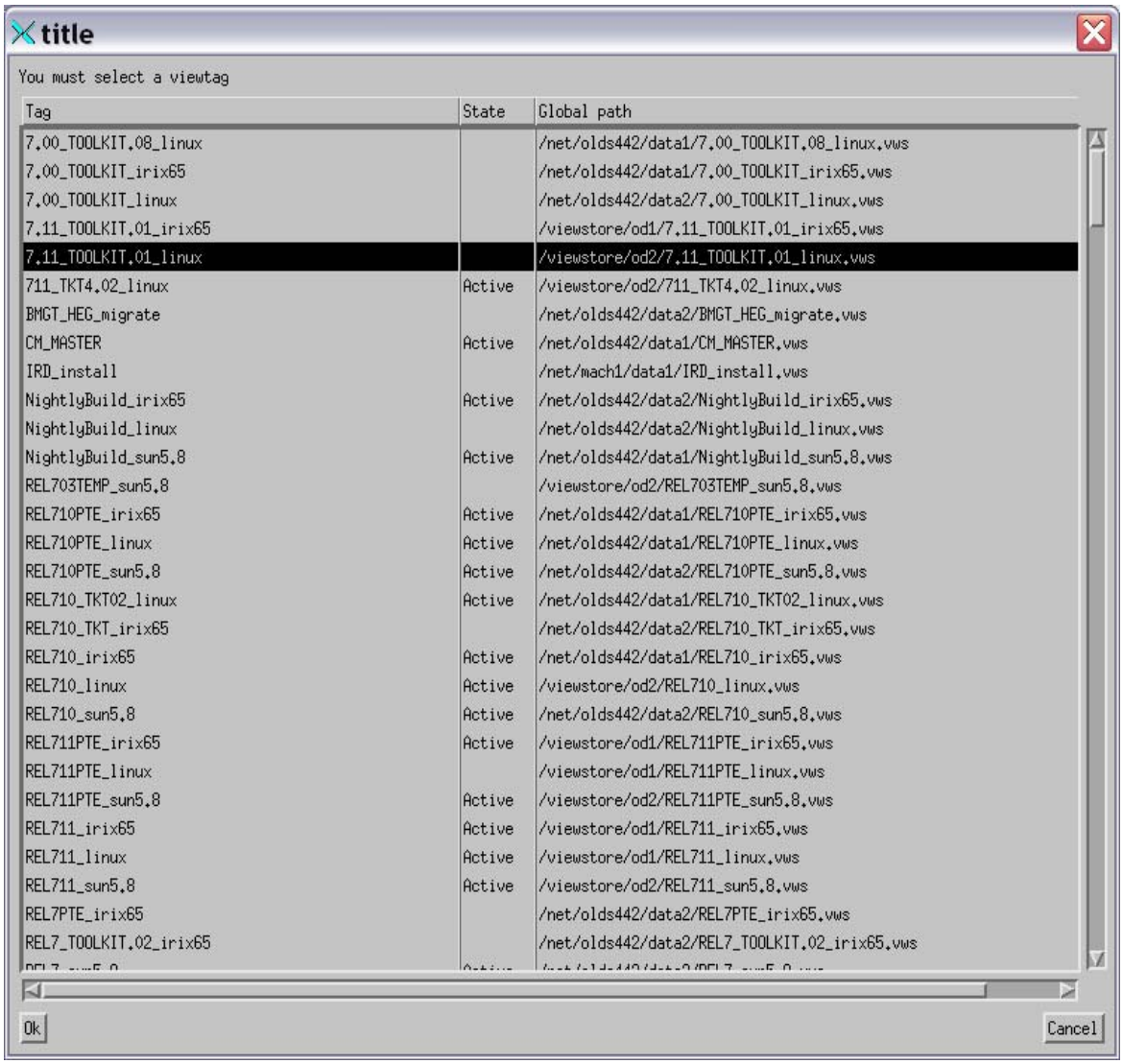

Figure 4.3.1-2. View Tag Browser Screen

After a View is selected the ClearCase File Browser screen, the main GUI screen, appears as shown in Figure 4.3.1-3. The File Browser screen displays the current directory name just below the toolbar and displays the contents of the directory in the space below the directory's name. A variety of GUI-oriented functions can be initiated from this screen. Explanations of the menu bar and the toolbar items are provided in Chapter 3 of the ClearCase User's Manual.

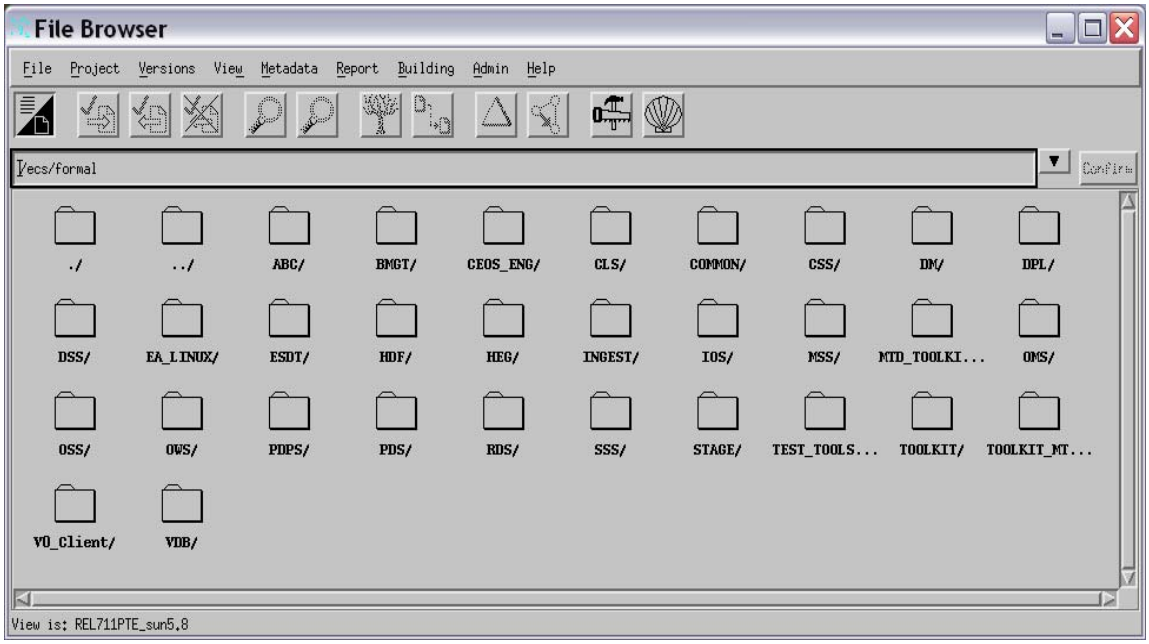

Figure 4.3.1-3. ClearCase File Browser Screen (Main Screen)

4.3.1.2.2 Checkout Software

Software file versions in a ClearCase VOB are in a read-only state. An operator must check a file version out of the VOB before any editing of the file version can be accomplished. Check out a file version by selecting the file and clicking the checkout icon on the toolbar. An alternate method is to select the file, click the Versions menu, then the Checkout option, then one of the "Reserved or Unreserved" options shown in Figure 4.3.1-4.

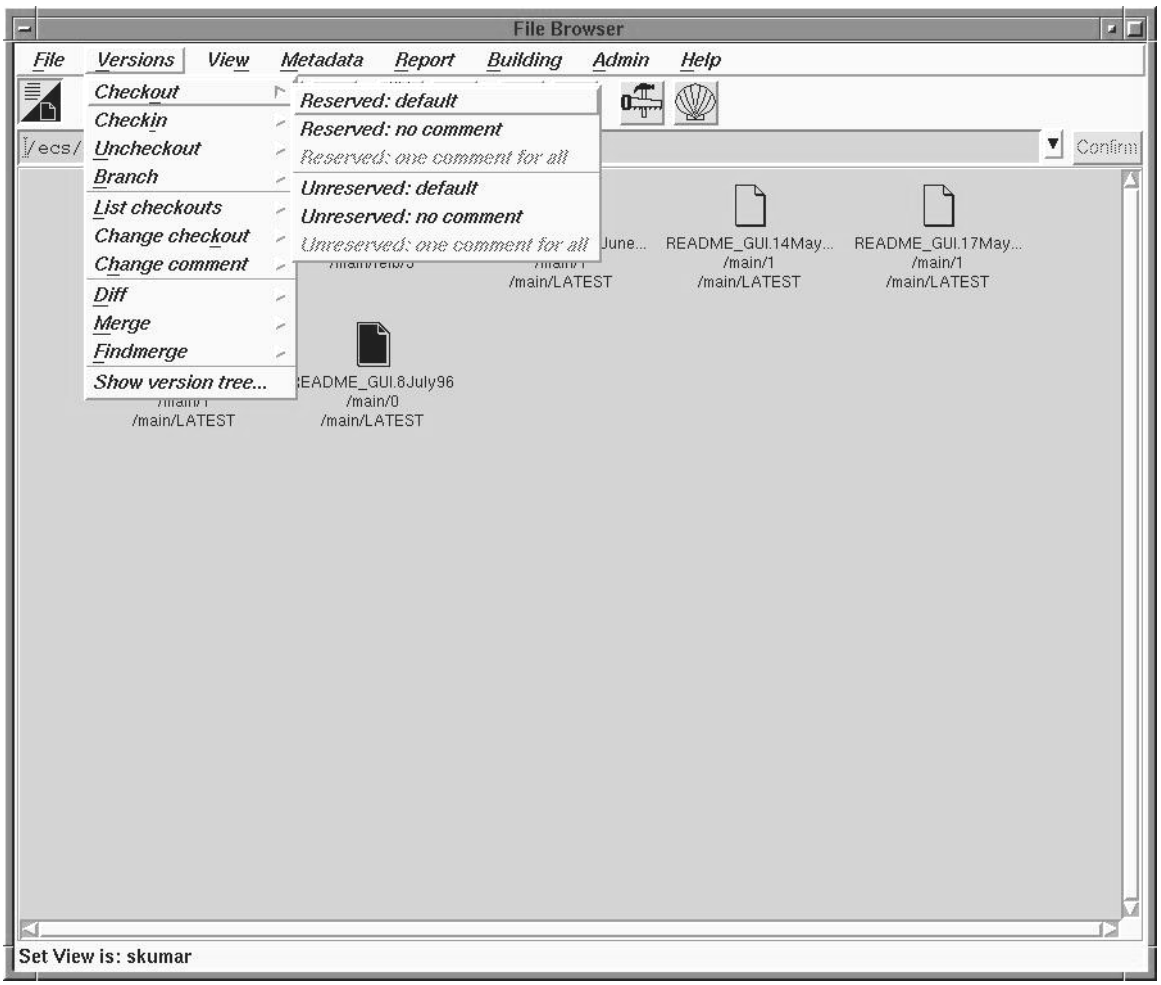

Figure 4.3.1-4. ClearCase File Browser Screen (Checkout Software)

If the operator is authorized and the view is set up to checkout files, then the checkout process continues and the ClearCase Prompt screen appears as shown in Figure 4.3.1-5. This screen gives the operator the opportunity to enter an explanation of why the file version is being checked out.

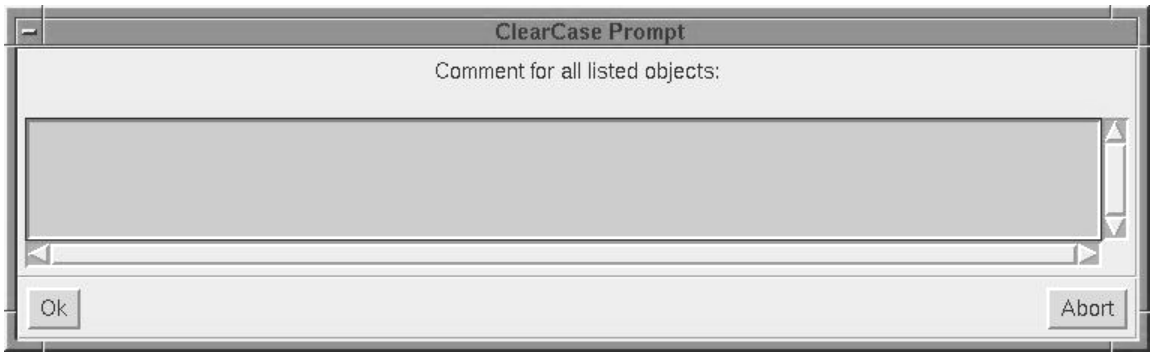

Figure 4.3.1-5. ClearCase Prompt Screen (Checkout Comment)

After appropriate comments are entered, click the "Ok" button and ClearCase adds the comments to the historical record for the file version. The File Browser screen reappears as shown in Figure 4.3.1-6 and it shows that the file version has been checked out. Note, the check mark for file, README_GUI.8.July96 (more updated version available?), has been added. Addition of the check mark is an indication of a successful checkout.

