

### **4.3 Configuration Management**

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

1. ClearCase
2. Microsoft Access EMD Change Manager (ECM) Configuration Change Request (CCR) Tool
3. IBM Rational ClearCase Baseline Manager (BLM)
4. AssetSmart ILM (Inventory, Logistics and Maintenance) Manager
5. FLEXnet Publisher
6. TestTrack Pro

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### 4.3.1 ClearCase

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

ClearCase is a COTS software product used in ECS to perform source code management and build functions. It provides the staffs at ECS sites and Riverdale 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 the ECS Development Facility (EDF) to control 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).

The ClearCase view and VOB servers run on Linux-based hosts.

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 ECS 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.

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

Operating Function	Command/Script or GUI	Description	When and Why to Use
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.
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 <i>ClearCase Reference Manual</i> for details).

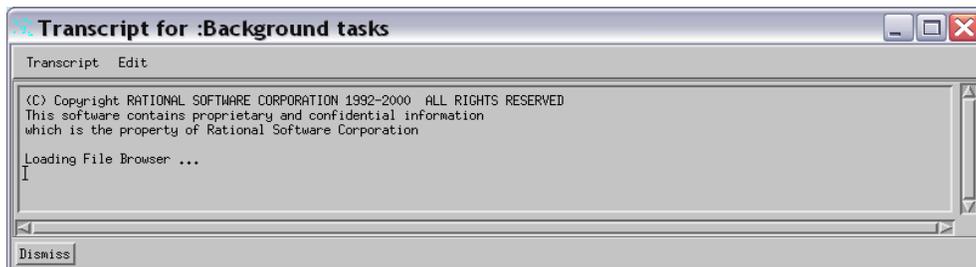
#### 4.3.1.1 Quick Start Using ClearCase

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

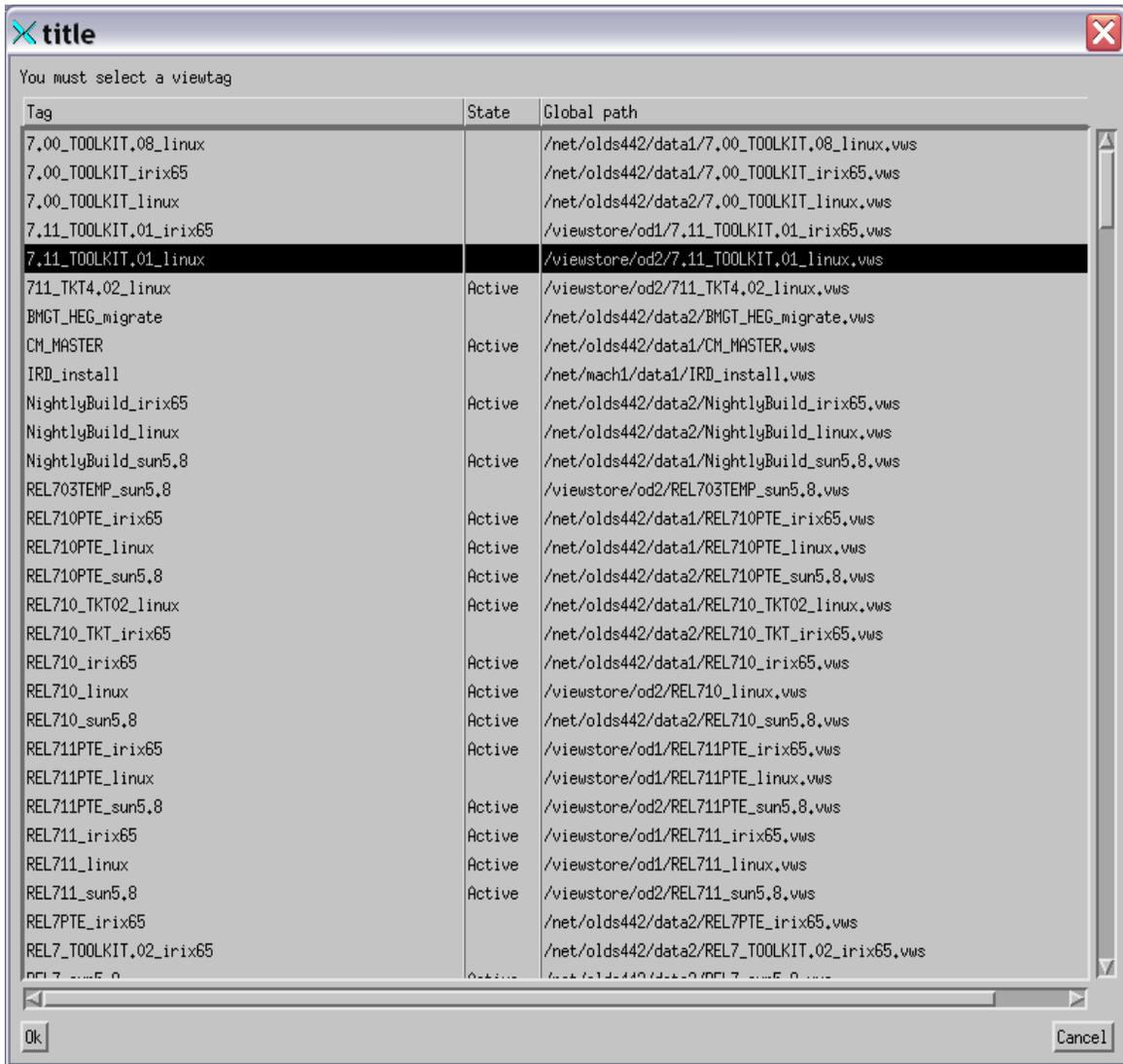
ClearCase has a Command Line Interface (CLI) and a GUI. The GUI enables execution of all the common functions and facilitates graphical examination of the version history of objects in VOBs. When ClearCase is invoked, a Transcript screen as shown in Figure 4.3.1-1 appears. The Transcript screen displays 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

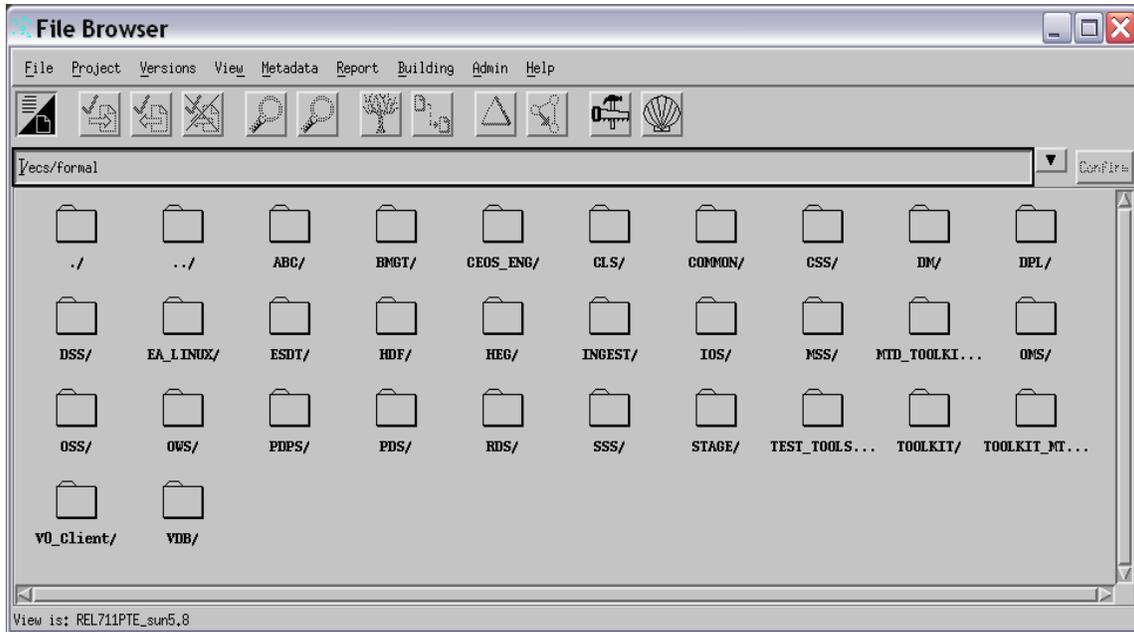
Operator access to versions of files in a VOB is facilitated by a view. When ClearCase is initiated, the operator is asked to select a view. Available views are displayed in the View Tag Browser Screen as shown in Figure 4.3.1-2. Select a view by highlighting the desired view and clicking the “Ok” button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

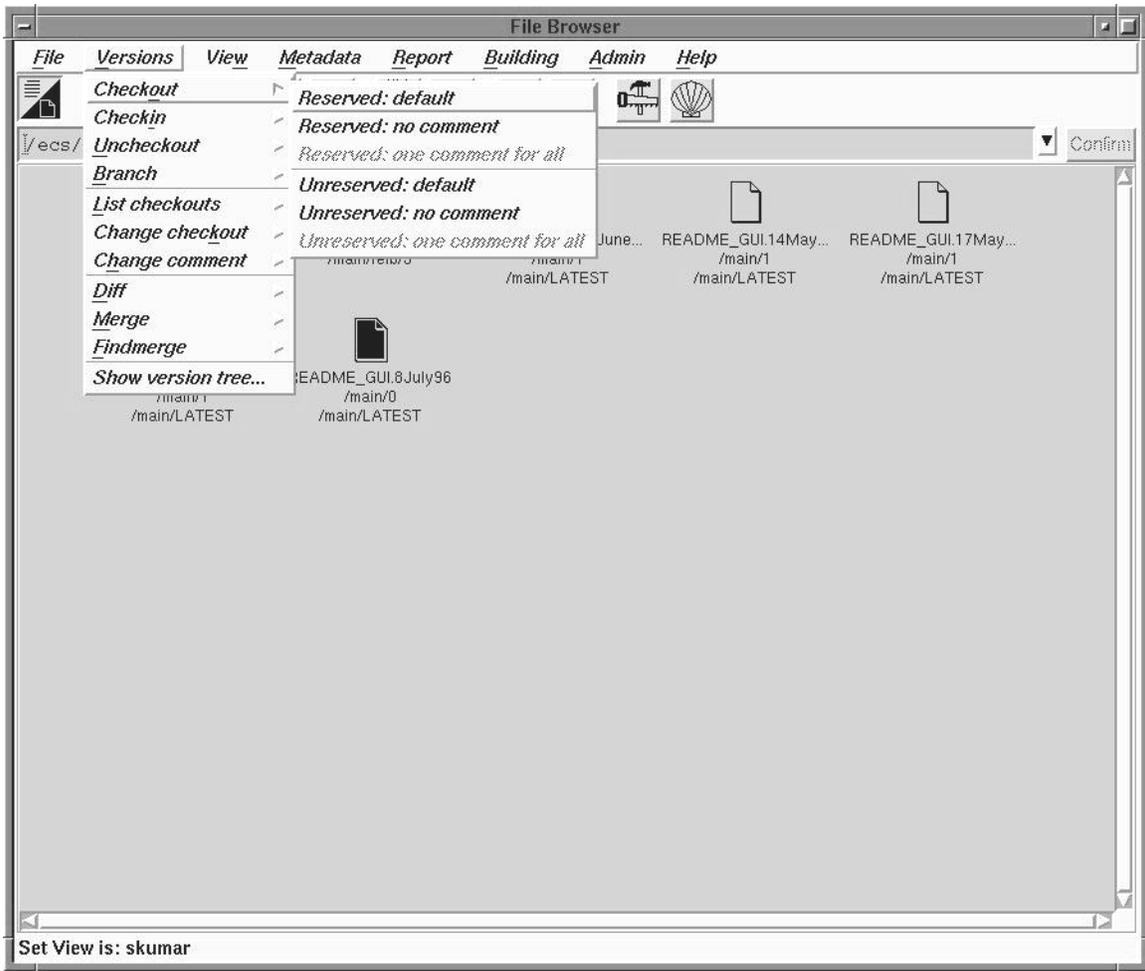
variety of GUI-oriented functions can be initiated from this screen. Explanations of the menu bar and the toolbar items are provided in Chapter 3 of the ClearCase User’s Manual.



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

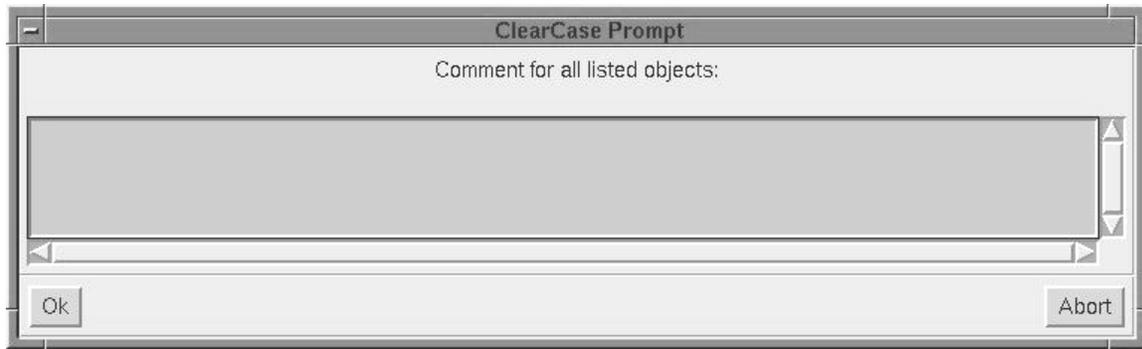
#### 4.3.1.2.2 Checkout Software

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.