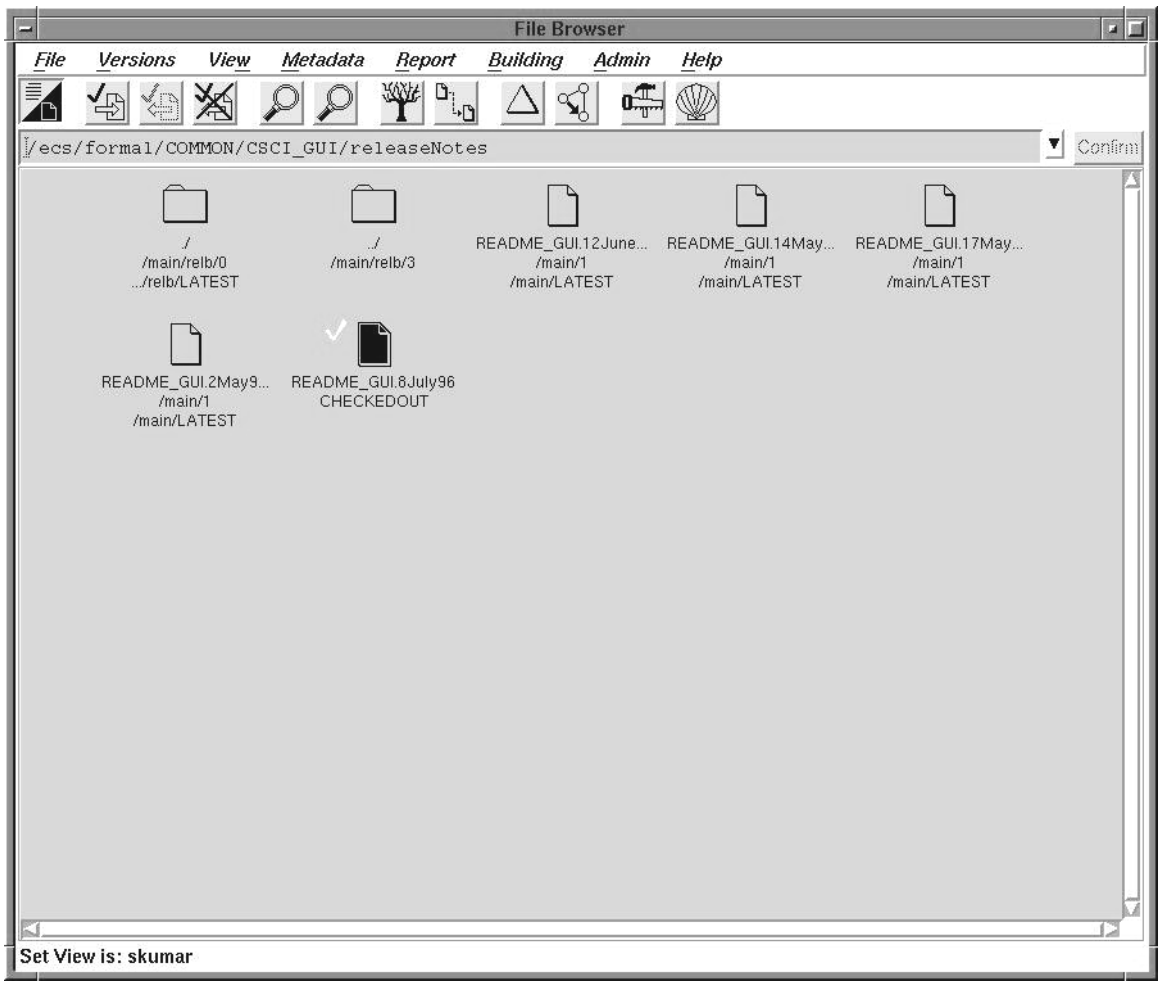

Figure 4.3.1-6. File Browser Screen (File Version Checked-Out)

To verify that the file version has been checked out on a branch, click the Vtree icon on the File Browser toolbar. This activates the Version Tree Browser and it displays a graphical image of the branching as shown in Figure 4.3.1-7. Note, the checked out file version has been placed on the main branch (/main) in the example below.

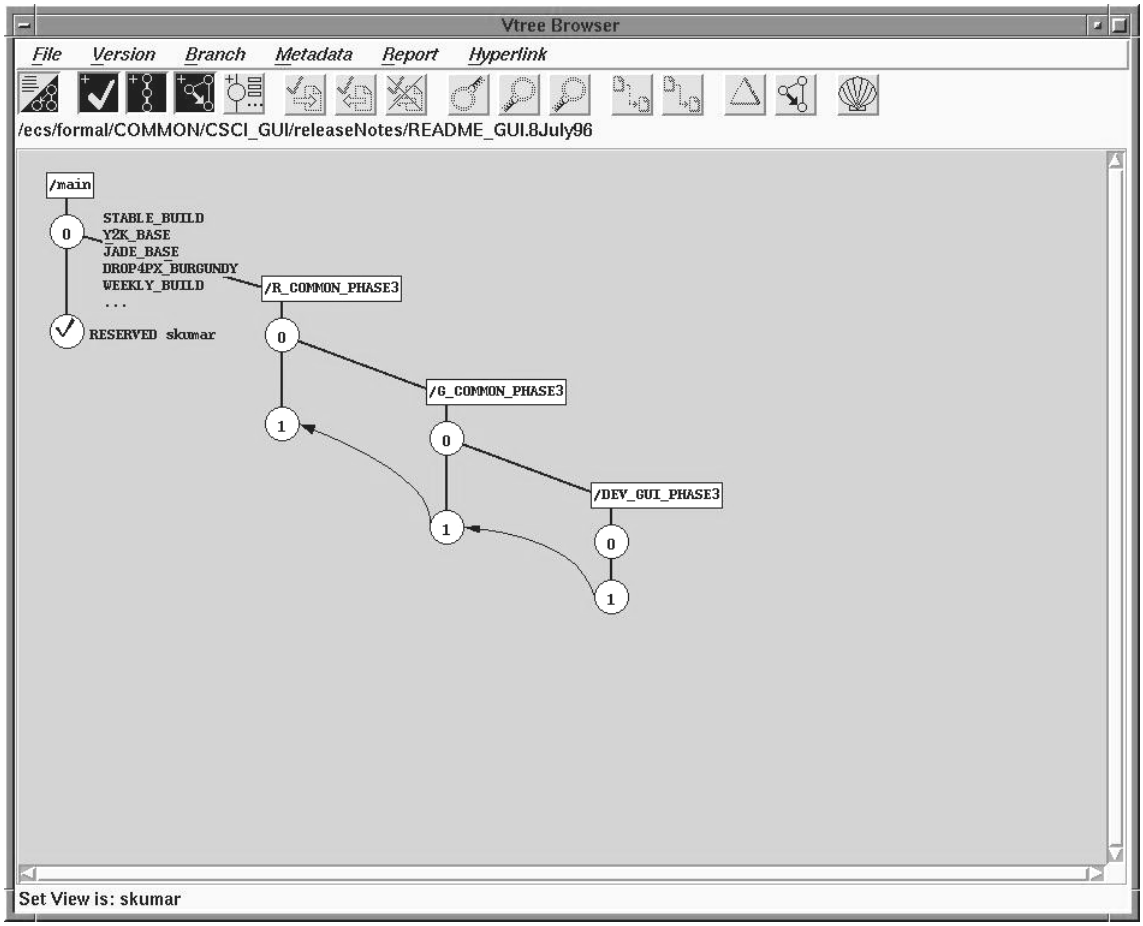

Figure 4.3.1-7. ClearCase Version Tree Screen

4.3.1.2.3 Checkin Software

A software file version checked out of the ClearCase library for editing must be checked in to the library for it to become a new version of the original file. Click the checkin icon on the File Browser toolbar to initiate the check-in process. A ClearCase Prompt box appears as shown in Figure 4.3.1-8 to facilitate the adding of comments at check in to the file version's record. Enter a comment and click the "Ok" button to continue or just click the "Ok" button to continue the check-in process.

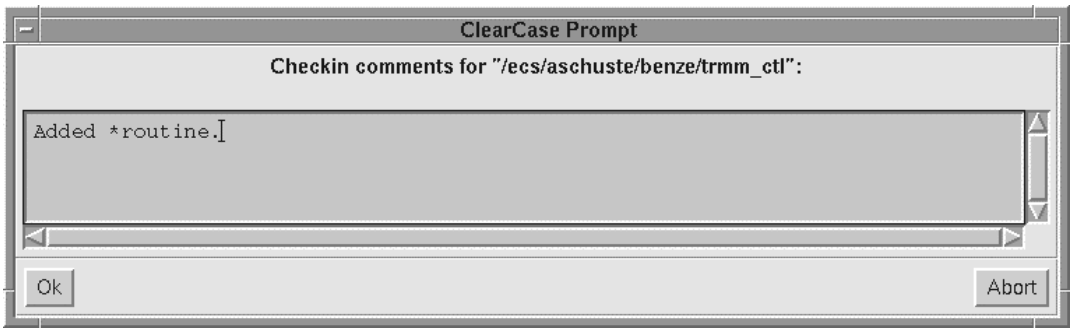

Figure 4.3.1-8. ClearCase Prompt Screen (Checkin Comment)

The File Browser screen reappears as shown in Figure 4.3.1-9 and it shows that the file version has been checked in. Note, the check mark for file, README_GUI.8July96 (more updated version available), has been removed. Removal of the check mark is an indication of a successful checkin.

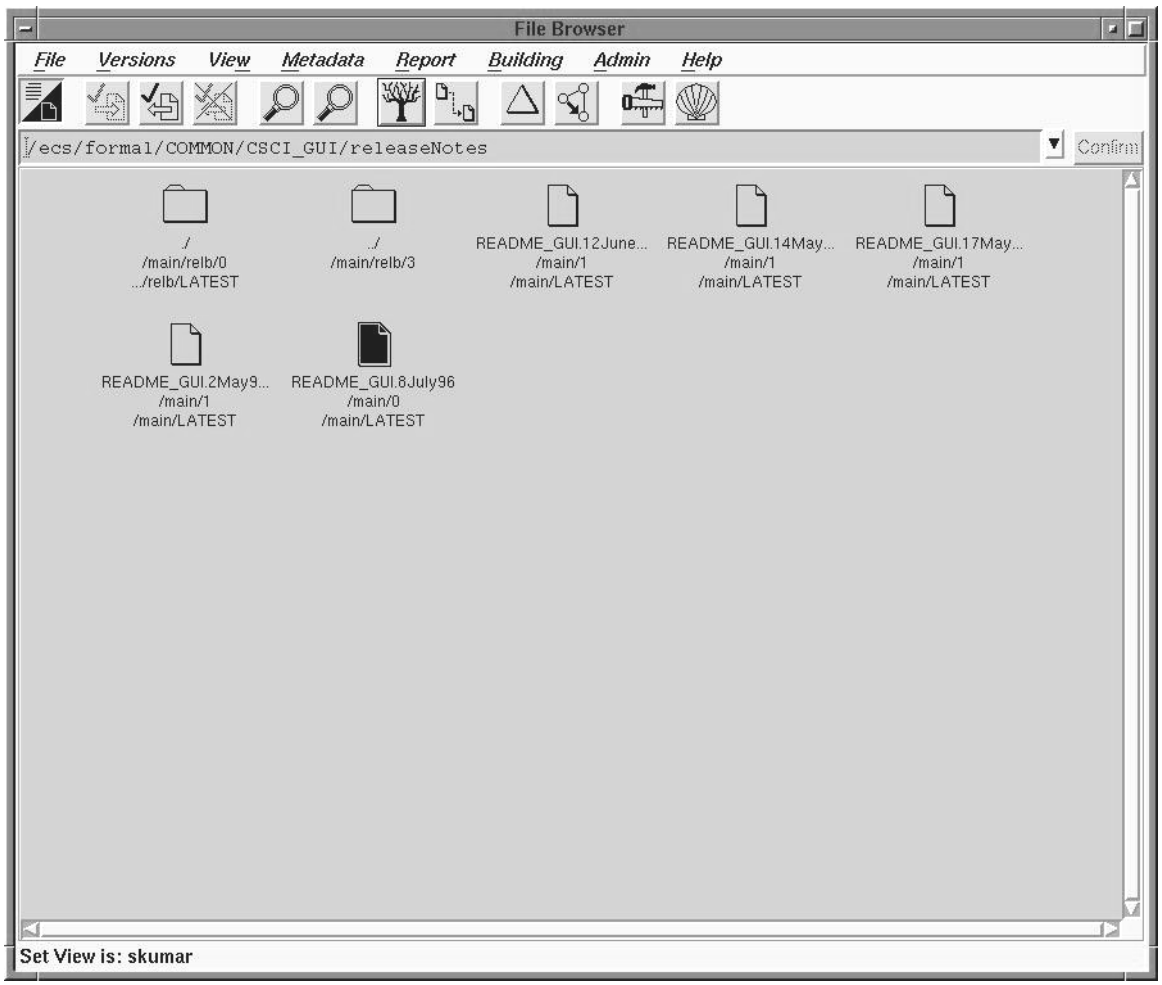

Figure 4.3.1-9. ClearCase File Browser Screen (File Checked-In)

4.3.1.2.4 Perform Build

The Building menu on the File Browser as shown in Figure 4.3.1-10 is used to produce derived objects. The Building menu is the GUI version of the command line interface build utility called clearmake. Reference the *ClearCase User's Manual* and the clearmake section of the *ClearCase Reference Manual* for information on the use of this capability.

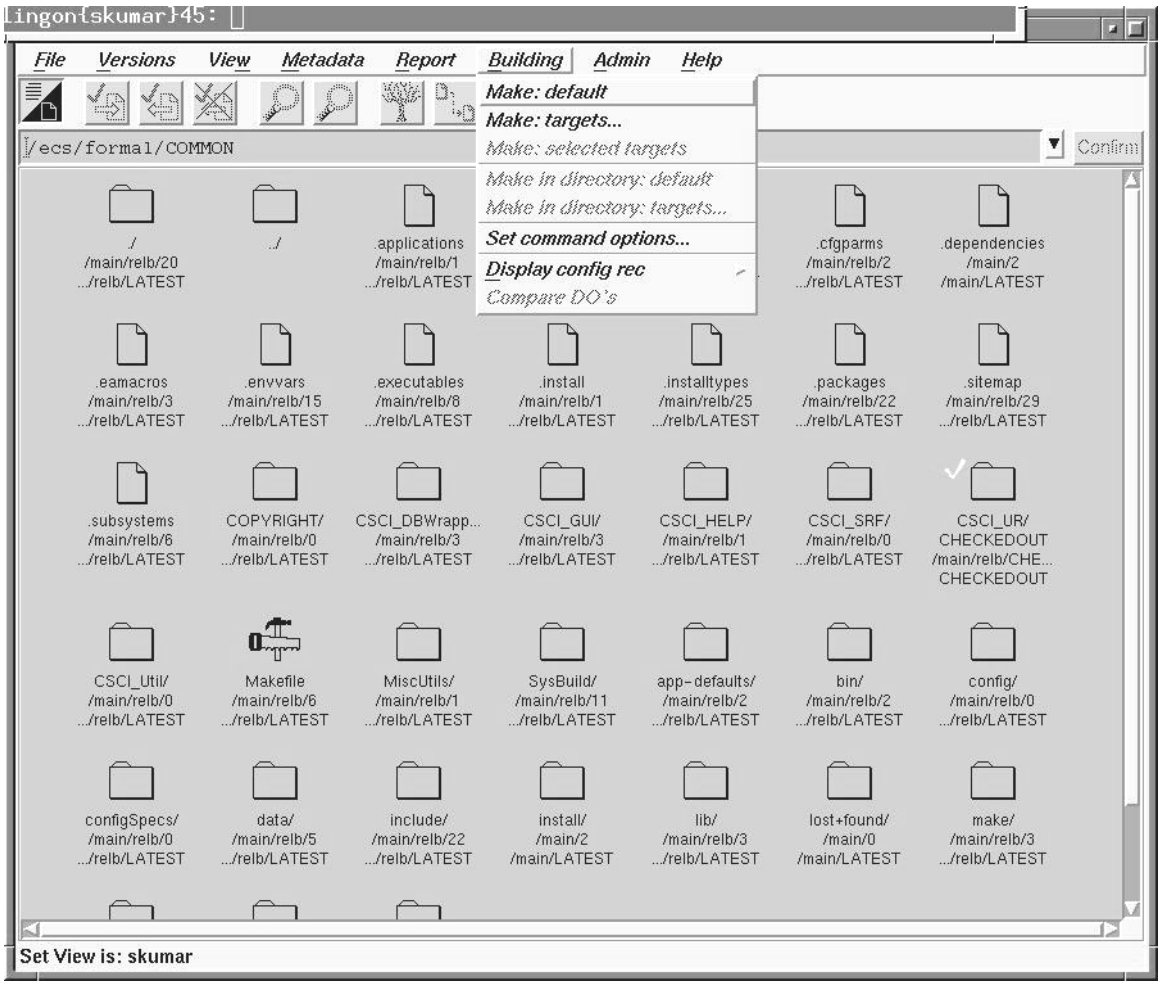

Figure 4.3.1-10. File Browser Screen (Build Menu)

4.3.1.3 Required Operating Environment

For all COTS packages, appropriate information on operating system environments, tunable parameters, environment variables, and a list of vendor documentation can be found in a CM controlled ReadMe file for each product. To find the ReadMe file for ClearCase, use the ClearCase Baseline Manager tool (ClearCase BLM) to determine where in ClearCase the ReadMe file resides. The installation path of this COTS software product may be obtained from the EMD Baseline Information System (EBIS) 910-TDA-030 Where-Used Technical Report. This report shows all of the detail regarding ClearCase and the baseline placement of this COTS software on the PVC, VATC, SMC, and DAAC hosts.

4.3.1.4 Databases

ClearCase data is stored in VOBs and views. Reference the *ClearCase Administrator's Manual* for a detailed description of the ClearCase databases.

4.3.1.5 Special Constraints

None

4.3.1.6 Outputs

Reference the *ClearCase User's Manual* for a description of the ClearCase outputs.

4.3.1.7 Event and Error Messages

ClearCase creates an event record for most of the processing activities that modify the VOB and stores it in the VOB database. These records are linked to the derived objects. These records provide a chronological event history for the objects. Reference the *ClearCase Reference Manual* for detailed information about logging of ClearCase events. The reference manual describes the contents of an event record, VOB objects that have event histories, and ClearCase operations that cause event records to be written.

ClearCase error messages indicate that a problem has occurred. Some errors are user correctable and others require correction by the operations staff. In both cases, ClearCase records error and status information in its log files. Reference the *ClearCase Reference Manual* for a description of the error logs, the ClearCase programs that use them, the error logs location, and their format.

4.3.1.8 Reports

None.

4.3.2 Clear Distributed Defect Tracking System (CDDTS)

The Clear Distributed Defect Tracking System (CDDTS), is the COTS product serving as the ECS Change Request Manager (CRM). CDDTS provides the functionality necessary to compose, submit, report, and track status of proposals to change the ECS baseline. It provides the capability to register Configuration Change Requests (CCR) electronically. A CCR is a document that requests, justifies a need for, and defines a change to a Configuration Item (CI). A CI is an aggregation of hardware, firmware, software, or any of its discrete portions, which satisfies an end use function and is designated for configuration control.

CDDTS prompts for relevant information, assigns an identifier, and mails notification of the newly submitted requests to designated personnel. As the CCRs advance through approval and implementation processes, CDDTS maintains status, disposition, resolution, and closure information as entered by the M&O staff. It sends notification to designated personnel when the status of the CCR record changes and makes data available for viewing by designated staff members. CDDTS also keeps track of Non-Conformance Reports (NCRs) for M&O Sustaining Engineers. CDDTS is used to perform the operator functions listed in Table 4.3.2-1.

Refer to the *ClearDDTS User's Manual* for additional information about CDDTS. For information on the use of *ClearDDTS* in the ECS operational environment, see Section 9 of the Mission Operations Procedures document (611-CD-610-001, Oct 2002).

Table 4.3.2-1. Common ECS Operator Functions Performed with CDDTS (1 of 2)

Operating Function	GUI	Description	When and Why to Use
Viewing CCR	CDDTS Main Screen	Operator views the contents of the selected CCR by highlighting the CCR in the CCR Index.	To quickly view the contents of CCRs in the Index.
Submit CCR	CDDTS Main Screen	• Operator initiates CCR record submission process by clicking the "Submit" button. • An initial set of data fields appears for entry of data.	Whenever there is a new CCR to be entered.
Change the Status (state) of the CCR	CDDTS Main Screen	• Operator changes the status of a CCR as it moves through its lifecycle states by clicking Change_State" menu and selecting the state desired. • Each state transition causes a new set of data fields to appear for entry of data.	Whenever the activities of a particular state have been completed and it is time to move to the next state.

Table 4.3.2-1. Common ECS Operator Functions Performed with CDDTS (2 of 2)

Operating Function	GUI	Description	When and Why to Use
Modify CCR	CDDTS Main Screen	Operator updates a previously entered CCR by clicking the "Modify" menu and selecting the "modify record" option.	To change previously entered data and/or to enter data into fields previously left blank.
Print CCR	CDDTS Main Screen	Operator sends a copy of CCR(s) to a monitor screen, printer, or to a designated file by clicking the "Print" button and selecting print options.	To obtain a hard or soft copy of a CCR or all of the CCRs in the CCR index.

4.3.2.1 Quick Start Using CDDTS

To invoke CDDTS from the command line prompt, enter:

/usr/ecs/OPS/COTS/ddts/bin/xddts

Additional information can be found in the *ClearDDTSUser's Manual*.

4.3.2.2 CDDTS Main Screen

Figure 4.3.2-1 is the CDDTS main screen. It consists of three major areas: the CCR Index Display, which shows an index of CCRs; the CCR Record page, which displays some of the content of the highlighted CCR in the Index; and the Enclosure Display, which shows the initial set of enclosures for a CCR. All CDDTS functions are initiated from this screen.

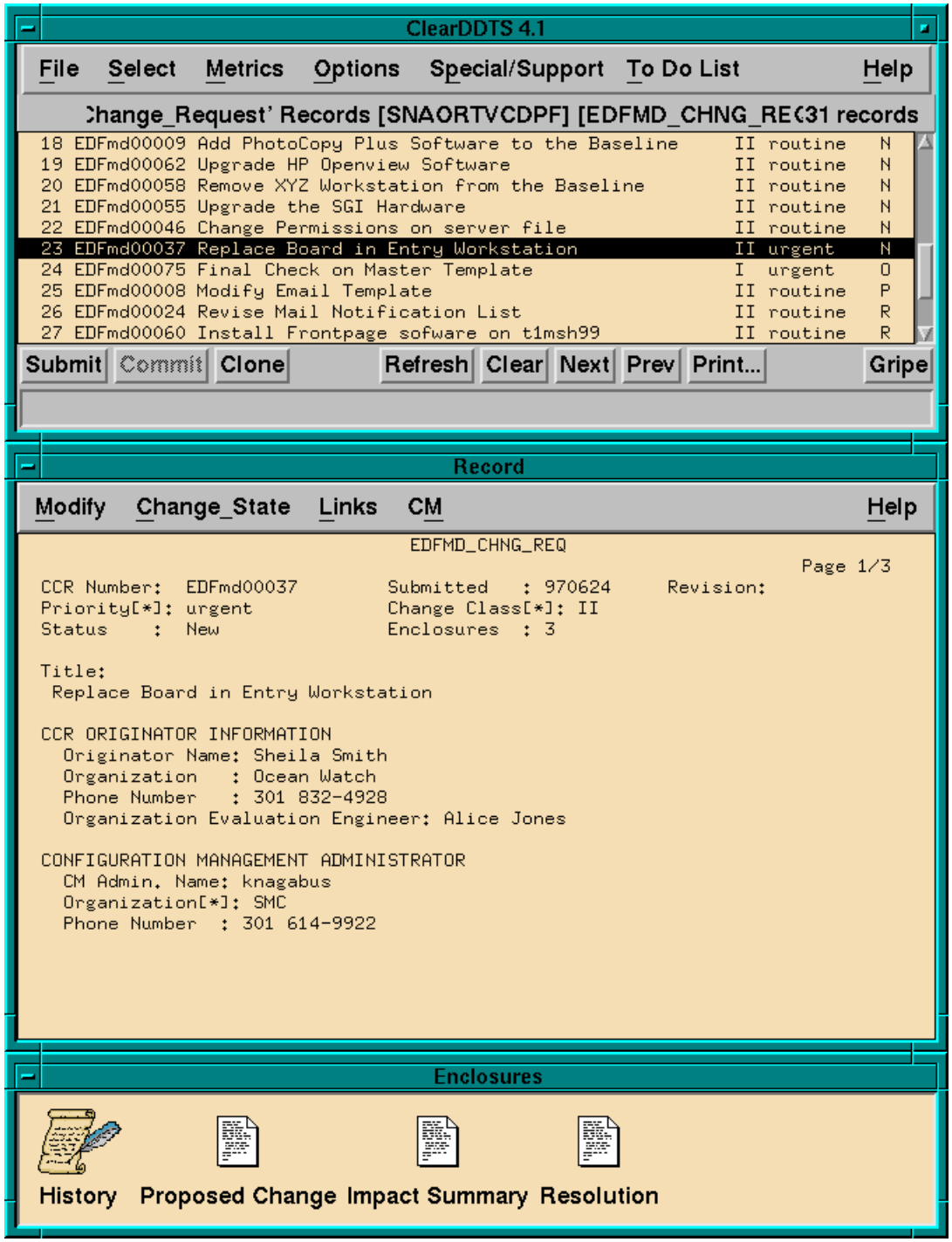

Figure 4.3.2-1. CDDTS Main Screen

Reference the *ClearDDTS User's Manual* for information concerning the menus and buttons on the CDDTS Main Screen.