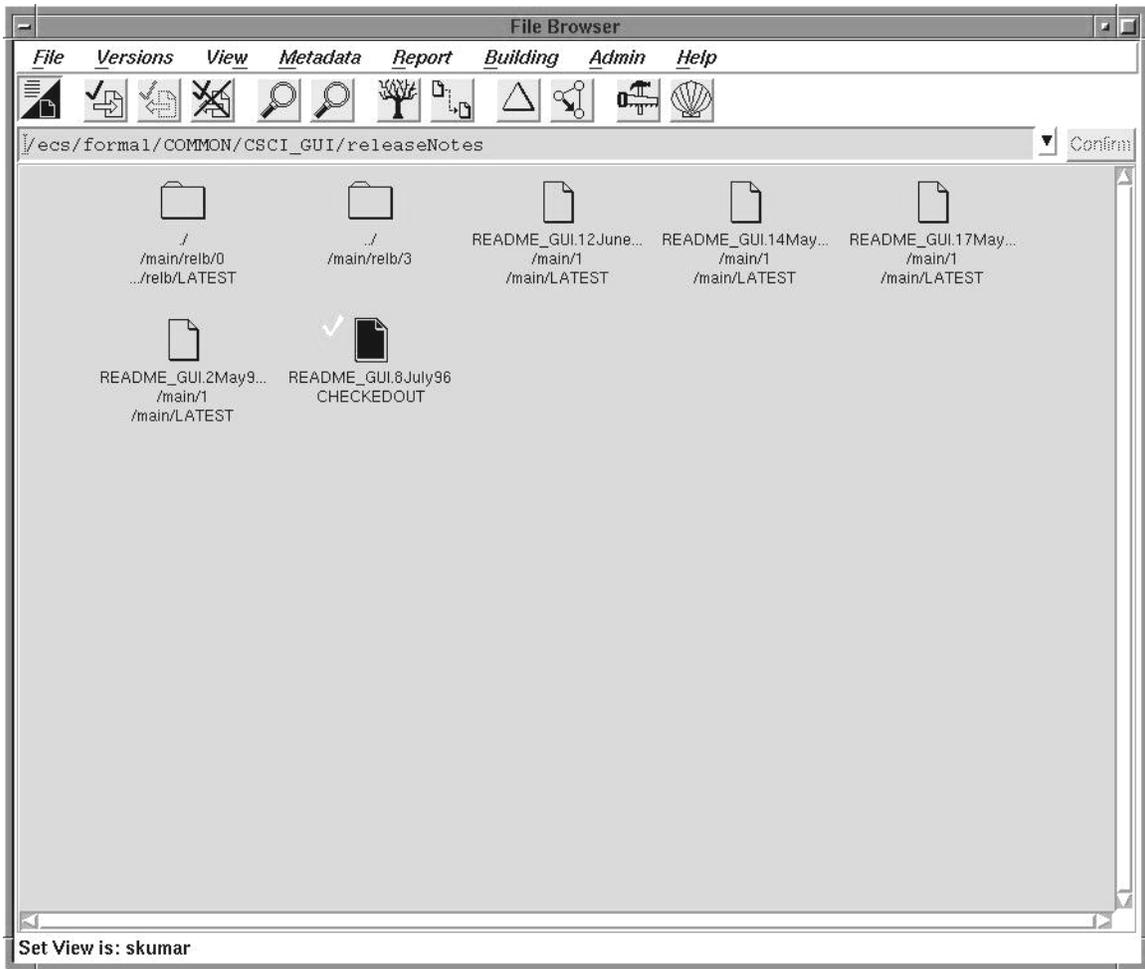
**Figure 4.3.1-4. ClearCase File Browser Screen (Checkout Software)**

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.



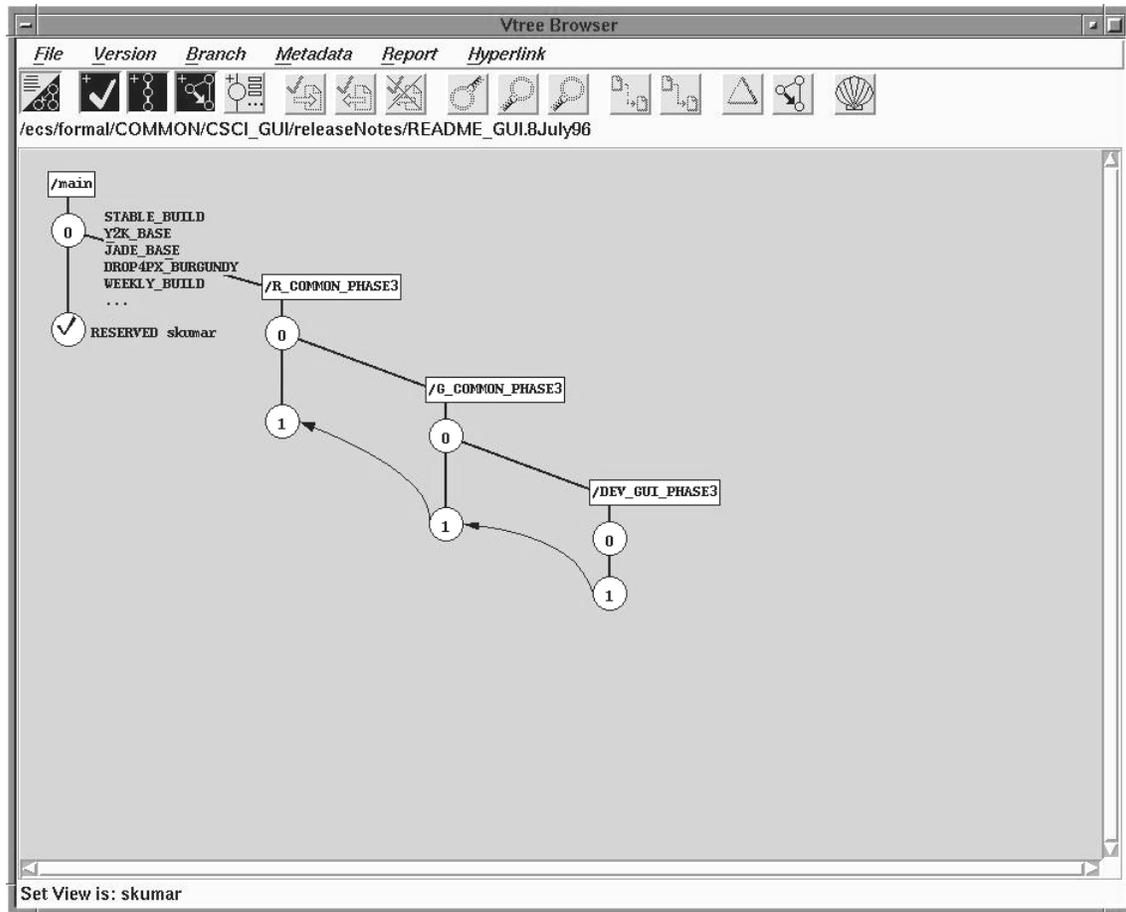
**Figure 4.3.1-5. ClearCase Prompt Screen (Checkout Comment)**

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 added check mark for the README\_GUI.8.July96, file. Addition of the check mark is an indication of a successful checkout.



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

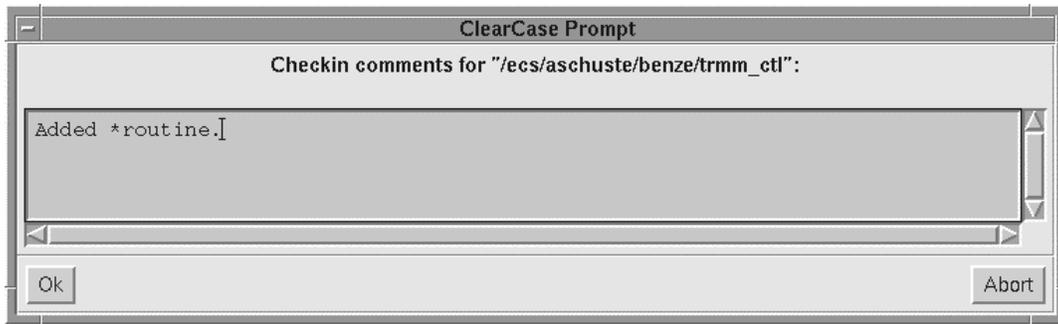
To verify that the file version has been checked out on a branch, click the Vtree icon  on the File Browser toolbar. This activates the Version Tree Browser and it displays a graphical image of the branching as shown in Figure 4.3.1-7. Note that the checked out file version has been placed on the main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



**Figure 4.3.1-7. ClearCase Version Tree Screen**

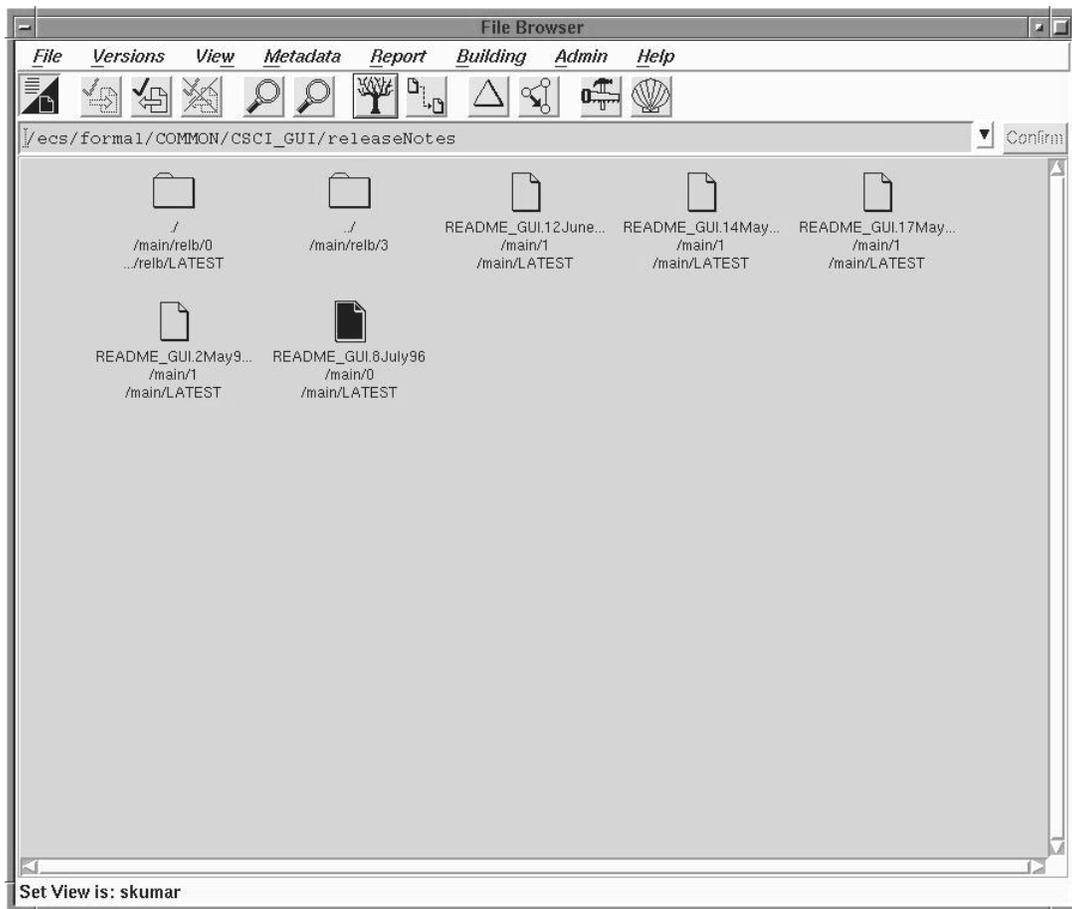
### 4.3.1.2.3 Checkin Software

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 that the check mark that was next to the README\_GUI.8July96 file 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 Introduction* and the clearmake section of the *ClearCase Command Reference* documents for information on the use of this capability.

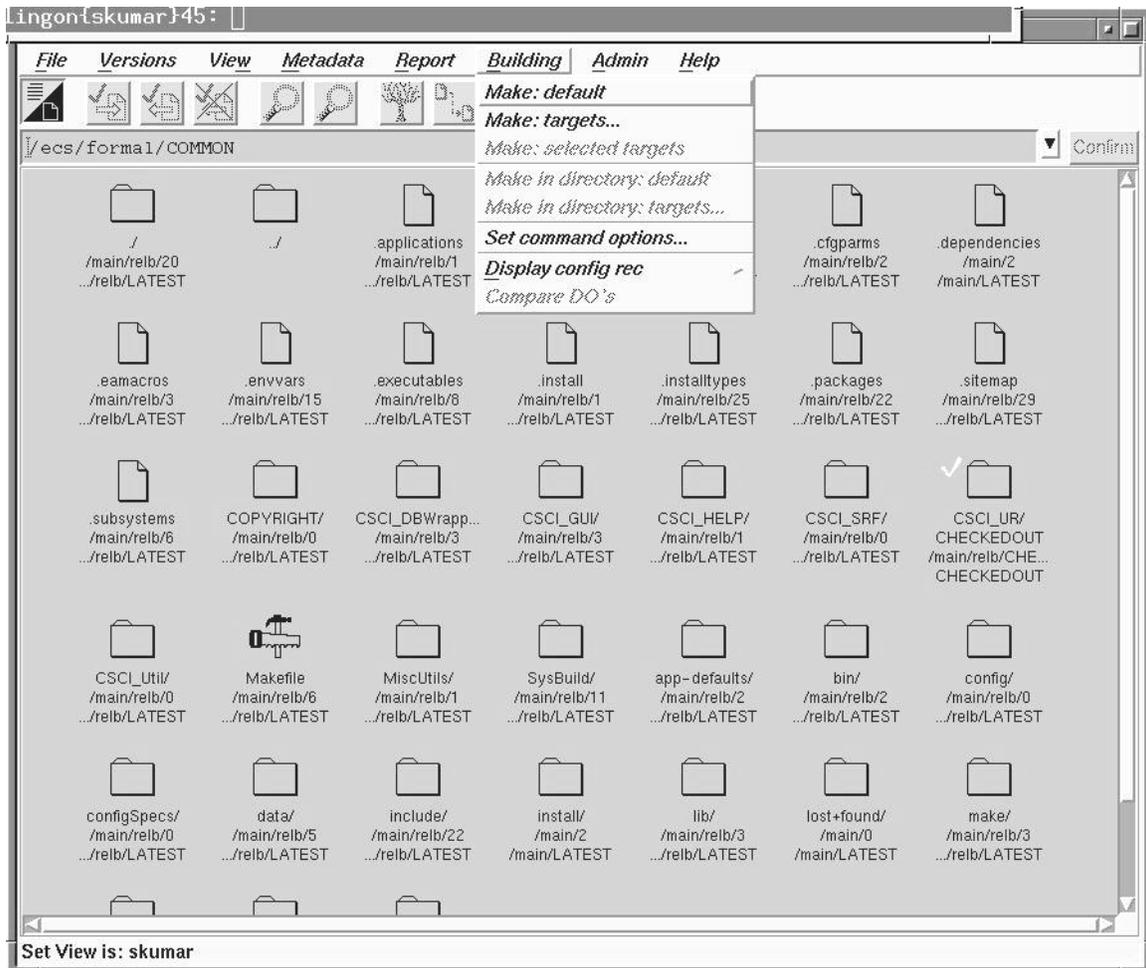


Figure 4.3.1-10. File Browser Screen (Build Menu)

#### 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 the EED Release Notes for each product. Refer to the latest release notes for ClearCase posted on the ECS Baseline Information System web page at your local site. There is a link on the EBIS home page for all of the Release Notes.

#### **4.3.1.4 Databases**

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

#### **4.3.1.5 Special Constraints**

None

#### **4.3.1.6 Outputs**

Reference the *ClearCase Command Reference* document 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

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### **4.3.2 Microsoft® Access® EMD Change Manager (ECM) Configuration Change Request (CCR) Tool**

There are two CCR tools, one for use in the Riverdale facility and one for use at LP DAAC. The LP DAAC version is used for LP DAAC internal change control, while the Riverdale version is used for the entire ECS program. The LP DAAC version was derived from the Riverdale version and provides a subset of features for LP DAAC use. Unless otherwise stated, the following describes the Riverdale version of the tool. For the LP DAAC version, simply exclude Procurement Type CCRs and the Stakeholders function.

The Access® CCR tool is a custom application specifically designed to serve as an efficient configuration management tool to facilitate change control against the ECS baseline. It generates and maintains records in a Microsoft® Access® application that describe what changes are to be applied to the operational system baseline configurations for the DAACs (LP DAAC, ASDC, NSIDC, ECHO), VATC, PVC, and the EDF2 hosts at the ECS Development Facility (EDF) which are provided through the ECS Baseline Information System (EBIS). The CCR tool has created and approved 3082 CCRs and managed 8167 Engineering Change Orders (ECOs) electronically for ECS since January 1, 2005. Exported CCRs are conveyed by EBIS, and EBIS change tracking pages use embedded hyperlinks to reference them, signifying their importance to change control. Each DAAC has a EBIS file system that is a replication of the Riverdale EBIS file system.

Inputs to the tool are created CCRs which get electronically circulated for Sponsorship, Stakeholder review, and Change Configuration Board (CCB) approval. The LP DAAC version does not include the Stakeholder review step. The tool is integrated with IBM® Lotus® Notes®. A feature of the tool is the recording of electronic signatures. At the time of signing, the date and time of the User's PC is recorded and their name. This is important for the change record.

Outputs from the tool are 4 PDF files, corresponding to the CCR cover sheet, the additional sheet, the Stakeholders sheet, and the Engineering Change Orders (ECO) sheet. Also, an HTML formatted file contains the four sheets in a single file. Any ECOs within approved CCRs then are used to modify the baseline with the use of the ClearCase® BLM tool. Open ECO reports are also an output of the tool to ensure ECOs are managed. Riverdale uses the CCR for Procurements. All Procurement CCRs are suppressed from all of the EBIS file systems.

The following COTS software are prerequisites for the CCR Tool:

- Microsoft® Office® Access® 2003 (SP2 or higher)
- IBM® Lotus® Notes® 6.5 [Release 6.5.2 June 01, 2004] or higher
- Microsoft® Office® Word® 2003 (SP2 or higher)

#### 4.3.2.1 Introduction

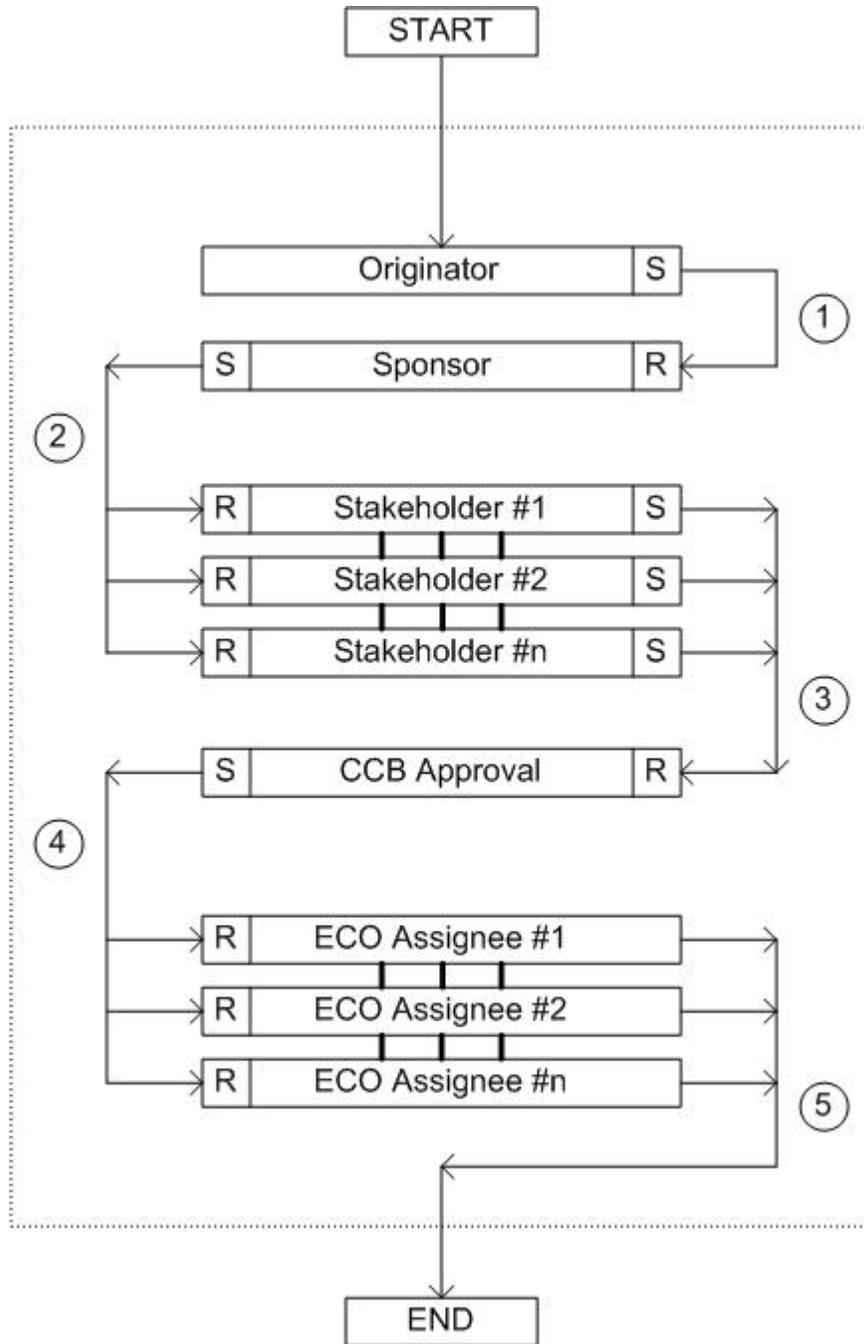
An introduction of the tool functionality is in order before proceeding with the actual User Instructions.

Approved, non-Procurement CCRs are available on EBIS from the following at the URLs:

<a href="http://pete.edf.rvl.us.ray.com/baseline/">http://pete.edf.rvl.us.ray.com/baseline/</a>	(for Riverdale use only, primary repository)
<a href="http://ebis.gsfc.nasa.gov:10160/baseline/">http://ebis.gsfc.nasa.gov:10160/baseline/</a>	(ESDIS only)
<a href="http://e4iil01u.ecs.nasa.gov:10160/baseline/">http://e4iil01u.ecs.nasa.gov:10160/baseline/</a>	(LP DAAC only, previously EDC DAAC)
<a href="http://14iil01.larc.nasa.gov:10160/baseline/">http://14iil01.larc.nasa.gov:10160/baseline/</a>	(ASDC only, previously LaRC DAAC)
<a href="http://n4iil01u.ecs.nasa.gov:0160/baseline/">http://n4iil01u.ecs.nasa.gov:0160/baseline/</a>	(NSIDC only)

Timely coordination of the CCR and getting concurrences/approvals from affected offices is the primary goal of the ECM CCR tool and thereby the tool makes extensive use of the project's integrated email capability. Figure 4.3.2-1 on the next page shows the process from a high level. The diagram shows the email flow as a result of electronic signatures being applied as the CCR progresses.

Electronic versions of all approved CCRs are viewable within the EBIS file system. Use the above links to launch EBIS, then use the links at the bottom of the home page to view each year's CCRs.



**Figure 4.3.2-1. CCR Tool Flowchart**

#### 4.3.2.1.1 Pre-Approval Stage

The pre-approval stage occurs with an Originator completing the CCR, including the first sheet, the Supplementary Procurement Information sheet (in Procurement CCR only), the additional

sheet, and the Stakeholder sheet, and the associated ECOs. Just after the Originator electronically signs, an email will be constructed and Sent to the perspective Sponsors, indicated by the “Originator” box and the **S** in the box to the right. The **R** just the left of the Sponsors box indicates that the Sponsors **R**eceives the email notice from the Originator, and needs to review the CCR, and needs to apply their electronic signature.

When a Sponsor signs a CCR, the CCR process takes one of two paths:

- For non-Procurement CCRs, the Stakeholders have to review the CCR after the Sponsor signs and the Stakeholders will be sent email concurrently. The Stakeholder email list is generated from the check boxes that were marked by the Originator during the formation of the CCR. The Authorized Signature list provides those folks who may sign for each check.
- For Procurement CCRs, the Procurement POCs have to review the CCR after the Sponsor signs and they are emailed concurrently. The Procurement POCs email list is generated from the information entered on the Supplementary Procurement Information page of the CCR. Once all Procurement POCs have concurred on the CCR, the Stakeholders have to review the CCR next and are emailed concurrently. Note, if a Procurement POC nonconcur on the CCR, the CCR is sent back to the Originator for revision.

#### **4.3.2.1.2 Approval Stage**

After a CCR is sponsored, all Stakeholders are concurrently emailed to notify them of a new CCR that needs to be reviewed. The CCR moves into this approval stage to allow all Stakeholders to review the CCR. Each Stakeholder must interact with the tool in order to agree or disagree. Stakeholders may provide comments should they choose. If at any time a significant change needs to be made to any information contained within the CCR, the CCR should be “modified.” Once “modified,” the CCR will need to be re-circulated for signatures. Only the Originator can “modify” the CCR.

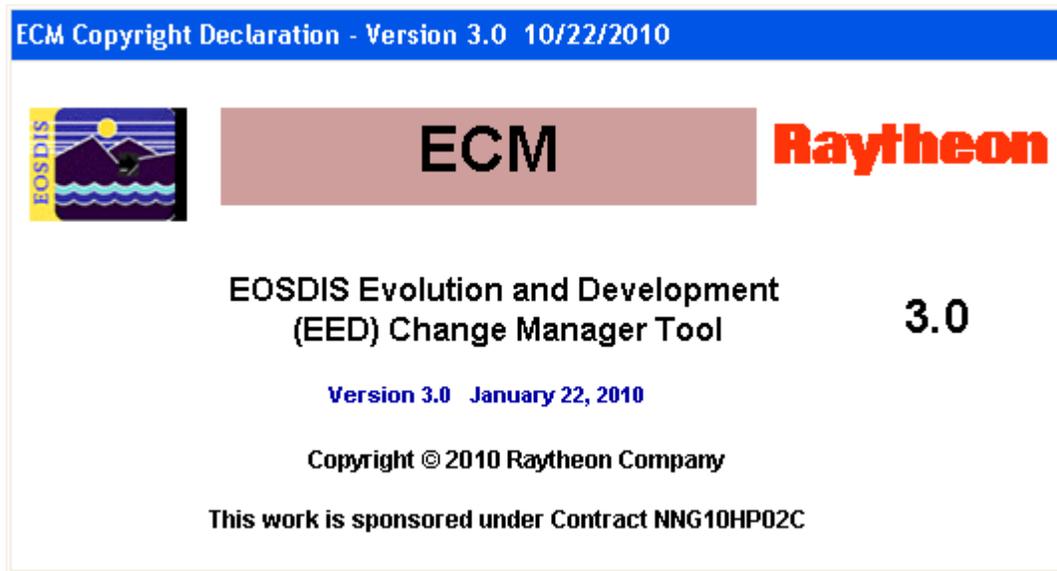
The approval stage of the CCR consists of the CCB chairperson’s signatures. The CCR is approved when the appropriate chairperson(s) signs. Once the CCR is approved, then all of the ECOs assignees are emailed. The Originator generated the ECOs earlier during the creation of the CCR.