4.3.2.2.1 CDDTS Submit CCR

Clicking the Submit button on the main screen brings up the "Submit A New Change Request" screen as shown in Figure 4.3.2-2. This screen enables the operator to select a class of projects (the Change Request Class is the default class) and a specific project (group of CCRs within the selected class) to which he/she wants to add a CCR. Reference Chapter 2 of the Clear*DDTS User's Manual* for a detailed explanation of the terms, class and project. The procedures described herein are applicable to any class and project.

Figure 4.3.2-2. Initial Submit Record Screen

The initial Submit Record Screen has two areas: CCR selection criteria area (middle section of the screen) and a help information area (last line of the screen). Information entered into the selection criteria area determines what set of CCR fields is selected for data entry purposes. The help information area explains how to get an explanation for each of the fields shown, how to move within a screen, and how to terminate the submit process.

Once the operator enters the desired class and project, the CCR page displays the CCR record form as shown in Figure 4.3.2-3. This form enables the operator to enter detailed information concerning the proposed change request.

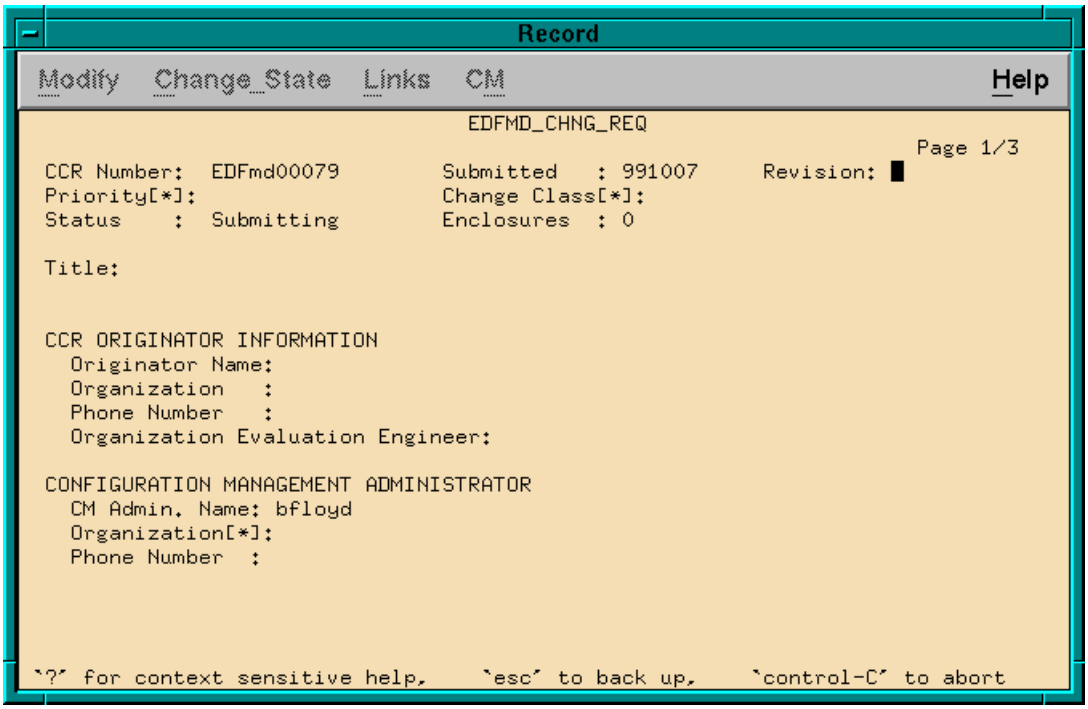

Figure 4.3.2-3. Submit Record Data Fields Screen

Descriptions of the Submit Record fields are listed in Table 4.3.2-2.

Table 4.3.2-2. Submit Record Fields Descriptions (1 of 2)

Field Name	Data Type	Size	Entry	Description
CCR Number	Character	10	System generated	A unique identifier for this resource change request.
Submitted	Date	6	System generated	The date this proposed change was first registered.
Revision	Character	2	Optional	The current revision/amendment to the proposed change.
Priority	Character	9	Required	• The urgency with which a proposed change is needed • Answer must be one of the following: routine, urgent, emergency • The default is routine

Table 4.3.2-2. Submit Record Fields Descriptions (2 of 2)

Field Name	Data Type	Size	Entry	Description
Change Class	Character	2	Required	• Classification that distinguishes change requests according to management level needed for approval • Answer must be I or II* • The default is II*
Status	Character	17	System generated	The stage this proposed change has reached in its lifecycle.
Title	Character	72	Required	The nomenclature used to identify the proposed change.
Originator Name	Character	25	Required	Name of the person who is the author of the proposed change.
Organization	Character	30	Required	Name of the originator's organization.
Phone Number	Character	13	Required	Phone number of the originator.
Organization Evaluation Engineer	Character	25	Required	Name of the person who initially determines whether or not the proposal has merit and should be entered into the CDDTS database.
CM Admin. Name	Character	8	System generated	• Name of the individual who registered this proposed change/enters the proposed change into the CDDTS database • Note: CDDTS uses User's Login ID
Organization	Character	5	Required	• Name of the CM administrator's organization • Answer must be one of the following: EDC, EOC, GSFC, LaRC, NSIDC or SMC
Phone Number	Character	13	Optional	Phone number of CM Administrator.

*__Class I Change__: an out-of-contract scope change that affects the form, fit, or function of the ESDIS Project CCB controlled items (technical baselines, technical requirements, contractual provisions such as cost and schedule, etc.). The ESDIS Project CCB must approve a Class I change.

*__Class II Change__: an in-scope contract change that does not fall within the definition of a Class I change (e.g., a change in documentation only, a change in software code to comply with design and performance requirements prior to product delivery, a change in hardware materials). Any appropriate level Configuration Control Board (CCB) can disposition a Class II change with the exception of Class II CCRs against documents controlled and maintained by ESDIS.

After all of the CCR record fields have been traversed, a Proposed Change Enclosure Screen is displayed (see Figure 4.3.2-4). This enclosure is used to hold additional information about a proposed change. It enables the operator to enter a free text description of the perceived need or problem and a proposed solution. For more information on the enclosure screen see Chapter 6 (Enclosures Section) of the *ClearDDTS User's Manual.*

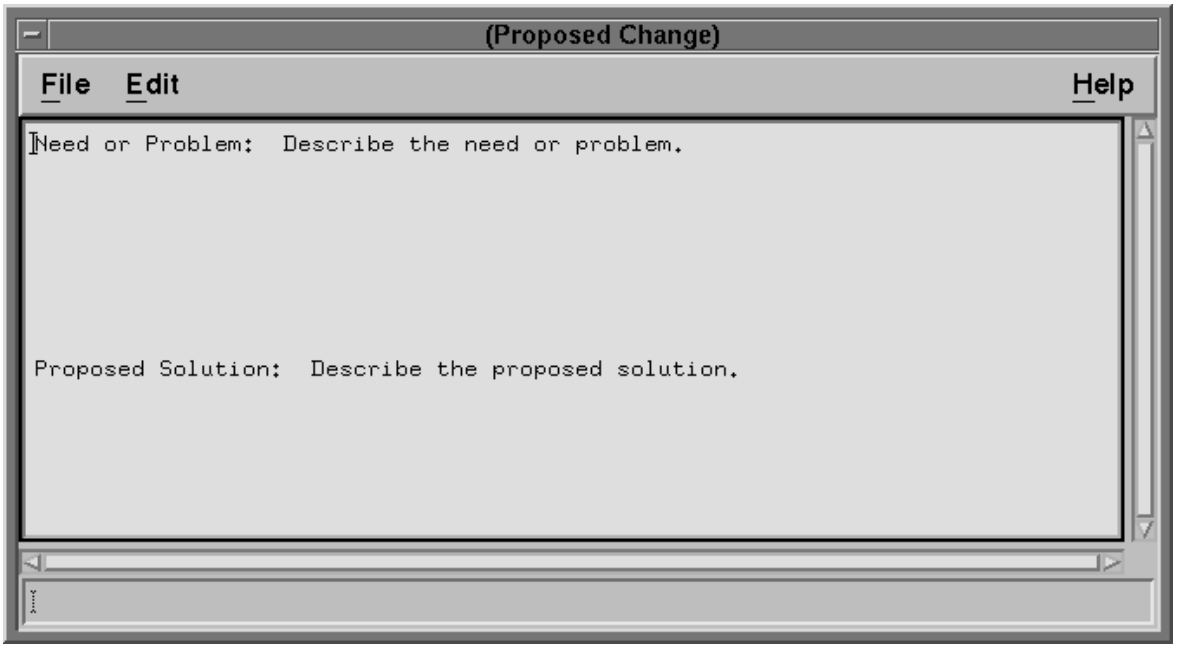

Figure 4.3.2-4. Proposed Change Enclosure Screen

Upon completion of entering the proposal information, clicking the file menu on the enclosure screen and selecting its "Save Changes & Dismiss Editor" option saves the contents of the enclosure. When the main screen display reappears, clicking the "Commit" button stores the CCR record into the CDDTS database.

4.3.2.2.2 CDDTS Change State of CCR

The first status (state) assigned to a CCR after it is committed to the CDDTS database is "New". Refer to the upper left corner of the center section of Figure 4.3.2-5 for the current status of the CCR. When it is time to move the CCR to its next lifecycle state, the Change_State Menu on the main screen (Figure 4.3.2-6) is used. Clicking on the Change_State Menu causes the available state options for the CCR record to appear as shown in Figure 4.3.2-6.

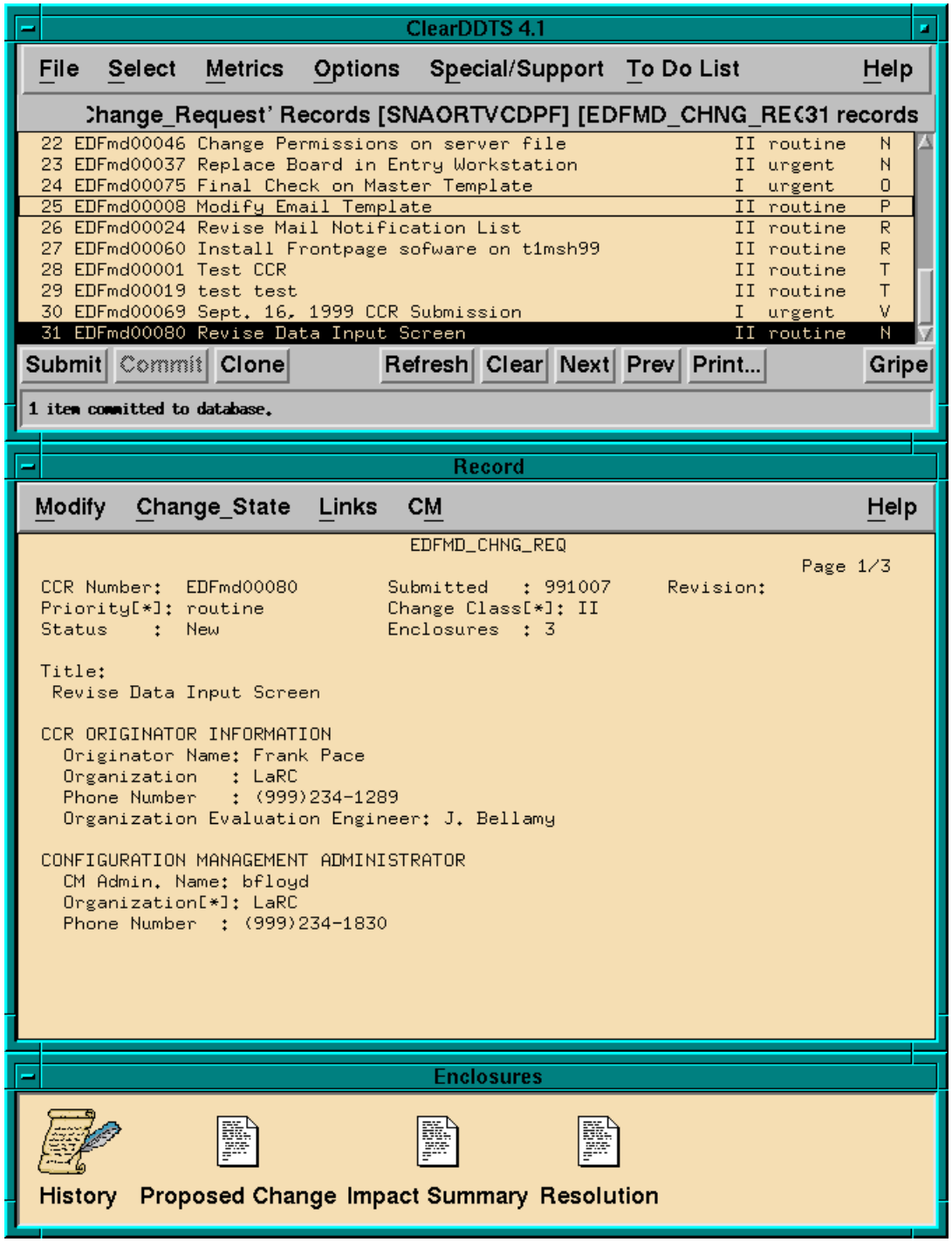

Figure 4.3.2-5. Main Screen (Change_State)