#### **4.3.2.1.3 Post-Approval Stage**

The post-approval stage of the CCR process consists of the ECOs being worked. The CCR is considered closed when all of the ECOs have been worked. In order to close an ECO, the ECO assignee needs to interact with the tool to get credit for closure. Once the CCR is closed within the tool, all records are frozen. CCR Closure is the **END** of the change control process depicted in Figure 4.3.2-1 above. If after the CCR is approved, and the intent of the CCR needs to be changed because of something learned after the CCR approval, then the CCR should be revised. A revision means to **CLONE** the original CCR, and provide text within the CCR that clearly indicates the changes. The revised CCR then needs to be re-circulated for signatures, just like the originally processed CCR.

### 4.3.2.2 Tool Usage

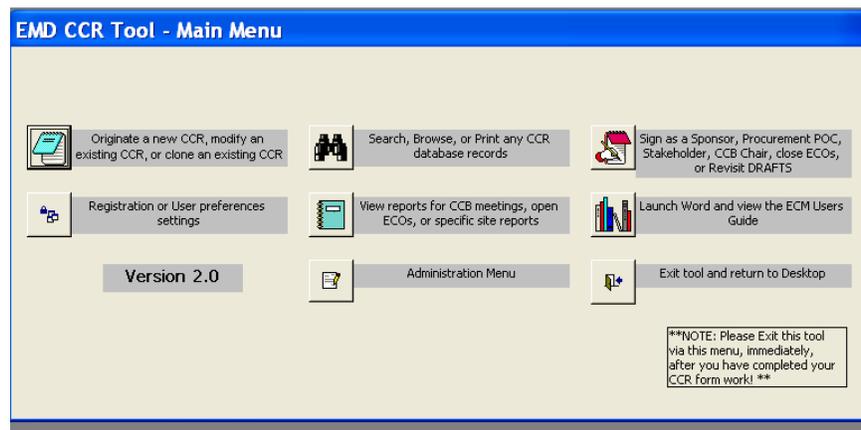
Upon launch, the tool presents the copyright banner depicted in Figure 4.3.2-2 shown below. This only is shown for 6 seconds and then the Main Menu is shown.



**Figure 4.3.2-2. ECM Tool Copyright/Version Banner**

The version and date are provided in the header of the Copyright Banner. The User’s Guide will be kept current to the state of the tool’s software. Currently the code version is “Version 2.0 and the User’s Guide revision that goes with the code’s 2.0 version is “Revision 2.0.”

When the ECM banner page ends, the “EMD CCR Tool - Main Menu” will appear as shown in Figure 4.3.2-3. All functions of the CCR tool are available from this Main Menu.

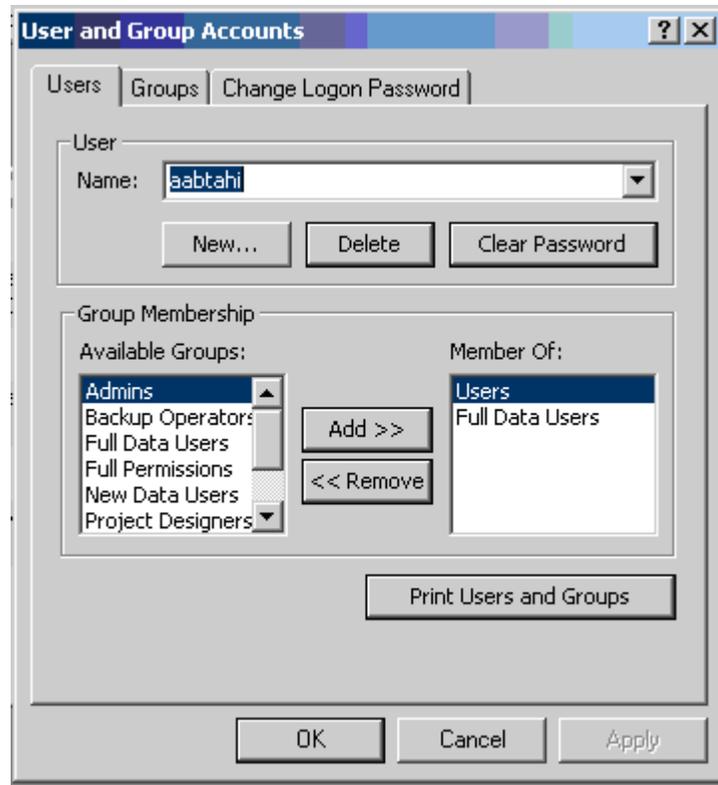


**Figure 4.3.2-3. ECM Tool Main Menu**

#### 4.3.2.2.1 Password Changes

To change your password, when you know your old password, follow the following steps:

- 1) From the CCR Tool – Main Menu, go to the Microsoft® Access main menu bar at the top of the window. Select the “User and Group Accounts” icon, which is the right most icon. The icon is a profile of a right facing woman. If you hold your mouse cursor over the icon for a few seconds, a small text box will be displayed indicating “User and Group Accounts”.
- 2) Select the icon.
- 3) A User and Group Accounts window will appear. You will only be able to change your own password. There are three tabs that appear within the window, with the “Users” tab showing as the default. Refer to Figure 4.3.2-4 below.



**Figure 4.3.2-4. User and Group Accounts Window**

- 4) Double click on the Name: that is shown, probably “aabtahi”. Enter your name id, which is your first initial followed by up to 7 letters of your last name.
- 5) Next, select the “Change Logon Password” tab.

- 6) The “Change Logon Password” tab, when selected, will present a form by which you can modify your password.
- 7) Enter your current password into the “Old Password:” text box, then your new password in the “New Password:” text box and the “Verify:” text box. Refer to Figure 4.3.2-5.



**Figure 4.3.2-5. Change Logon Password Tab**

- 8) Then select the “OK” button at the bottom of the form for the change to take place.
- 9) An administrator can reset your password to “null”, should you forget your password. Then you may reset your password from “null” to whatever you like. Note that you do not enter any text at all into the “Old Password:” text box when your password has been reset to “null”. “Null” just means that the password does not have any characters.

#### **4.3.2.2.2 Accessing the User’s Guide**

The ECM CCR Tool Users Guide can be viewed and printed from the Main Menu (Figure 4.3.2-3). When selected, the icon showing stacked books will launch Microsoft® Word and display the User’s Guide.

### 4.3.2.2.3 Logging off the CCR Tool

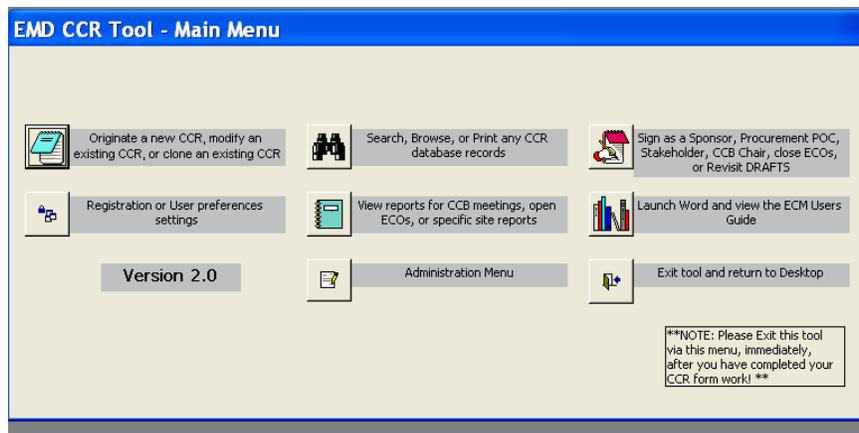
A user should exit the tool and Microsoft® Access by selecting the “**Exit tool and return to Desktop tool**” button on the Main Menu window. It is positioned at the bottom right section of the Main Menu. Note, one should always navigate back to the Main Menu and exit the CCR tool using the **Exit tool and return to Desktop** button. Please do not exit any other way. Exiting the tool via the aforementioned button will properly close the ECM CCR Tool and Microsoft® Access and leave you at your Desktop. Also, always log in, perform your work, then log out of the tool when finished.

### 4.3.2.3 CCR Creation, Draft, Modify, and Clone Functions

Configuration Change Requests (CCR) are used to gain approval for additions, modifications, and deletions of configuration control items in the ECS baseline and configuration control items in the EDF. This section will cover how to create and modify a CCR.

#### 4.3.2.3.1 CCR Creation

After logging into the CCR tool, the CCR tool’s Main Menu is eventually displayed as shown in Figure 4.3.2-6 below. All CCR process activity is initiated from the Main Menu.



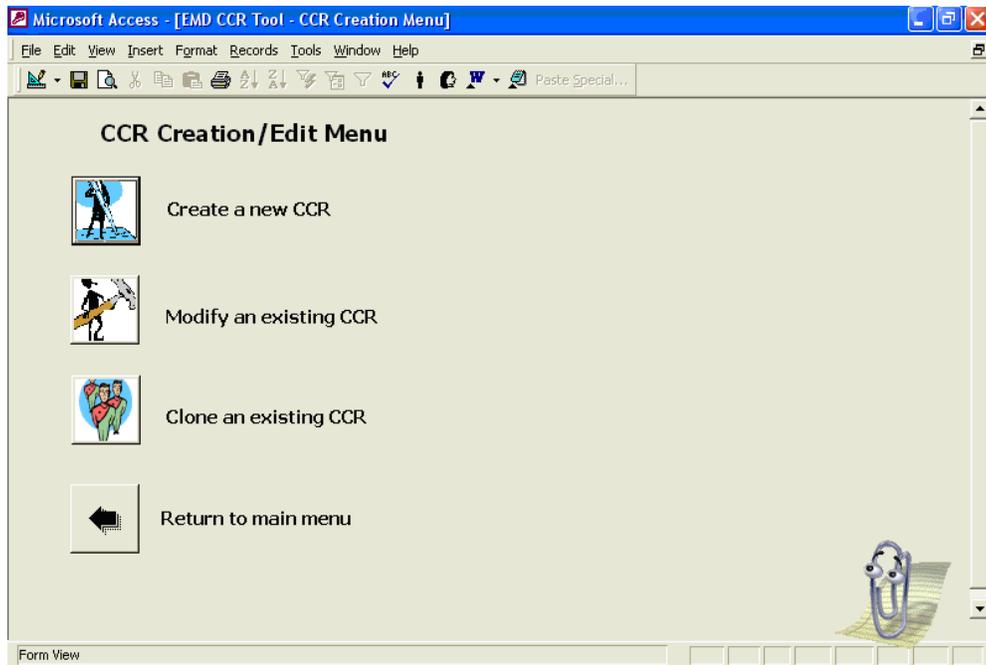
**Figure 4.3.2-6. CCR Tool Main Menu**

In order to create a CCR, either as a “Draft” or for submission, select the “**Originate a new CCR - -**” button. It is the first button in the upper left section of the “**EMD CCR Tool – Main Menu**” window. Selecting this button will launch the CCR Creation Menu window shown below in Figure 4.3.2-7. There are four possible actions in this menu:

- 1) Create a new CCR – use this button to create a new CCR from scratch.
- 2) Modify an existing CCR – use this button when you need to modify a CCR that has not yet been approved. Note, when you modify a CCR, any electronic signatures present in a

CCR at this point will be removed and the process starts over for this CCR. This ensures that any and all changes are reviewed by those that signed the CCR before the change was made.

- 3) Clone an existing CCR – use this button when you need to revise an approved CCR or when you want to create a CCR with a new CCR number using an existing approved CCR as a basis.
- 4) Return to main menu – use this button when you want to leave the CCR Creation/Edit Menu and return to the tool's Main Menu.



**Figure 4.3.2-7. CCR Creation Menu**

Clicking the **Create a new CCR** button will initiate the CCR creation process. The CCR tool will automatically display the forms that are required for the CCR based on the user's input. The first form to be displayed will be the Main CCR Form Sheet.

### 4.3.2.3.2 Main CCR Form Sheet

The first form that is displayed is the CCR Form and it is shown in Figure 4.3.2-8 below. The first seven fields: “1. Originator:”, “2. Log Date:”, “3. CCR #:”, “4. Rev:”, “5. Telephone:”, “6. Rm #”, and “7. Org:” are automatically filled by the CCR tool. The remainder of the fields is to be completed by the CCR originator.

ECS/EMD Configuration Change Request							Draft:	Identifier: 06-0075-
1. Originator:	2. Log Date:	3. CCR #:	4. Rev:	5. Telephone:	6. Rm #:	7. Org.:		
Benzell Floyd	03/15/2006	06-0075	-	(301) 925-0518	3107	COTS		
8. CCR Title: Demo CCR: Procure Navisphere Maintenance PCs for X2600 RAID at DAACs								
9. Originator Signature/Date:			10. Class:	11. Program:	12. Need Date:			
			II	ECS/EMD	3/20/2006			
13. CCR Sponsor Signature/Date:			14. Category of Change:		15. Priority:			
			5		Routine			
16. Documentation/Drawings Impacted:			17. Schedule Impact:		18. Affected CI(s):			
None			None		None			
19. Affected Release:			20. Date due to Customer:		21. Estimated cost:			
None			3/29/2006		Small <= \$100,000			
22. Source Reference: <input type="checkbox"/> NCR (attach) <input type="checkbox"/> Action Item <input type="checkbox"/> Tech. Ref. <input type="checkbox"/> GSFC <input checked="" type="checkbox"/> Other: EMD Task 109, Subtask 7								
23. Problem: Navisphere RAID software at the DAACs needs to be managed by a PC.								
24. Proposed Solution: Purchase one PC for each DAAC for the purpose of RAID software management.								
25. Alternate Solutions: None								
26. Consequences if Change(s) are not approved: RAID failures cannot be monitored								
27. Justification for Emergency ( if Block 15 is "Emergency" or "Urgent" )								
28. Affected Site(s): <input type="checkbox"/> EDF <input type="checkbox"/> PVC <input type="checkbox"/> VATC <input type="checkbox"/> SMC <input checked="" type="checkbox"/> LP DAAC <input checked="" type="checkbox"/> GSFC <input type="checkbox"/> LoRC <input type="checkbox"/> NSIDC <input type="checkbox"/> Other:								
29. Board Comments:			30. Work Assigned To:		31. CCR Closure Date:			
32. SCDV CCB Chair (Sign/Date):			Disposition: <input type="radio"/> Approved <input type="radio"/> App/Com. <input type="radio"/> Disapproved <input type="radio"/> Withdrawn					
			<input type="radio"/> Fwd/ESDIS <input type="radio"/> Fwd/ESDIS ERB					
33. EDF CCB Chair (Sign/Date):			Disposition: <input type="radio"/> Approved <input type="radio"/> App/Com. <input type="radio"/> Disapproved <input type="radio"/> Withdrawn					
			<input type="radio"/> Fwd/ESDIS <input type="radio"/> Fwd/ESDIS ERB					
34. ECS CCB Chair (Sign/Date):			Disposition: <input type="radio"/> Approved <input type="radio"/> App/Com. <input type="radio"/> Disapproved <input type="radio"/> Withdrawn					
			<input type="radio"/> Fwd/ESDIS <input type="radio"/> Fwd/ESDIS ERB					
				Cancel		Proceed		
Record: 14 of 1								
Form View								

Figure 4.3.2-8. CCR Form

The forms used to create a CCR are determined by the “Category of Change” value that is selected in field # 14. In this example, the “Category of Change” value is “5” (for Procurement).

So a Procurement type CCR is being created. All of the white background fields need to be completed by the user. Cutting and pasting text files can be performed when entering data.

Fields 10, 11, 14, 15, and 21 have drop down menus, which constrain the entry that may be entered. Field 22, *Source Reference*, and field 28, *Affected Sites*, have check boxes. Check the appropriate boxes. Note, if “Other” is checked in field # 22 or field # 28, you must enter the name of the source/Affected Site name respectively in the box beside “Other”.

When the fields are completed, select the “**Proceed**” button. Note, if any required fields have not been populated, then a message from the Office Assistant will appear, stating the field that needs some text. Simply go back onto the form and complete the missing field. If everything is in order, clicking the Proceed button will take you to the next form. The next form to be displayed is determined by the value in field #14, the “Category of Change field.” If the value is a number other than “5,” then the Additional Sheet form (Section 4.3.2.3.2.2) is displayed next. If the value is “5,” then the Supplementary Procurement Information form (Section 4.3.2.3.2.1) is displayed, next.

#### **4.3.2.3.2.1 Supplementary Procurement Information**

The Supplementary Procurement Information sheet is the next sheet to be displayed if the CCR is a procurement type CCR. The Supplementary Procurement Information sheet holds the specific procurement information and the name of the Bill of Material (BOM) file that is associated with the CCR. The Supplementary Procurement Information sheet is displayed below in Figure 4.3.2-9.

Some fields are automatically populated by the CCR tool, but the information in the white boxes on the form needs to be entered by the user. Fields’ value criteria are as follow: Field # 5, “Not to Exceed” must be greater than zero. Field # 6, “On Dock Need Date” must have a date entered. Field number 8, Sub Task Lead, must have a name selected from the pull-down menu or the word, “NoOne,” entered in the Sub Task Lead’s box.

**Figure 4.3.2-9. Supplementary Procurement Information form**

Every Procurement type CCR must have at least one Procurement Account entered. To enter an account number, click the Add Account button and the Add Procurement Account window is displayed as shown in Figure 4.3.2-10 below.

**Figure 4.3.2-10. Add Procurement Account Window**

On the Add Procurement Account window, click the pull-down on the Cost Account field and a list of valid Cost Accounts are displayed as shown in Figure 4.3.2-11.

The screenshot shows a form titled "Add Procurement Account". At the top left, there are two input fields: "CCR #:" with the value "06-0075" and "Rev:" with the value "-". Below these is a "Cost Account" label followed by a dropdown menu. The dropdown menu is open, displaying a list of account options:

101.3.2.1	EDS EMD MAINT SW
101.3.2.1E	EDS EMD maint SW
101.3.2.1R	COMSO EMD MAINT HW
101.3.3.1	EDS EMD MAINT HW
101.3.3.1E	EDS EMD Maint HW
101.3.3.1R	COMSO EMD MAINT HW
107.4.3.2	RDS EMD Task 107-SW
107.4.3.3	RDS EMD Task 107-HW

To the right of the dropdown menu is a "Cancel Addition" button.

**Figure 4.3.2-11. Cost Accounts List**

Select the appropriate account from the pull-down menu and the account number will be displayed in the Cost Account field as shown in Figure 4.3.2-12.

The screenshot shows the same "Add Procurement Account" form. The "CCR #:" field now contains "06-0075" and the "Rev:" field contains "-". The "Cost Account" dropdown menu is now closed, and the text "101.3.2.1" is displayed in the input field. Below the "Cost Account" field are two buttons: "Add Procurement Account" and "Cancel Addition".

**Figure 4.3.2-12. Cost Account Number Selected**

Click the “Add Procurement Account button and the account is added to the Supplementary Procurement form as shown in Figure 4.3.2-13.

Supplementary Procurement Information 06-0075-

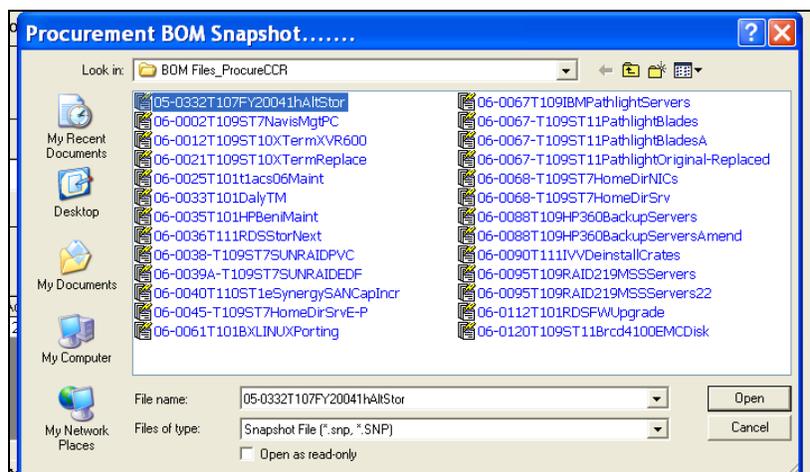
1. CCR #: 06-0075	2. Rev: -	3. Date: 3/15/2006	4. Fund Type: Project Funds
5. Not To Exceed \$: \$35,000.00	6. On Dock Need Date: 3/27/2006	7. Type of Procurement: EDS	8. Select Sub Task Lead or Enter "NoOne": NoOne

Maintenance

9. Procurement Account(s) Affected		10. BOM's File Name				
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Procurement Acct Number</th> <th>Acct Description</th> </tr> </thead> <tbody> <tr> <td>101.3.2.1</td> <td>EDS EMD MAINT SW</td> </tr> </tbody> </table>	Procurement Acct Number	Acct Description	101.3.2.1	EDS EMD MAINT SW	<input style="width: 95%;" type="text" value="BOM filename"/> <input type="button" value="Add A BOM"/>
Procurement Acct Number	Acct Description					
101.3.2.1	EDS EMD MAINT SW					

**Figure 4.3.2-13. Account Number Added**

Each Procurement type CCR has to have a Bill of Material (BOM) attached for review by the Sponsor, Procurement POCs, Stakeholders and CCB Chairpersons. Click the “Add A BOM” button and the Procurement BOM Snapshot window is displayed as shown in Figure 4.3.2-14.



**Figure 4.3.2-14. BOM Files**

Select the BOM file that is associated with the CCR that you are working on and then click the Open button on the Procurement BOM Snapshot window. The BOM file information should now be displayed in the BOM's Filename box as shown in Figure 4.3.2-15.

The screenshot shows a web form titled "Supplementary Procurement Information" with a header field containing "06-0075-". The form is divided into several sections:

- 1. CCR #:** 06-0075
- 2. Rev:** -
- 3. Date:** 3/15/2006
- 4. Fund Type:** Project Funds
- 5. Not To Exceed \$:** \$35,000.00
- 6. On Dock Need Date:** 3/27/2006
- 7. Type of Procurement:** EDS (dropdown menu)
- 8. Select Sub Task Lead or Enter "NoOne":** NoOne (dropdown menu)
- Maintenance**
- 9. Procurement Account(s) Affected:** A table with two columns: "Procurement Acct Number" and "Acct Description". One row is visible with "101.3.2.1" and "EDS EMD MAINT SW".
- 10. BOM's File Name:** J:\EMD\16-Configuration Management\CPT\CCR\BOM Files\_ProcureCCR\05-0332T107FY20041hAltStor.snp

Buttons include "Add An Account" (bottom left), "Add A BOM" (bottom right, next to the file name), and "Proceed" (bottom right).

**Figure 4.3.2-15. BOM file Added**

Once the Supplementary Procurement Information sheet is completed, click the Proceed button. If any of the required fields are not completed, the CCR tool will provide an informative message and remain on the Supplementary Procurement Information form until you complete the entry or entries. If all required fields are completed, the CCR tool will take you to the Additional Sheet form.

#### 4.3.2.3.2.2 Additional Sheet

The Additional Sheet is used to hold information that would not fit on the CCR Form page, information that provides further explanation for the information on the CCR Form page, or brief installation instructions. The Additional Sheet form is displayed in Figure 4.3.2-16.

**Figure 4.3.2-16. Additional Sheet Form**

If there is no additional information to be entered, enter “None” in the white space.

**Note: Place lengthy installation instructions in a separate file (attachment) and make reference to that file’s name and location (usually L:\CCR\_Attachment\**

Once you are satisfied with the entry, select the “**Proceed**” button to continue. Once the Proceed button is selected, the CCR tool moves to the Stakeholders Concurrences Sheet.

#### **4.3.2.3.2.3 Stakeholder’s Concurrences Sheet**

The Stakeholder’s Concurrences Sheet is displayed after the Additional Sheet is removed. The Stakeholder’s Concurrences Sheet is used to show the Offices that may be impacted by the solution being proposed on the CCR and to document the Offices’ concurrences. The Stakeholder’s Concurrences Sheet is shown in Figure 4.3.2-17. The CCR header information is automatically filled in by the CCR tool. Select the boxes for the offices that will be impacted by the CCR. You must select at least one office.

Stakeholder's Concurrences Sheet			
CCR #:	06-0075	Rev:	-
Originator:	Benzel Floyd		
Telephone #:	(301) 925-0518	Office #:	3107
Title:	Demo CCR: Procure Navisphere Maintenance PCs for XZ600 RAID at DAACs		
Office	Office Impact	Signature & Date	Comments:
Chief Eng (CE)	<input type="checkbox"/>		
CM - BLM	<input type="checkbox"/>		
CM - Clearcase	<input type="checkbox"/>		
Contracts	<input type="checkbox"/>		
COTS HW	<input checked="" type="checkbox"/>		
COTS HW (SEIT)	<input checked="" type="checkbox"/>		
COTS SW	<input type="checkbox"/>		
Custom Code	<input type="checkbox"/>		
DAAC Liaison	<input type="checkbox"/>		
Data Management (DM)	<input type="checkbox"/>		
EMOS	<input type="checkbox"/>		
ESDIS	<input type="checkbox"/>		
GEO	<input type="checkbox"/>		
Infrastructure	<input type="checkbox"/>		
License Maintenance	<input type="checkbox"/>		
Property/ILS	<input checked="" type="checkbox"/>		
Quality Office	<input type="checkbox"/>		
Remote Data Store (RDS)	<input type="checkbox"/>		
Science (ESDIs, Outreach)	<input type="checkbox"/>		
SCM (Supply Chain)	<input checked="" type="checkbox"/>		
Security	<input type="checkbox"/>		
Software Librarian	<input type="checkbox"/>		
Synergy	<input type="checkbox"/>		
Test	<input type="checkbox"/>		
VDB	<input type="checkbox"/>		
Other	<input type="checkbox"/>		
			<a href="#">Proceed</a>
Form View			

**Figure 4.3.2-17. Stakeholders' Concurrences Sheet**

After the applicable impact offices have been selected, select the **Proceed** button to move to the last page of the CCR Form, the Engineering Change Order (ECO) Sheet.