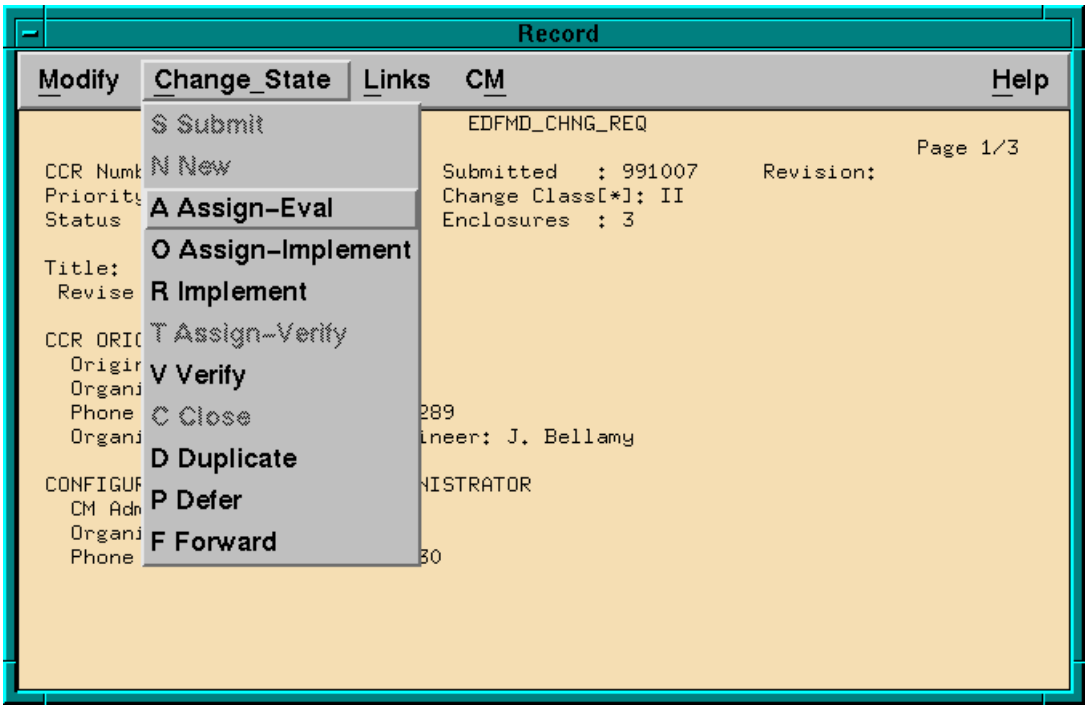

Figure 4.3.2-6. Change_State Menu Screen

The Change_State Menu allows the operator to select the next state to be assigned. After the state Assign-Eval (state entered when the change request is being assigned to an engineer for evaluation/analysis), is selected, the associated data fields (if there are any) for this new state appear as shown in Figure 4.3.2-7.

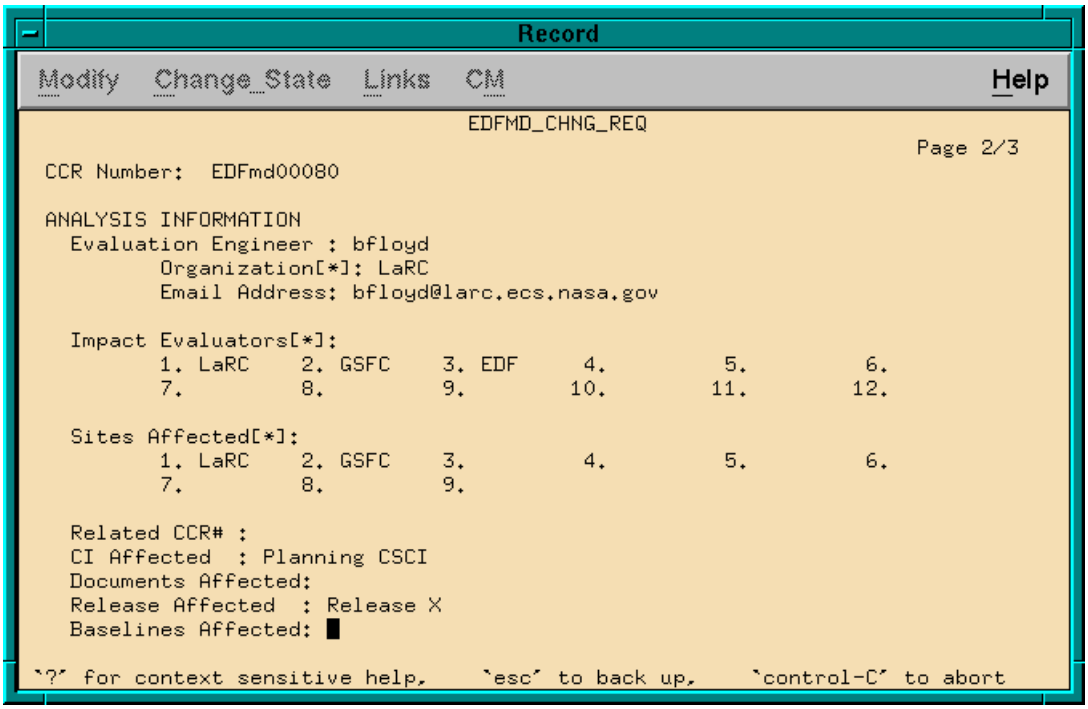

Figure 4.3.2-7. New State (Assign/Eval) Fields Screen

The new state's CCR form allows the operator to enter data into the newly displayed fields. Descriptions of the Assign-Eval fields are listed in Table 4.3.2-3.

Table 4.3.2-3. Assign-Eval Fields Descriptions

Field Name	Data Type	Size	Entry	Description
Evaluation Engineer	Character	8	Required	• Name of the responsible engineer designated to analyze the proposed system change • Use Login user name of the engineer
Organization	Character	5	Required	• Name of the evaluation engineer's organization • Answer must be one of the following: SEO, GSFC, LaRC, EDC, NSIDC, SMC or EOS
Eval. Engr. Email Address	Character	35	Optional	Electronic mail address of the evaluation engineer
Impact Evaluators (evaluators 1-12)	Character	5	Optional	• Collection of names of organizations designated to assess the impact of this proposed change • Answer(s) must be from the following: SEO, ESDIS, GSFC, LaRC, EDC, NSIDC, SMC, EOC or EDF
Sites Affected (sites 1-9)	Character	5	Optional	• The collection of names of ECS sites affected by this proposed change • Answer(s) must be from the following: SMC, GSFC, LaRC, EDC, NSIDC or EOC
Related CCR#	Character	10	Optional	The number of another CCR that is related to/associated with this CCR
CI Affected	Character	15	Optional	The identifier of the principal configuration item affected by this proposed system change
Docs. Affected	Character	56	Optional	The document identifiers of the system documents affected by the proposed system change
Release Affected	Character	10	Optional	The ECS release in which the proposed change is targeted for implementation
Baselines Affected	Character	56	Optional	The identifiers of system baselines affected by the proposed change

After all of the Assign-Eval fields have been traversed, an Impact Summary Enclosure Screen (See Figure 4.3.2-8) is displayed. This enclosure is used to hold free text information concerning the impact of the proposed change. The enclosure screen allows the operator to enter additional details in the same manner as described previously. After the enclosure has been saved, clicking the "Commit" button adds the new state's data to the database. The selected state, "Assigned-Eval", is now shown as the current state (Status) of the CCR record.

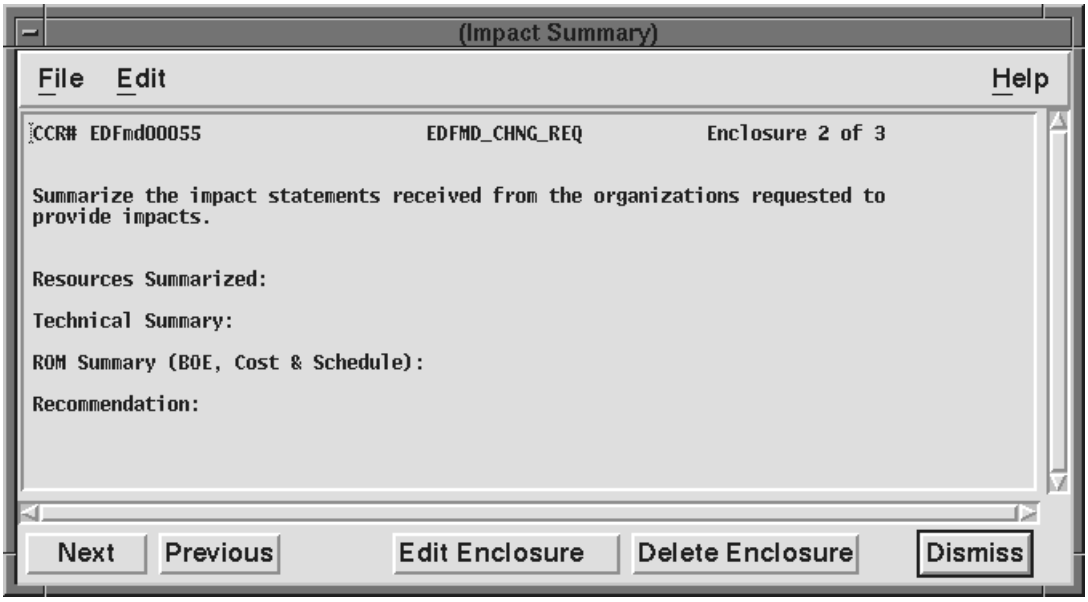

Figure 4.3.2-8. Impact Summary Enclosure Screen

The next state in sequence on the Change_State Menu is the Assign-Implement state. The Assign-Implement state (state entered when the change request is being assigned to an engineer for development) data fields are shown in Figure 4.3.2-9.

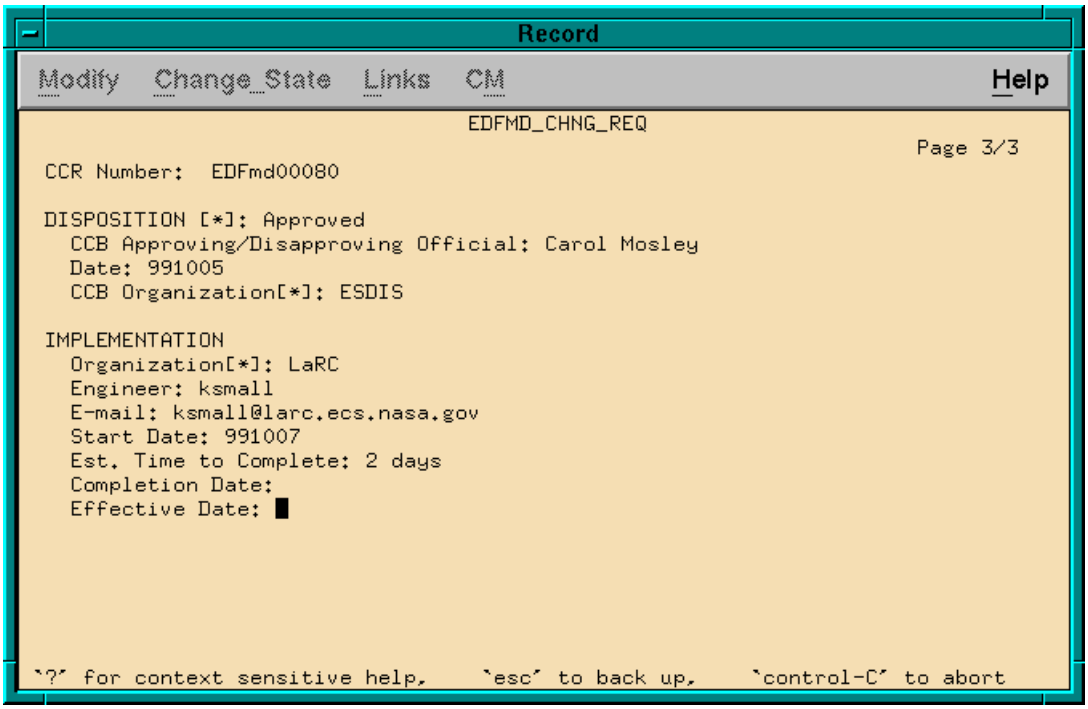

Figure 4.3.2-9. Assign-Implement State Screen

Descriptions of the Assign-Implement state fields are shown in Table 4.3.2-4.

Table 4.3.2-4. Assign-Implement Fields Descriptions

Field Name	Data Type	Size	Entry	Description
Disposition	Character	14	Required	• Final decision made by a designated approval official concerning this proposed change • Answer must be one of the following: Approved, Approved_w/cmt, Disapproved, Withdrawn, Deferred
CCB Approval Official	Character	25	Required	Name of the individual whose decision is reflected in the proposed change's disposition
CCB Approval Date	Date	6	Required	• Date the final decision was made concerning this proposed change • Required format is yymmdd
CCB Org.	Character	5	Required	• Name of the organization whose configuration control board has authority to approve the change request • Answer must be one of the following: ESDIS, SMC, GSFC, LaRC, EDC, or NSIDC
Implementation Organization	Character	5	Required	• Name of the organization assigned to implement this proposed change • Answer must be one of the following: SEO, GSFC, LaRC, EDC or NSIDC
Implement. Engineer	Character	8	Required	• Name of the responsible engineer designated to implement the proposed system change • Use Login user name of engineer
E-mail Address	Character	35	Optional	Electronic mail address of the implementing engineer
Start Date	Date	6	Required	• Date implementation activity is to begin • Required format is yymmdd
Estimated Time to Complete	Character	20	Optional	Estimated time it takes to develop and unit test proposed change(s) in days or months
Completion Date	Date	6	Optional	• Date the proposed change was completed • Required format is yymmdd
Effective Date	Date	6	Optional	• Date the proposed change is to go into operation • Required format is yymmdd

After the Assign-Implement fields have been traversed, the Resolution Enclosure Screen (See Figure 4.3.2-10) is displayed. This enclosure is used to hold a free text description of the solution for the proposed change request.

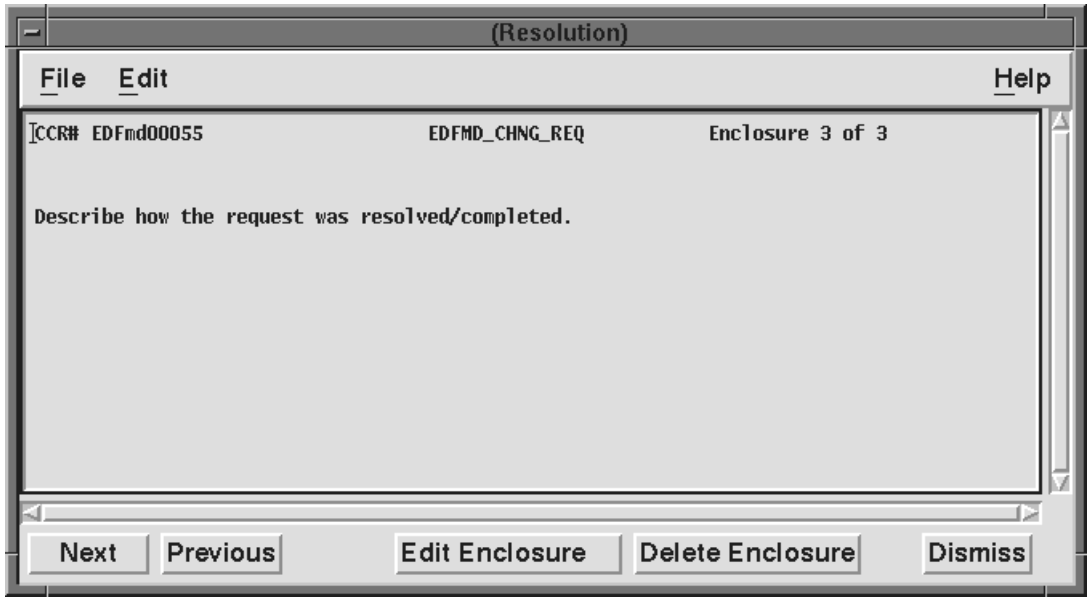

Figure 4.3.2-10. Resolution Enclosure Screen

The Resolution Enclosure Screen allows the operator to enter additional details in the same manner as described previously. After the enclosure has been saved, clicking the "Commit" button adds the Assign-Implement state's data to the database.

The Implement state (state entered when the proposed change has been developed) is the state that follows Assign-Implement on the Change_State Menu. There are no data fields associated with the Implement state. When Implement is selected, the status is simply changed to implement.

Following the Implement state on the Change_State Menu is the Assign-Verify state. The Assign-Verify state (state entered when the developed change is being assigned to an engineer for verification testing), data fields appear under the heading, "TESTING INFORMATION" as shown in Figure 4.3.2-11.

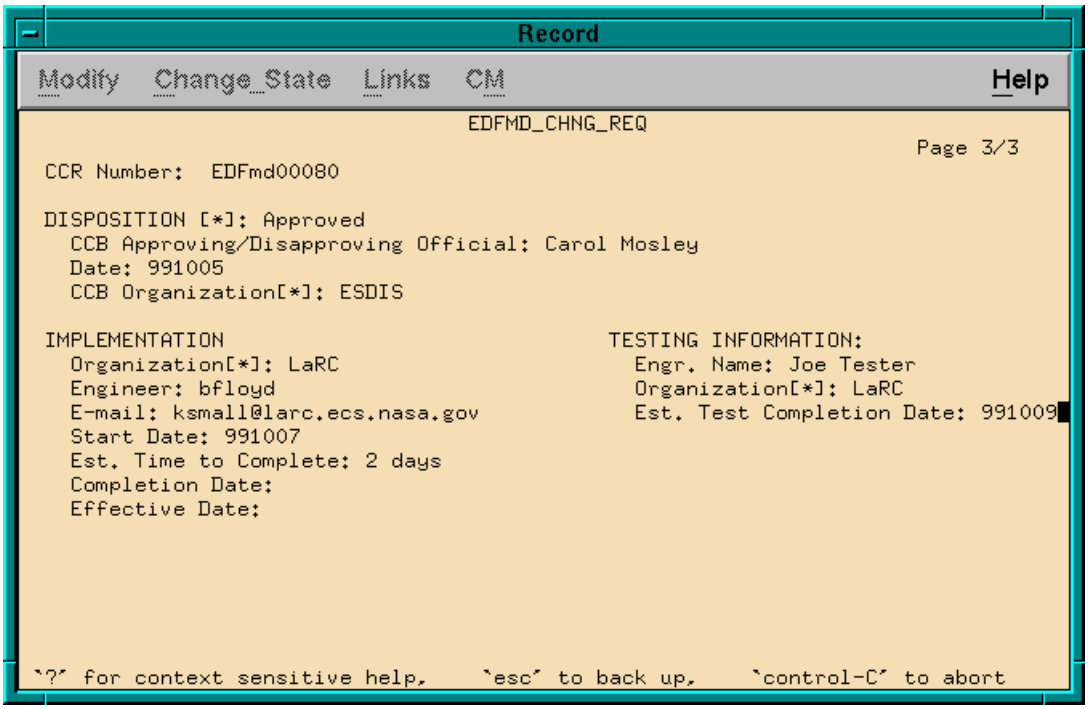

Figure 4.3.2-11. Assign-Verify State Screen

Descriptions of the Assign-Verify state fields are shown in Table 4.3.2-5.

Table 4.3.2-5. Assign-Verify Fields Descriptions

Field Name	Data Type	Size	Entry	Description
Test. Engr. Name	Character	25	Required	Name of the engineer designated to test the system change.
Test Org.	Character	5	Required	Name of the test engineer's organization. Answer must be one of the following: EDC, EOC, GSFC, LaRC, NSIDC or SMC.
Est. Testing Completion Date	Date	6	Optional	The date that the tester expects to have completed the testing activity. Required format is yymmdd.

Following the Assign-Verify state on the Change_State Menu is the Verify state, which is the state entered when a developed change has been tested and verified that it functions properly. The “Verify” state data fields appear under the heading, “VERIFICATION INFORMATION” as shown in Figure 4.3.2-12.

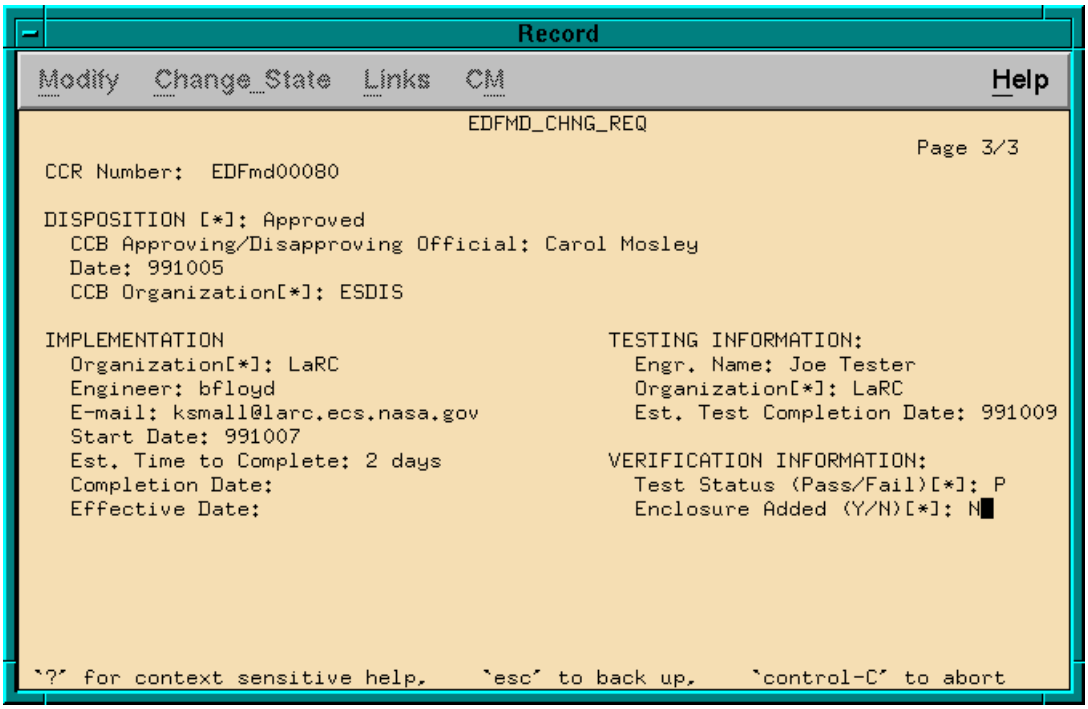

Figure 4.3.2-12. CDDTS Verify State Screen

Description of the Verify state fields are shown in Table 4.3.2-6.

Table 4.3.2-6. Verify State Fields Descriptions

Field Name	Data Type	Size	Entry	Description
Test Status	Character	1	Required	• This is an indicator as to whether or not the item (s) being tested has passed the test • Answer must be Passed or Failed
Enclosure Added	Character	1	Required	• This is an indicator as to whether or not an enclosure has been to further describe the testing activity • Answer must be Yes or No

Following the Verify State on the Change_State Menu is the Close state that is the state entered when all activity specified in the change request has been completed or that the approval authority has decided to close it prior to completion of all activity. The Close state data fields appear under the heading, “CLOSING INFORMATION” as shown in Figure 4.3.2-13.

```
Record
Modify   Change_State   Links   CM                                   Help
                                EDFMD_CHNG_REQ
                                                                     Page 3/3
 CCR Number:  EDFmd00080

 DISPOSITION [*]: Approved
   CCB Approving/Disapproving Official: Carol Mosley
   Date: 991005
   CCB Organization[*]: ESDIS

 IMPLEMENTATION                                TESTING INFORMATION:
   Organization[*]: LaRC                         Engr. Name: Joe Tester
   Engineer: bfloyd                              Organization[*]: LaRC
   E-mail: ksmall@larc.ecs.nasa.gov              Est. Test Completion Date: 991009
   Start Date: 991007
   Est. Time to Complete: 2 days               VERIFICATION INFORMATION:
   Completion Date:                              Test Status (Pass/Fail)[*]: P
   Effective Date:                               Enclosure Added (Y/N)[*]: N

 CLOSING INFORMATION:
   Closed by: Art Closer
   Date: 991010
   Org.[*]: SMC

`?' for context sensitive help,    `esc' to back up,    `control-C' to abort
```

Figure 4.3.2-13. CDDTS Close State Screen

Descriptions of the Close state fields are shown in Table 4.3.2-7.