#### 4.3.2.3.2.4 Engineering Change Orders (ECOs) Sheet

The Engineering Change Order Sheet is used to describe the tasks that have to be completed for implementation of the CCR's solution. There must be at least one ECO on each CCR. Figure 4.3.2-18 shows the starting window for the ECO Sheet.

Engineering Change Order (ECO) Sheet					
CCR #:	06-0075	Rev:	-	Approval Date:	03/15/2006
CCR Title:	Demo CCR: Procure Navisphere Maintenance PCs for XZ600 RAID at DAACs				
Approval Authority:	Task Lead	<input type="button" value="Add An ECO"/>		<input type="button" value="Done"/>	
	ECO_Number	Task_Description	Need_Date	Responsibility	

**Figure 4.3.2-18. Starting Window for the ECO Sheet**

To enter an ECO, click the **Add An ECO** button. The CCR tool will then display the “Add An ECO” as shown in Figure 4.3.2-19. The ECO number field will be filled in by the CCR tool. The CCR originator must filled in the remaining fields: **Task Description** {summarize the action to be completed; use action verbs, for example, install software, remove server, etc.; also include details like location of files, machine name, software to be replaced, etc.}. **Responsibility** {Select the individual or the organization that will be responsible for completing the task}. **Need Date** {Enter the date that action is to be completed.} Example entries for these fields are shown in Figure 4.3.2-19.

Add An ECO							
CCR #:	06-0075	Rev:	-	Approval Date:	03/15/2006	Approval Authority:	Task Lead
CCR Title:	Demo CCR: Procure Navisphere Maintenance PCs for XZ600 RAID at DAACs						
ECO #:	-001						
Task Description: { 250 Characters or less }	Procure PCs having specifications as detailed in the CCR's associated Bill of Materials.						
Responsibility:	Benzell Floyd						
Need Date	03/20/2006		<input type="button" value="Add ECO"/>		<input type="button" value="Cancel Addition"/>		

**Figure 4.3.2-19. Completed ECO Entries**

After all fields are completed, click the **Add ECO** button to store the ECO. After the ECO is stored, the CCR tool moves back to the initial ECO window. The added ECO is now displayed as shown in Figure 4.3.2-20. If there are other ECOS to be added, select the **Add An ECO** button again and repeat the aforementioned ECO process.

Engineering Change Order (ECO) Sheet					
CCR #:	06-0075	Rev:	-	Approval Date:	03/15/2006
CCR Title:	Demo CCR: Procure Navisphere Maintenance PCs for XZ600 RAID at DAACs				
Approval Authority:	Task Lead	<b>Add An ECO</b>		<b>Done</b>	
ECO_Number	Task_Description	Need_Date	Responsibility		
▶-001	Procure PCs having specifications as detailed in the CCR's associated Bill of Materials.	3/20/2006	Benzell Floyd		

**Figure 4.3.2-20. Added ECO Displayed**

All of the added ECOs will be displayed will be displayed as shown Figure 4.3.2-21. Once all of the ECOs have been added, select the **Done** button to continue the CCR creation process.

Engineering Change Order (ECO) Sheet					
CCR #:	06-0075	Rev:	-	Approval Date:	03/15/2006
CCR Title:	Demo CCR: Procure Navisphere Maintenance PCs for XZ600 RAID at DAACs				
Approval Authority:	Task Lead	<b>Add An ECO</b>		<b>Done</b>	
ECO_Number	Task_Description	Need_Date	Responsibility		
▶-001	Procure PCs having specifications as detailed in the CCR's associated Bill of Materials.	3/20/2006	Benzell Floyd		
-002	Receive and process purchased PCs and then ship them to DAACs.	3/29/2006	Paula Clark		

**Figure 4.3.2-21. Complete List of ECOs**

Once the tool determines it has all the information, the Office Assistant prompt as shown in the bottom right side of Figure 4.3.2-22 below will appear. The purpose of this prompt is to determine what you want to do next.

Engineering Change Order (ECO) Sheet

CCR #: 06-0075 Rev: - Approval Date: 03/15/2006

CCR Title: Demo CCR: Procure Navisphere Maintenance PCs for XZ600 RAID at DAACs

Approval Authority: Task Lead [Add An ECO] [Done]

ECO Number	Task Description	Need Date	Responsibility
-001	Procure PCs having specifications as detailed in the CCR's associated Bill of Materials.	3/20/2006	Benzell Floyd
-002	Receive and process purchased PCs and then ship them to DAACs.	3/29/2006	Paula Clark

**CCR Selection Menu**  
What action would you like to perform?  
 Advance CCR To Sponsor  
 Save CCR as Draft  
 Cancel Action

**Figure 4.3.2-22. CCR Selection Menu**

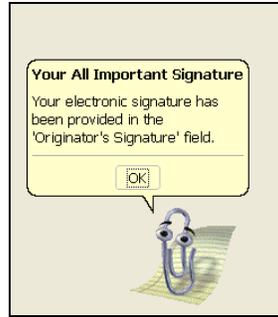
To proceed, select one of the listed actions:

- 1) Advance CCR to Sponsor – select this action if you are satisfied with the content of the CCR and you are ready to sign the CCR and send it to the sponsor for signature.
- 2) Save CCR as Draft – select this action if the CCR is incomplete and you're not ready to sign it.
- 3) Cancel Action – select this action if you are not ready to leave the ECO form.

Correct responses to actions 1) and 2) are provided in the following Sections 4.3.2.3.3 and 4.3.2.3.4.

#### 4.3.2.3.3 Advance CCR to Sponsor Action

Selecting Advance CCR to Sponsor will cause the Office Assistant prompt to be displayed as shown in Figure 4.3.2-23.



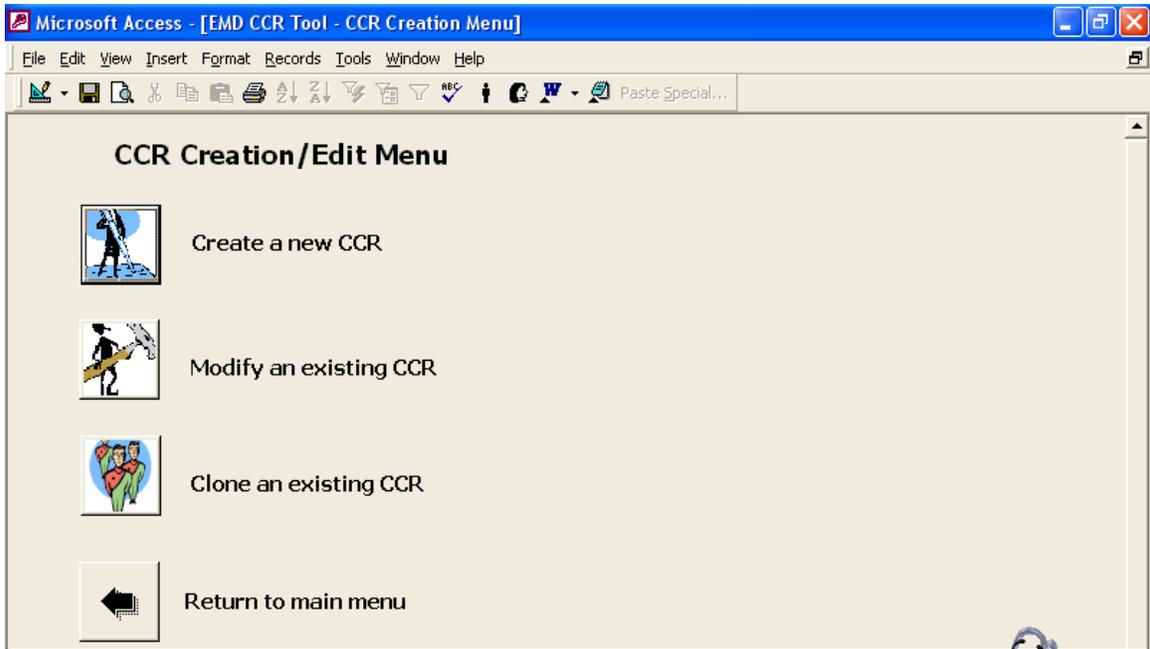
**Figure 4.3.2-23. Confirmation of Originator Signature**

Click the OK button and the next Office Assistant prompt is displayed as shown in Figure 4.3.2-24.



**Figure 4.3.2-24. Confirmation of Emailing CCR to Sponsor**

Click the OK button on the Next Step prompt and the CCR tool takes you back to the CCR Creation Menu as shown in Figure 4.3.2-25. At this point, the CCR has been created and is stored in the CCR tool database. It can be reviewed by all CCR tool users if it is a non-procurement CCR. It can only be reviewed by procurement authorized personnel if it is a procurement CCR.



**Figure 4.3.2-25. CCR Creation/Edit Menu**

From CCR Creation/Edit Menu, click the “Return to main menu” button to get back to the Main Menu.

#### **4.3.2.3.4 Save CCR as Draft Action**

Selecting the “Save CCR as Draft” action will cause the Office Assistant prompt in Figure 4.3.2-26 to be displayed.

Engineering Change Order (ECO) Sheet

CCR #: 06-0075    Rev: -    Approval Date: 03/15/2006

CCR Title: Demo CCR: Procure Navisphere Maintenance PCs for XZ600 RAID at DAACs

Approval Authority: Task Lead    Add An ECO    Done

ECO_Number	Task_Description	Need_Date	Responsibility
-001	Procure PCs having specifications as detailed in the CCR's associated Bill of Materials.	3/20/2006	Benzell Floyd
-002	Receive and process purchased PCs and then ship them to DAACs.	3/29/2006	Paula Clark

**Saving CCR As A Draft**

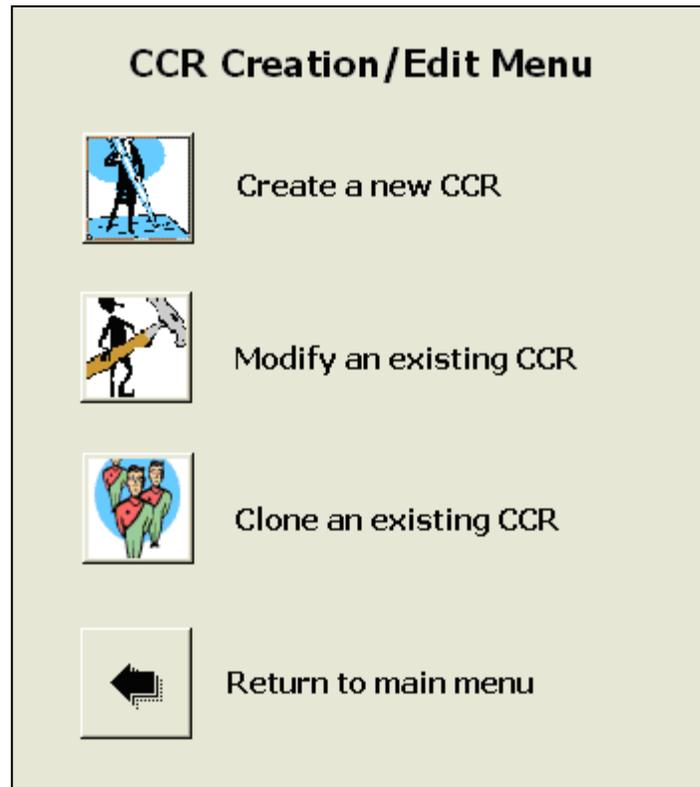
You are confirming putting this CCR in Draft Mode. Note the CCR Number 06-0075 and Revision - for future references.

OK



**Figure 4.3.2-26. Saving CCR As A Draft**

Click the OK button on the Office Assistant “Saving CCR As A Draft” prompt and the CCR tool will take you back to the CCR Creation/Edit Menu shown in Figure 4.3.2-27. At this point, the CCR has been stored as a draft CCR and only the CCR’s originator can review it. Click the “Return to main menu” button to get back to the Main Menu.



**Figure 4.3.2-27. CCR Creation/Edit Menu**

#### **4.3.2.4 CCR Attachments**

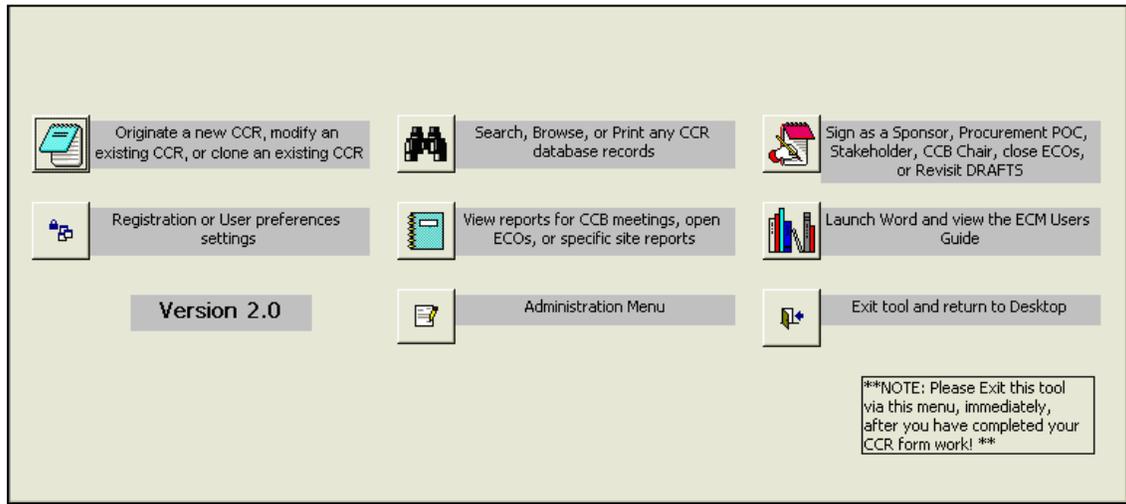
Some CCRs need to have an attachment, a file that can be viewed by Sponsors, Procurement POCs and Stakeholders. The attachment file should be stored on the “L” drive in the folder: L:\CCR\_Attachments\

#### **4.3.2.5 CCR Draft**

At the end of the CCR creation process, the CCR originator has the option of signing a CCR and sending it to the Sponsor for signature or the CCR can be saved as a draft. If the CCR is saved as a draft CCR then only the CCR originator can review and make changes to it. The CCR has to be taken out of “draft” mode, so to speak, by its originator, finalized, and then signed by the originator before anyone else can see it. This section tells how to complete a draft CCR.