Table 4.3.2-7. Close State Fields Descriptions

Field Name	Data Type	Size	Entry	Description
Closed By	Character	25	Required	Name of the individual that is closing the CCR.
Closing Date	Date	6	Required	• Date that the CCR is closed • Required format is yymmdd
Closer's Organization-	Character	5	Required	• Name of the closing official's organization • Answer must be one of the following: EDC, EOC, GSFC, LaRC, NSIDC or SMC

Refer to Chapter 2 of the Clear*DDTS User's Manual* for information about the Duplicate, Defer (Postpone), and Forward states shown on the Change_State Menu.

4.3.2.2.3 CDDTS Modify CCR

There are times when the operator needs to change the information entered previously into the database or to enter information into fields that were not completed initially. The Modify Menu,

shown in the middle of Figure 4.3.2-14 and in Figure 4.3.2-15, enables modification of database data.

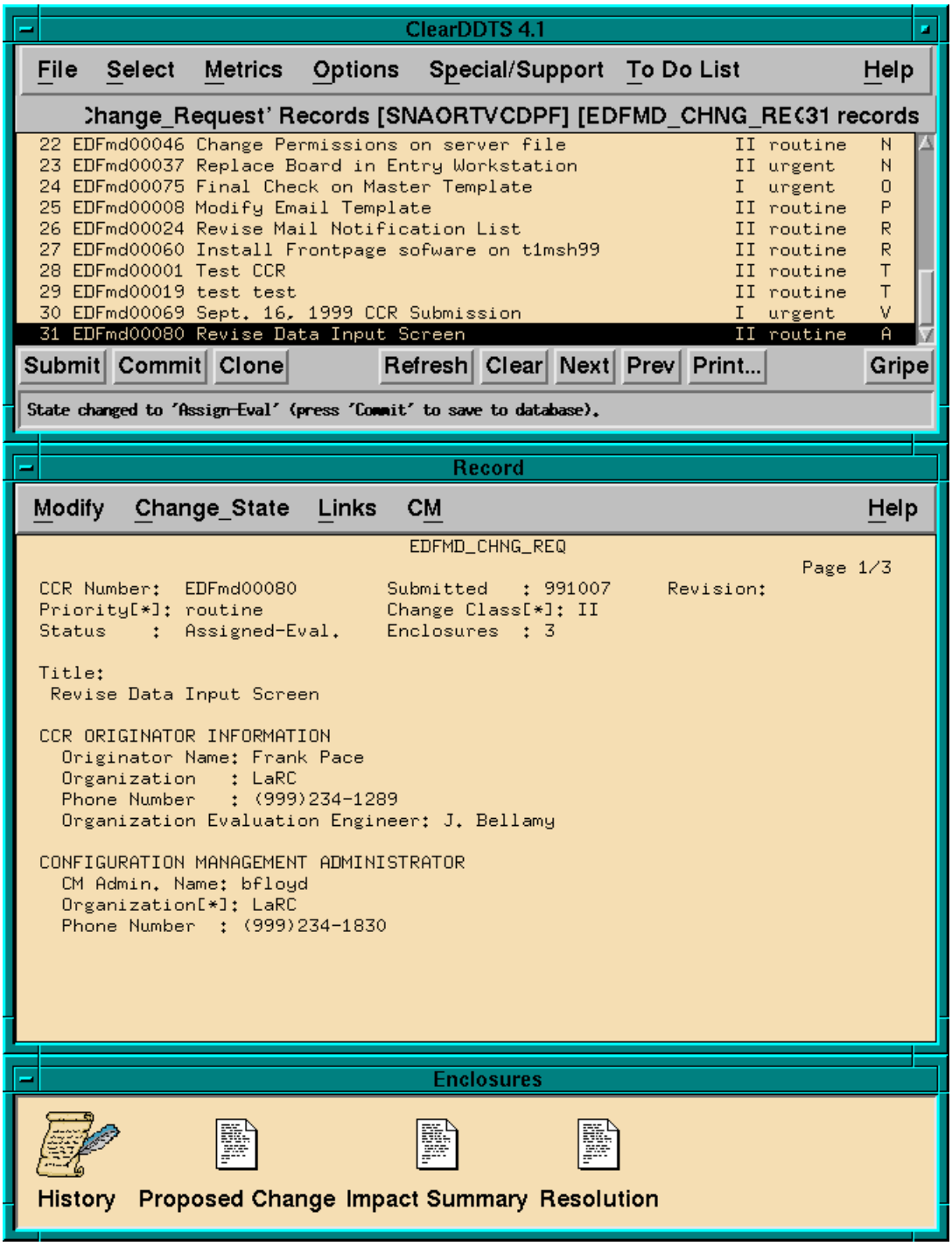

Figure 4.3.2-14. CDDTS Main Screen (Modify)

Clicking the “Modify” menu on the main screen (Figure 4.3.2-15) brings up the modify options (Figure 4.3.2-16). Select the “Modify Record” option to change existing information and/or to enter information into fields left blank previously.

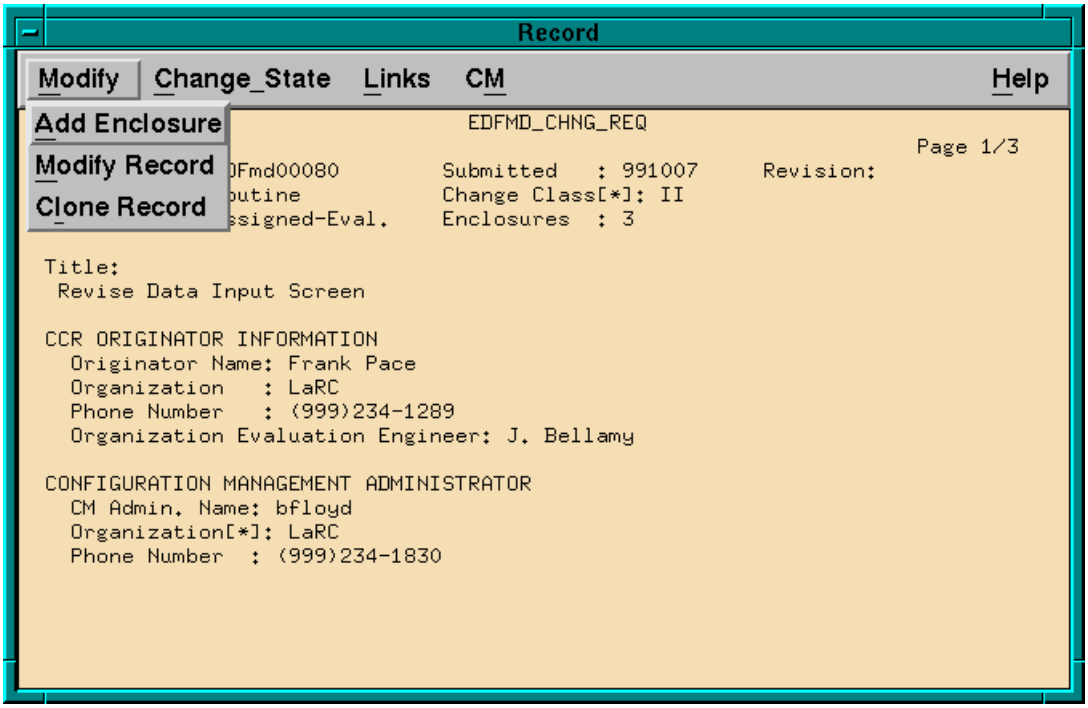

Figure 4.3.2-15. CDDTS Modify Menu Screen

The cursor appears at the first field that may be modified as shown in Figure 4.3.2-16. The modify record mode enables the operator to go through all of the fields that are associated with the current status of the CCR and make changes where appropriate. Once the changes have been made, clicking the “Commit” button on the main screen adds the changes to the database. Reference Chapter 6 (Viewing and Modifying Records) of the *ClearDDTS User’s Manual* for additional information.

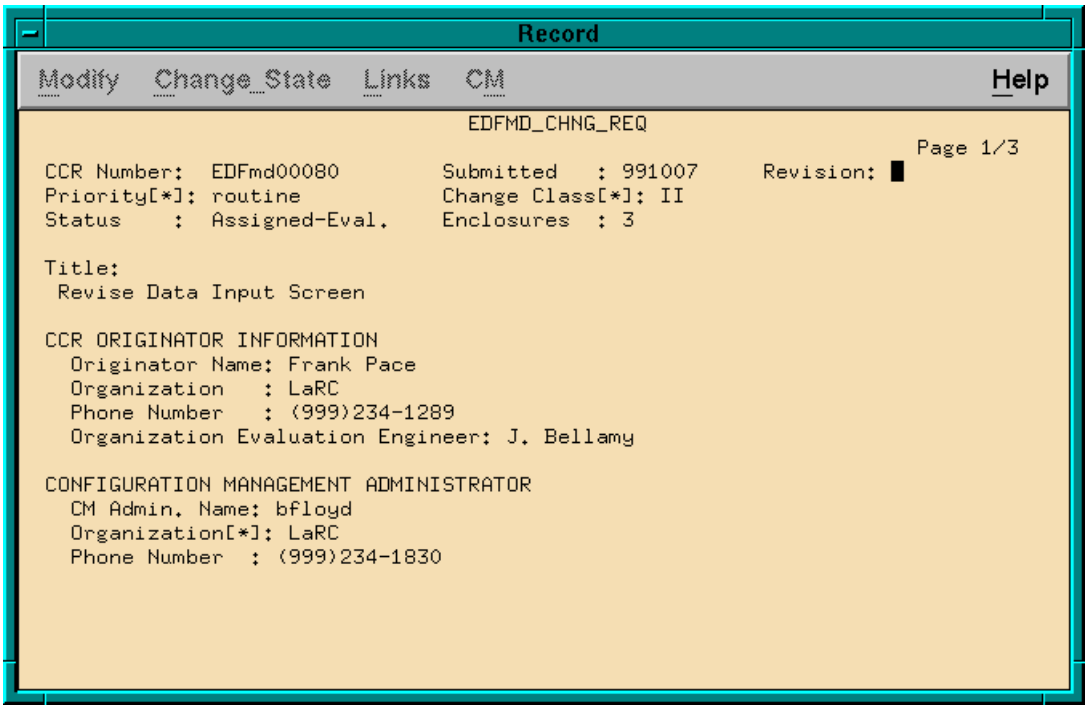

Figure 4.3.2-16. CDDTS Fields to Be Modified Screen

4.3.2.2.4 CDDTS Print CCR

Starting at the Main Screen as shown in Figure 4.3.2-17, the Options Menu or the “Print” button can be used to print a CCR.

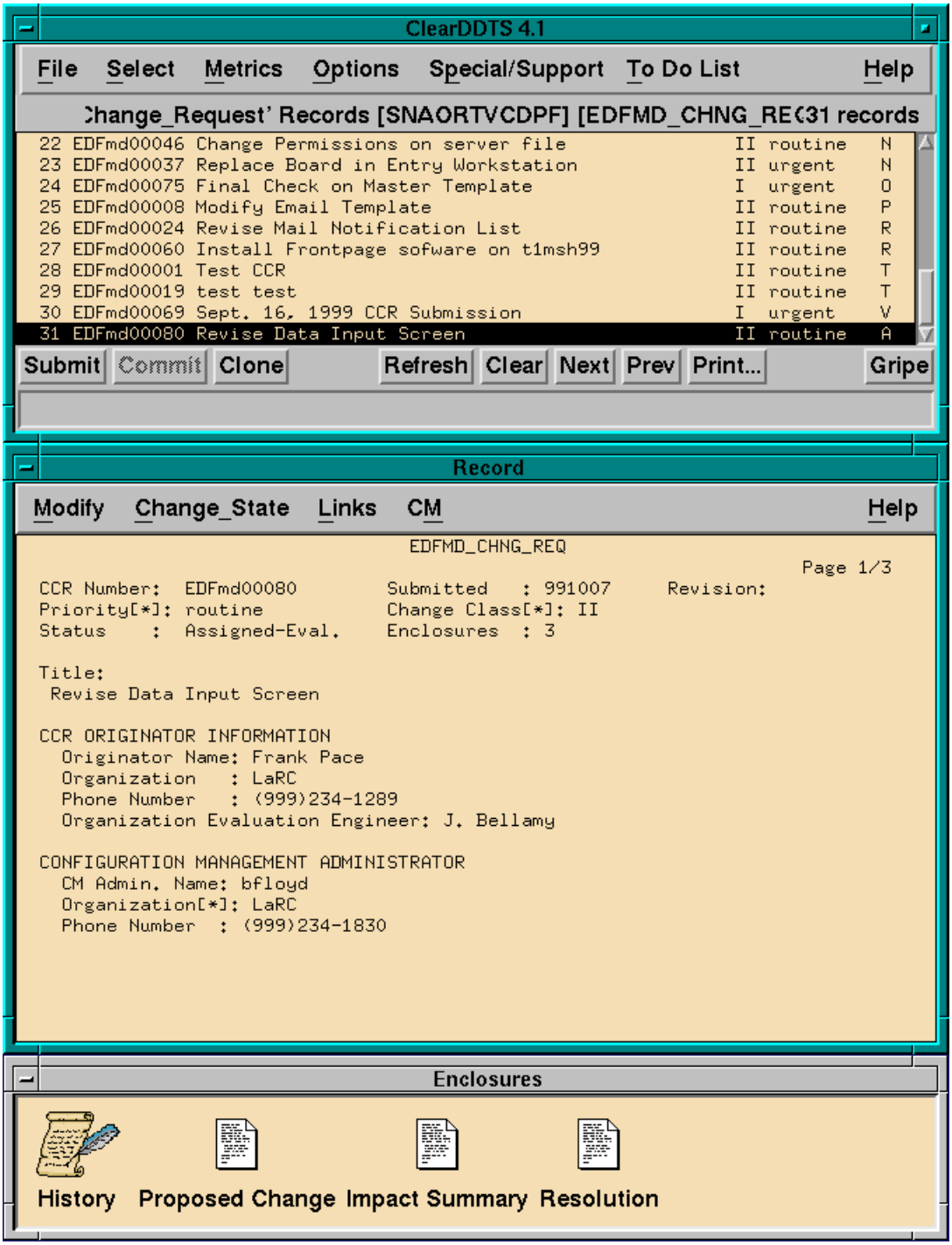

Figure 4.3.2-17. CDDTS Main Screen (Print)

Clicking the “Print” button brings up the Printing Options Screen. See Figure 4.3.2-18. This screen provides the operator the capability to print a highlighted CCR or all of the CCRs in the index on the main screen in a full page, index, one line, or three-line format.

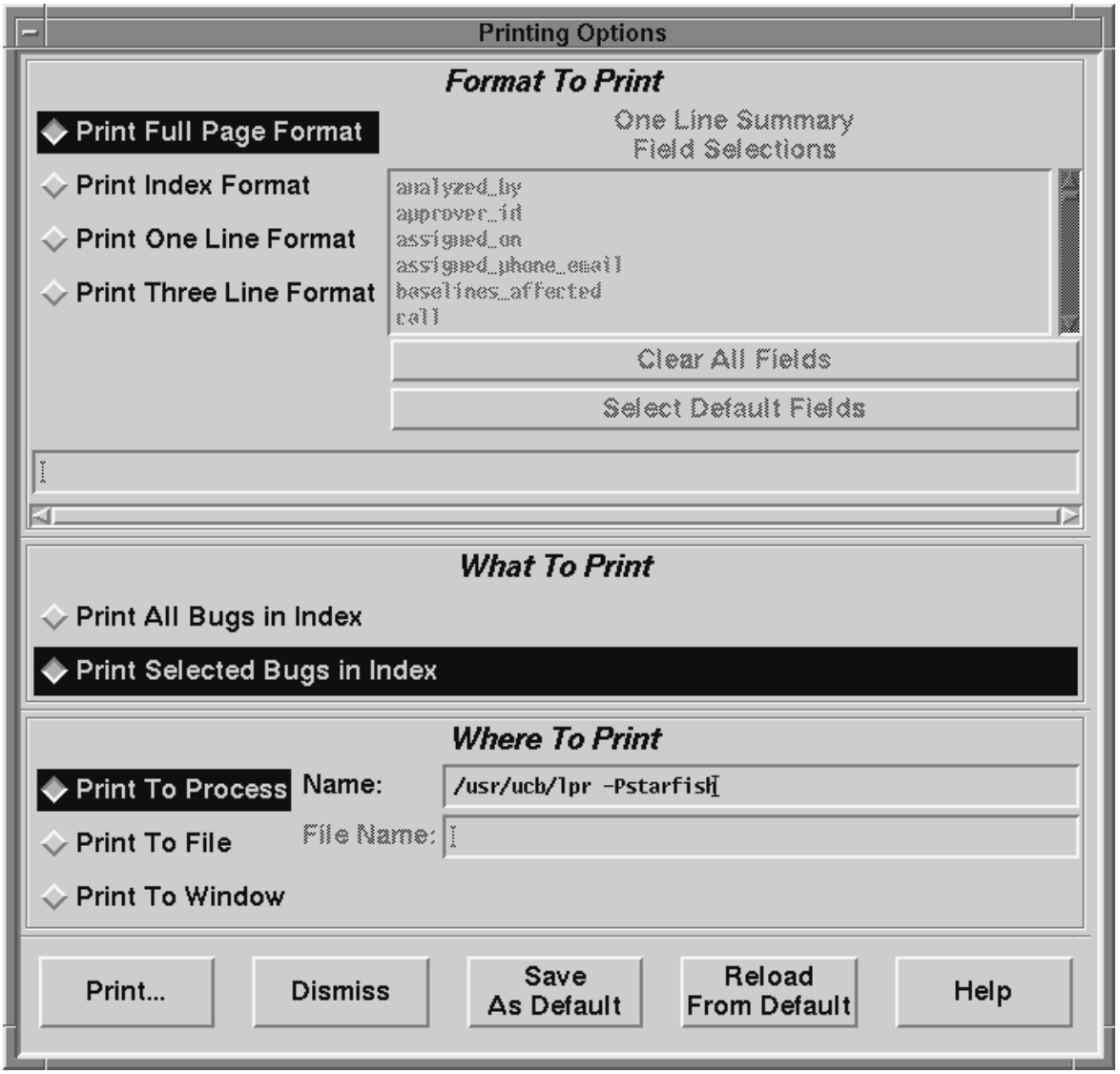

Figure 4.3.2-18. CDDTS Printing Option Screen

The Printing Options Screen also enables the operator to display the selected format on the monitor, print to a printer, or print to a designated file. Printing occurs when the desired option under “Where to Print” is highlighted and the appropriate information in the case of the printer and file options is supplied. Reference Appendix B (Setting Options) of the ClearDDTS User’s Manual for additional details.

4.3.2.3 Required Operating Environment

For all COTS packages, appropriate information on operating environments, tunable parameters, environment variables, and a list of vendor documentation can be found in a CM controlled ReadMe file for each product. To find the ReadMe file for the CDDTS, use the XRP Baseline Manager to determine where in ClearCase the ReadMe file resides.

4.3.2.4 Databases

The CDDTS database is a proprietary database that is SQL compliant. The database is customized only to the extent that some additional fields have been added. Reference Appendixes F and G of the ClearDDTS Administrator's Manual for detailed information about the CDDTS database layout, the schema file, how to modify the database schema, and other information required to maintain or revise the CDDTS database.

4.3.2.5 Special Constraints

None

4.3.2.6 Outputs

CDDTS emails notification to designated personnel of newly submitted CCRs and when the status of the CCR changes.

4.3.2.7 Event and Error Messages

Standard CDDTS event and error messages are used. There are no messages unique to the ECS implementation. A list of the CDDTS event and error messages is not provided in the ClearDDTS User's and Administrator's manuals. However, messages provided during execution of CDDTS are self explanatory.

4.3.2.8 Reports

Standard CDDTS reports are to be used. Reference Chapter 7 and Appendix B of the ClearDDTS User's Manual for information concerning the printing of a CCR report and a description of the available report formats.

4.3.2.8.1 Sample Reports

Examples of CDDTS reports are presented in the sections below.

4.3.2.8.1.1 Sample Report (Full Page Format)

Figure 4.3.2-19 is a CCR report resulting from the use of the CDDTS Printing Option (full page format).

ECS_CHNG_REQ

Page 1/3

CCR Number: MSSdd00630 Submitted : 960529 Revision:

Priority : routine Change Class: II

Status : Closed Enclosures : 3

Title:

Revise Data Input Screen (Example Only)

CCR ORIGINATOR INFORMATION

Originator Name: Frank Pace

Organization : LaRC

Phone Number : (999)234-1289

Organization Evaluation Engineer: J. Bellamy

CONFIGURATION MANAGEMENT ADMINISTRATOR

CM Admin. Name: bfloyd

Organization : LaRC

Phone Number : (999)234-1830

Figure 4.3.2-19. CDDTS CCR Report (1 of 4)

ECS_CHNG_REQ

Page 2/3

CCR Number: MSSdd00630

ANALYSIS INFORMATION

Evaluation Engineer : bfloyd

Organization : LaRC

Email Address: bfloyd@larc.com

Impact Evaluators:

1. GSFC 2. LaRC 3. EDF 4. 5. 6.

7. 8. 9. 10. 11. 12.

Sites Affected:

1. GSFC 2. LaRC 3. SMC 4. 5. 6.

7. 8. 9.

Related CCR# :

CI Affected : Planning CSCI

Documents Affected:

Release Affected : Release X

Baselines Affected:

Figure 4.3.2-19. CDDTS CCR Report (2 of 4)

ECS_CHNG_REQ

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CCR Number: MSSdd00630

DISPOSITION: Approved TESTING INFORMATION:

CCB Approval Official: John Wana Engr. Name: Joe Tester

Date: 960607 Organization: LaRC

CCB Organization: ESDIS Est. Testing Completion

Date: 960614

IMPLEMENTATION VERIFICATION INFORMATION:

Organization: SEO Test Status (Pass/Fail): P

Engineer: bfloyd Enclosure Added (Y/N): N

E-mail: efinch@eos.com

Start Date: 960610

Est. Time to Complete: 2 days

Completion Date: 960612

Effective Date: 960710

CLOSING INFORMATION:

Closed by: Authur Closer Date: 960618 Org.: SMC

********** Proposed Change **********

Need or Problem: Describe the need or problem.

The need is -----

Figure 4.3.2-19. CDDTS CCR Report (3 of 4)

Proposed Solution: Describe the proposed solution.

Suggest that the following capability be changed as follows:

- capability changes

********** Impact Summary **********

Summarize the impact statements received from the organizations requested to provide impacts.

Summary of impacts received from GSFC and EDF is ---------

Resources Summarized: [description of resources]

Technical Summary:

ROM Summary (BOE, Cost & Schedule):

Recommendation: [Insert Recommendation]

********** Resolution **********

Describe how the request has been resolved/completed.

This request has been resolved as follows:

- Capability x has been modified to ----.

Figure 4.3.2-19. CDDTS CCR Report (4 of 4)

4.3.2.8.1.2 Sample Report (Three Line Format)

Figure 4.3.2-20 is a sample CCR report resulting from the use of the CDDTS Printing Option, Three Line Format.

Submitted 960529, CCR# MSSdd00630, Originator Frank Pace
Title Revise Data Input Screen (Example Only)
Priority routine, Class II, CCB Org. ESDIS, Dips. Approved, Status Closed.
Submitted 960521, CCR# MSSdd00617, Originator Joseph Winkler
Title Add GUI to X11 Program (Example Only)
Priority routine, Class II, CCB Org. LaRC, Disp. Approved, Status Implemented.

Figure 4.3.2-20. CDDTS CCR Report: Three Line Format

4.3.2.8.1.3 Sample Report (Index Format)

Figure 4.3.2-21 is a sample CCR report resulting from the use of the CDDTS Printing Option (Index format). Fields displayed are CCR Identifier, Title, Change Class, Priority, and Status.

MSSdd00630 Revise Data Input Screen(Example Only) II routine C
MSSdd00617 Add GUI to X11 Program (Example Only) II routine R

Figure 4.3.2-21. CDDTS CCR Report: Index Format

4.3.2.8.1.4 Sample Report (One Line Format)

Figure 4.3.2-22 is a sample CCR report resulting from the use of the CDDTS Printing Option (One Line format). The operator selects the fields desired for the one line format. In this case, the Identifier, CCR Originator, Originator Organization, Implementing Organization, and Status fields were selected and their data values are displayed.

```
MSSdd00630 Frank Pace        LaRC            SEO   C
MSSdd00617 Joseph Winkler    GSFC            LaRC  R
```

Figure 4.3.2-22. CDDTS CCR Report: One Line Format

4.3.2.8.2 Report Customization

Refer to Chapter 9 of the ClearDDTS Administrator's Manual for an explanation of how to customize CDDTS reports. Chapter 9 explains how to customize reports provided by CDDTS and how to create and add new reports.