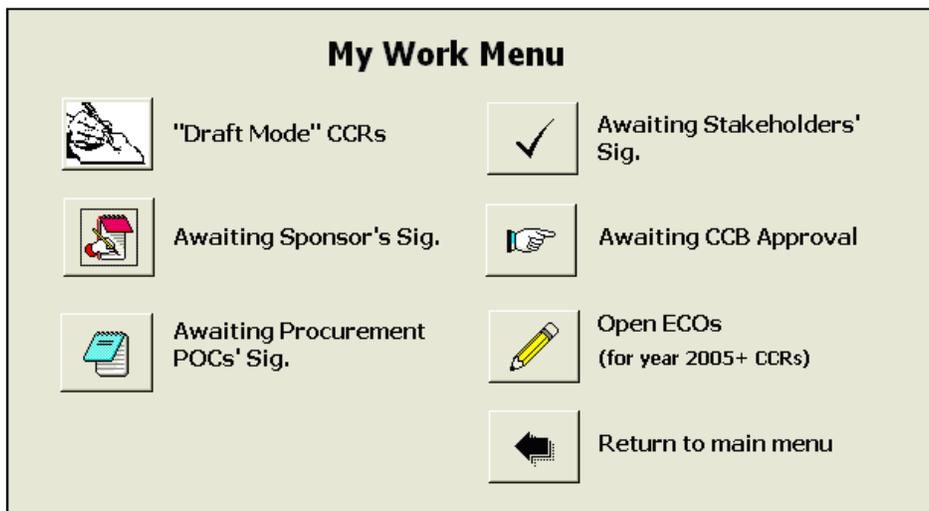
### 4.3.2.5.1 Retrieve the Draft CCR

Login into the CCR tool and eventually the Main Menu is displayed as shown in Figure 4.3.2-28.



**Figure 4.3.2-28. CCR Tool's Main Menu**

Click the button in the upper right corner with "Revisit DRAFTS" in its label. The CCR tool will display the My Work Menu as shown in Figure 4.3.2-29. Click the "Draft Mode" CCRs button to get to a list of your draft CCRs.



**Figure 4.3.2-29. My Work Menu**

When the “Draft Mode” CCRs button is clicked, the CCR tool will display the “My Work Menu – Drafts” form as shown in Figure 4.3.2-30. Click the desire CCR number in the Identifier column and the CCR tool will copy that CCR number to the white space above the list of CCR numbers. At this point, if you click the “Return” button, you will be taken back to the My Work Menu.

**Please choose a CCR Identifier Number from below to edit.**

Identifier	CCR Number	CCR Revision	CCR Title	Log Date	Need Date
05-0001A	05-0001	A	Install AMASS libsched Test Executable	10/24/2005	10/27/2005
05-0463-	05-0463	-	This is a test.	10/18/2005	10/20/2005
05-0499-	05-0499	-	Procurement CCR test	11/10/2005	11/20/2005
05-0513-	05-0513	-	Create a CCR for Sponsor	12/16/2005	12/19/2005
06-0024-	06-0024	-	Procurement CCR Modify Test	1/31/2006	2/25/2006
06-0027-	06-0027	-	Testing Regular CCR (Clone side, save as draft then continue)	2/3/2006	3/20/2006
06-0031-	06-0031	-	Procurement CCR, ReTest 1	2/8/2006	2/16/2006
06-0032-	06-0032	-	Procure CCR Take 2	2/8/2006	2/27/2006
06-0039-	06-0039	-	fkjfdjfdjkl	2/10/2006	2/8/2006
06-0046A	06-0046	A	Final Procurement CCR Test	2/17/2006	2/23/2006
06-0050-	06-0050	-	Final Procurement CCR Test	2/17/2006	2/17/2006
06-0051-	06-0051	-	Final Procurement CCR Test	2/17/2006	2/19/2006
06-0052-	06-0052	-	Final Procurement CCR Test	2/17/2006	2/17/2006
06-0061-	06-0061	-	This is a test	2/17/2006	2/12/2006
06-0072-	06-0072	-	dkjfdjfdj	3/10/2006	3/15/2006
06-0075-	06-0075	-	Demo CCR: Procure Navisphere Maintenance PCs for XZ600 RAID a	3/15/2006	3/20/2006

**Figure 4.3.2-30. My Work Menu – Drafts form**

If you click proceed, the CCR tool will display the prompt shown in Figure 4.3.2-31. Click OK to proceed.

**Please choose a CCR Identifier Number from below to edit.**

Identifier	CCR Number	CCR Revision	CCR Title	Log Date	Need Date
05-0001A	05-0001	A	Install AMASS libsched Test Executable	10/24/2005	10/27/2005
05-0463-	05-0463	-	This is a test.	10/18/2005	10/20/2005
05-0499-	05-0499	-	Procurement CCR test	11/10/2005	11/20/2005
05-0513-	05-0513	-	Create a CCR for Sponsor	12/16/2005	12/19/2005
06-0024-	06-0024	-	Procurement CCR Modify Test	1/31/2006	2/25/2006
06-0027-	06-0027	-	Testing Regular CCR (Clone side, save as draft then continue)	2/3/2006	3/20/2006
06-0031-	06-0031	-	Procurement CCR, ReTest 1	2/8/2006	2/16/2006
06-0032-	06-0032	-	Procure CCR Take 2	2/8/2006	
06-0039-	06-0039	-	fkjfdjfdjkl	2/10/2006	
06-0046A	06-0046	A	Final Procurement CCR Test	2/17/2006	
06-0050-	06-0050	-	Final Procurement CCR Test	2/17/2006	
06-0051-	06-0051	-	Final Procurement CCR Test	2/17/2006	
06-0052-	06-0052	-	Final Procurement CCR Test	2/17/2006	
06-0061-	06-0061	-	This is a test	2/17/2006	
06-0072-	06-0072	-	dkjfdjfdj	3/10/2006	3/15/2006
06-0075-	06-0075	-	Demo CCR: Procure Navisphere Maintenance PCs for XZ600 RAID a	3/15/2006	3/20/2006

**AUTHORIZED**

You will now be taken to draft mode where you will have a chance to resubmit a draft CCR.

**Figure 4.3.2-31. Authorized to Retrieve Draft Prompt**

The CCR tool will now display the selected draft CCR.

#### 4.3.2.5.2 Finalize Draft CCR

When a draft CCR is retrieved, the focus is initially on the CCR Form page as shown in Figure 4.3.2-32. Each of the CCR Form’s pages (Supplementary Procurement Information, Additional Sheet, Stakeholder’s Concurrence, and ECO Sheet) is available for updates. Note, the Supplementary Procurement Information page is only on procurement type CCRs. Non-procurement CCRs will not have a Supplementary Procurement Information page.

There are some minimum changes that one has to make to a draft CCR. Dates that were entered in the “12. Need Date” and the “20. Date Due to Customer” fields during CCR creation were removed when the CCR was saved as a draft. So, even if there are no other changes on the CCR Form page, dates for these fields have to be entered again.

Microsoft Access - [ECM CCR Tool - CCR Draft Mode]						
CCR Form   Supplementary Procurement Information   Additional Sheet   Stakeholder's Concurrence   ECO Sheet						
ECS/EMD Configuration Change Request						
1. Originator:	2. Log Date:	3. CCR #:	4. Rev:	5. Telephone:	6. Rm #:	7. Org.:
Benzell Floyd	3/15/2006	06-0075	-	(301) 925-0518	3107	COTS
8. CCR Title: Demo CCR: Procure Navisphere Maintenance PCs for X2600 RAID at DAACs						
9. Originator Signature/Date:			10. Class:	11. Program:	12. Need Date:	
			II	ECS/EMD		
13. CCR Sponsor Signature/Date:			14. Category of Change:	15. Priority:		
			5	Routine		
16. Documentation/Drawings Impacted:		17. Schedule Impact:	18. Affected CI(s):			
None		None	None			
19. Affected Release:		20. Date due to Customer	21. Estimated cost:			
None			Small <= \$100,000			
22. Source Reference: <input type="checkbox"/> NCR (attach) <input type="checkbox"/> Action Item <input type="checkbox"/> Tech. Ref. <input type="checkbox"/> GSFC <input checked="" type="checkbox"/> Other: EMD Task 109, Subtask						
23. Problem: Navisphere RAID software at the DAACs needs to be managed by a PC.						
24. Proposed Solution: Purchase one PC for each DAAC for the purpose of RAID software management.						
25. Alternate Solution: None						
26. Consequences if Change(s) are not approved: RAID failures cannot be monitored						
99. Notification for Emergency / if Black: If = "Emergency" or "Hazard"						
CCR Form						

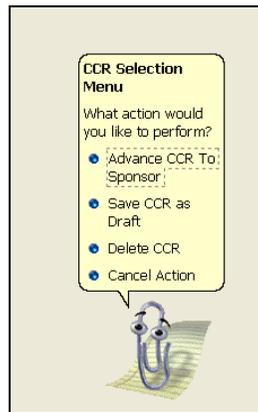
**Figure 4.3.2-32. Draft CCR Form**

For a procurement type CCR, the Supplementary Procurement Information page shown in Figure 4.3.2-33 must be updated as well. The date in “6. On Dock Need Date” (that was entered

during CCR creation) was removed when the CCR was placed in draft mode. So, a date has to be reentered into that field.

**Figure 4.3.2-33. Supplementary Procurement Information Page**

When all updates have been made to the draft CCR and you are ready to sign the CCR, go to the ECO Sheet page of the CCR form and click the “Done” button. Upon clicking of the “Done” button, the CCR tool displays the prompt shown in Figure 4.3.2-34.

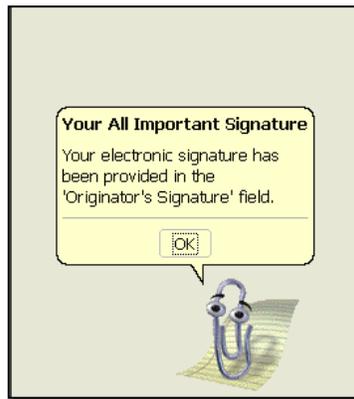


**Figure 4.3.2-34. CCR Action Prompt**

You have a choice of several actions:

- 1) Advance CCR to Sponsor – select this action if you are satisfied with the content of the CCR and you are ready to sign the CCR and send it to the sponsor for signature.
- 2) Save CCR as Draft – select this action if the CCR is incomplete and you're not ready to sign it.
- 3) Delete CCR – select this action if you want to delete the draft CCR. A message will be displayed asking if you are sure you want to delete the draft CCR. Select “Yes” to have the draft CCR deleted.
- 4) Cancel Action – select this action if you are not ready to leave the draft CCR form.

Select the “Advance CCR to Sponsor” action and the prompt shown in Figure 4.3.2-35 is displayed.



**Figure 4.3.2-35. Confirmation of Signature Prompt**

Click OK on the “Signature” prompt and the prompt shown in Figure 4.3.2-36 is displayed.



**Figure 4.3.2-36. Next Step Prompt**

Click OK on the “Next Step” prompt and the CCR tool will take you back to the My Work Menu – Drafts form, Figure 4.3.2-37 below.

Please choose a CCR Identifier Number from below to edit.

05-0001A

Proceed

Return

Identifier	CCR Number	CCR Revision	CCR Title	Log Date	Need Date
▶ 05-0001A	05-0001	A	Install AMASS libsched Test Executable	10/24/2005	10/27/2005
05-0463-	05-0463	-	This is a test.	10/18/2005	10/20/2005
05-0499-	05-0499	-	Procurement CCR test	11/10/2005	11/20/2005
05-0513-	05-0513	-	Create a CCR for Sponsor	12/16/2005	12/19/2005
06-0024-	06-0024	-	Procurement CCR Modify Test	1/31/2006	2/25/2006
06-0027-	06-0027	-	Testing Regular CCR (Clone side, save as draft then continue)	2/3/2006	3/20/2006
06-0031-	06-0031	-	Procurement CCR, ReTest 1	2/8/2006	2/16/2006
06-0032-	06-0032	-	Procure CCR Take 2	2/8/2006	2/27/2006
06-0039-	06-0039	-	fkfjdfdjkl	2/10/2006	2/8/2006
06-0046A	06-0046	A	Final Procurement CCR Test	2/17/2006	2/23/2006
06-0050-	06-0050	-	Final Procurement CCR Test	2/17/2006	2/17/2006
06-0051-	06-0051	-	Final Procurement CCR Test	2/17/2006	2/19/2006
06-0052-	06-0052	-	Final Procurement CCR Test	2/17/2006	2/17/2006
06-0061-	06-0061	-	This is a test	2/17/2006	2/12/2006
06-0072-	06-0072	-	dkfjdfdj	3/10/2006	3/15/2006

Form View

NUM

**Figure 4.3.2-37. My Work Menu – Drafts Window**

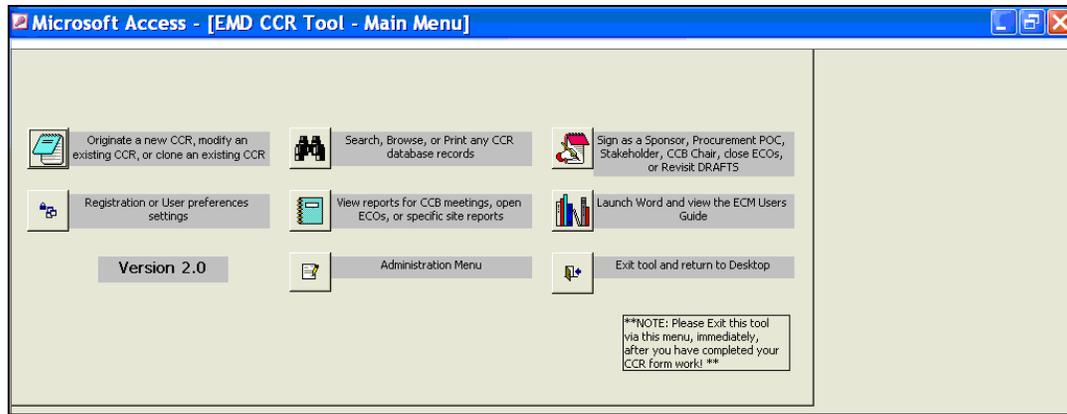
Click the Return button to get back to the “My Work Menu” (Figure 4.3.2-38).

My Work Menu

- "Draft Mode" CCRs
- Awaiting Stakeholders' Sig.
- Awaiting Sponsor's Sig.
- Awaiting CCB Approval
- Awaiting Procurement POCs' Sig.
- Open ECOs (for year 2005+ CCRs)
- Return to main menu

**Figure 4.3.2-38. My Work Menu**

Click the “Return to main menu” button on the My Work Menu to get back to the Main Menu (Figure 4.3.2-39).



**Figure 4.3.2-39. Main Menu**

The draft CCR has now been finalized. The CCR tool has sent an email message to the Sponsor to let the Sponsor know that there is a CCR waiting for his/her signature.

#### **4.3.2.5.3 Modify A CCR**

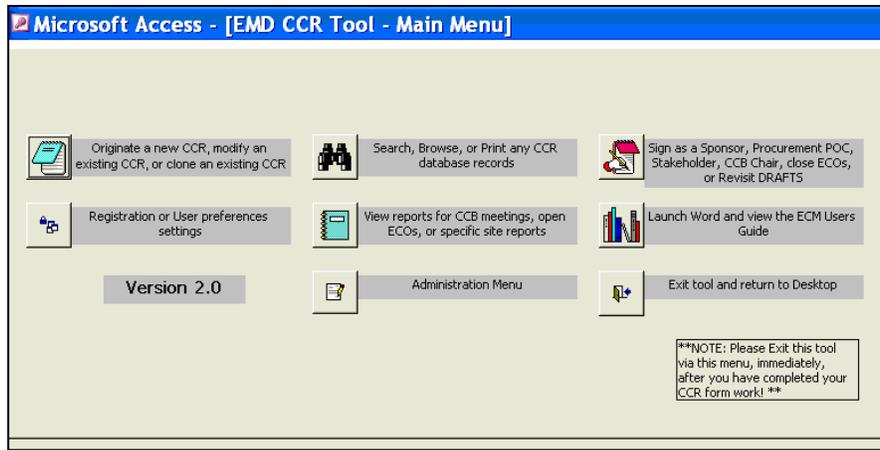
Sometimes during the processing of a CCR, changes have to be made after the originator has signed but before the CCR is approved by the CCB Chairperson. In this case, the CCR has to be taken back to draft mode so that the originator can make the necessary changes. This process is the similar to modifying a Draft CCR.

#### **4.3.2.5.4 CCR Clone**

Sometimes after a CCR has been approved by CCB Chairperson(s), necessary changes to the CCR are identified. Since the CCR has already been approved, a revision to the CCR or a new CCR must be created to include the identified changes. This saves the user time when a new CCR will have similar content to an existing CCR. The default for the new CCR number is the next one available, but a check box exists that allows the user to set the new CCR to the next revision. For instance if the CCR to be cloned is “09-0123” and the user wants the new CCR to be Rev A, then by selecting the check box that appears, the new CCR will be “09-0123A”.

#### **4.3.2.5.5 Printing a CCR**

CCRs can be viewed and printed after the originator signs the CCRs. However, any CCR printed before the CCB Chairperson approves it, will not have all of the electronic signatures populated. To print a CCR we start off with the Main Menu as shown in Figure 4.3.2-40.



**Figure 4.3.2-40. Main Menu (Printing a CCR)**

Click the “Search, Browse, or Print any CCR database records” button and the CCR Search/Browse Menu is displayed as shown in Figure 4.3.2-41. There are three buttons on the Search/Browse Menu:

- 1) Search/Browse all CCRs button– enables one to see all of the CCRs in the database but does not show the Supplementary Procurement Information page of procurement type CCRs. The Supplementary Procurement Information page is for review by procurement officials only.
- 2) Search all procurement CCRs button–enables personnel that are authorized to view “Procurement” type CCRs to see all pages of the procurement CCRs. For everyone else, the “Search all procurement CCRs” button is gray (inactive).
- 3) Return to Main Menu button – this button returns you to the Main Menu.



**Figure 4.3.2-41. Browse CCR Menu**

Since a procurement type CCR was used as the example in this guide, a procurement authorized login was used to log into the CCR tool. So the “Search all procurement CCRs” button is active. Click the “Search all procurement CCRs” button and the CCR Lookup Procurement form (Figure 4.3.2-42) is displayed. If the “Search/Browse all CCRs” button had been clicked a CCR Lookup form would have been displayed.

Microsoft Access - [CCR Lookup - Procurement]

CCR Form | Supplementary Procurement | Additional Sheet | Stakeholder's Concurrence | ECO Sheet

ECS/EMD Configuration Change Request 06-0075-

1. Originator: Benzel Floyd	2. Log Date: 3/15/2006	3. CCR #: 06-0075	4. Rev: -	5. Telephone: (301) 925-0518	6. Rm # 3107	7. Org.: COTS
8. CCR Title: Demo CCR: Procure Navisphere Maintenance PCs for X2600 RAID at DAACs						
9. Originator Signature/Date: Benzel Floyd 03/15/2006 10:29:29			10. Class: II	11. Program: ECS/EMD	12. Need Date: 3/20/2006	
13. CCR Sponsor Signature/Date: Benzel Floyd 03/15/2006 10:30:55			14. Category of Change: 5	15. Priority: Routine		
16. Documentation/Drawings Impacted: None			17. Schedule Impact: None	18. Affected CI(s): None		
19. Affected Release: None			20. Date due to Customer: 3/29/2006	21. Estimated cost: Small <= \$100,000		
22. Source Reference: <input type="checkbox"/> NCR (attach) <input type="checkbox"/> Action Item <input type="checkbox"/> Tech. Ref. <input type="checkbox"/> GSFC <input checked="" type="checkbox"/> Other: EMD Task 109, Subtask						
23. Problem: Navisphere RAID software at the DAACs needs to be managed by a PC.						
24. Proposed Solution: Purchase one PC for each DAAC for the purpose of RAID software management.						
25. Alternate Solution: None						
26. Consequences if Change(s) are not approved: RAID failures cannot be monitored						
27. Justification for Emergency ( if Block 15 is "Emergency" or "Urgent" )						
28. Affected Site(s): <input type="checkbox"/> EDF <input type="checkbox"/> PVC <input type="checkbox"/> YATC <input type="checkbox"/> SMC <input checked="" type="checkbox"/> LP DAAC <input checked="" type="checkbox"/> GSFC <input type="checkbox"/> LaRC <input type="checkbox"/> NSIDC <input type="checkbox"/> Other:						
29. Board Comments:			30. Work Assigned To:	31. CCR Closure Date:		
32. SCDY CCB Chair (Sign/Date): Benzel Floyd 03/15/2006 11:06:52			Disposition: <input checked="" type="radio"/> Approved <input type="radio"/> App/Com. <input type="radio"/> Disapproved <input type="radio"/> Withdrawn <input type="radio"/> Fwd/ESDIS <input type="radio"/> Fwd/ESDIS ERB			
33. EDF CCB Chair (Sign/Date):			Disposition: <input type="radio"/> Approved <input type="radio"/> App/Com. <input type="radio"/> Disapproved <input type="radio"/> Withdrawn <input type="radio"/> Fwd/ESDIS <input type="radio"/> Fwd/ESDIS ERB			
34. ECS CCB Chair (Sign/Date): Benzel Floyd 03/15/2006 11:15:24			Disposition: <input checked="" type="radio"/> Approved <input type="radio"/> App/Com. <input type="radio"/> Disapproved <input type="radio"/> Withdrawn <input type="radio"/> Fwd/ESDIS <input type="radio"/> Fwd/ESDIS ERB			

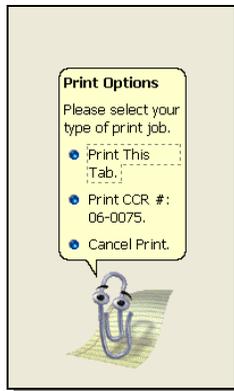
Print Back

Record: 14 of 68

Form View

Figure 4.3.2-42. CCR Lookup Procurement Form

When the form is first displayed, the first CCR record in the database is displayed. Click the arrow at the bottom of the form to move to the desired CCR (in this case, it's CCR 06-0075. To print the CCR, click the "Print" button and the Office Assistant prompt shown in Figure 4.3.2-43 is displayed.



**Figure 4.3.2-43. CCR Print Options**

The Office displays several print options. The options are defined as follow:

- 1) Print This Tab – print the tab/page (CCR Form, Supplementary Procurement, Additional Sheet, Stakeholder’s Concurrence, or ECO Sheet) that you are currently on. Click this option and a copy of the tab/page is sent to your default printer.
- 2) Print CCR #: <CCR Number> - print the entire CCR. Click this option and a copy of the entire CCR is sent to your default printer.
- 3) Cancel Print – Terminate print options. Click this option, the Office Assistant is removed and the focus is placed back on the CCR form.

Click the option that is desired and then click the “Back” button at the bottom of the page to get back to the Main Menu.

#### **4.3.2.6 CCR Coordination, Approvals**

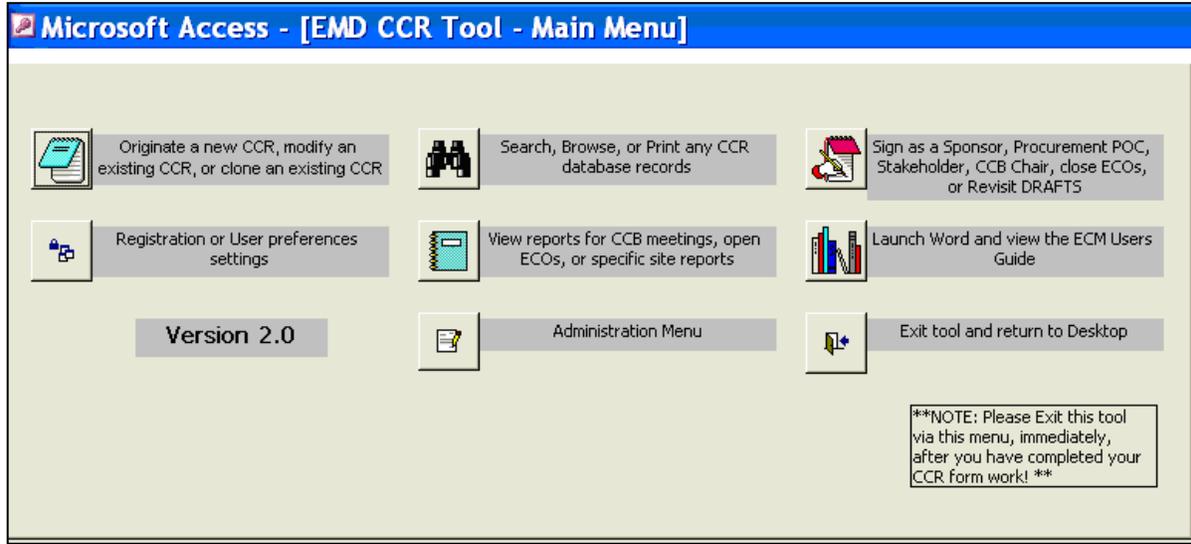
A CCR requires the concurrence/approval of several EMD entities before it can actually be implemented. After a CCR is signed by the CCR originator, it must then be concurred with by the Sponsor, Procurement POCs (for procurement type CCRs only), and Stakeholders. The CCR must be approved by the CCB(s) Chairperson. The CCR tool activity for each of these coordination entities will be discussed in this section.

##### **4.3.2.6.1 CCR Sponsor Signature**

The CCR Sponsor performs the first review of the CCR after the originator has completed the CCR and signed it. The CCR tool sends an email message to the perspective CCR Sponsors, in order to notify the Sponsors of a submitted CCR. This section covers the instruction of electronically signing as a Sponsor.

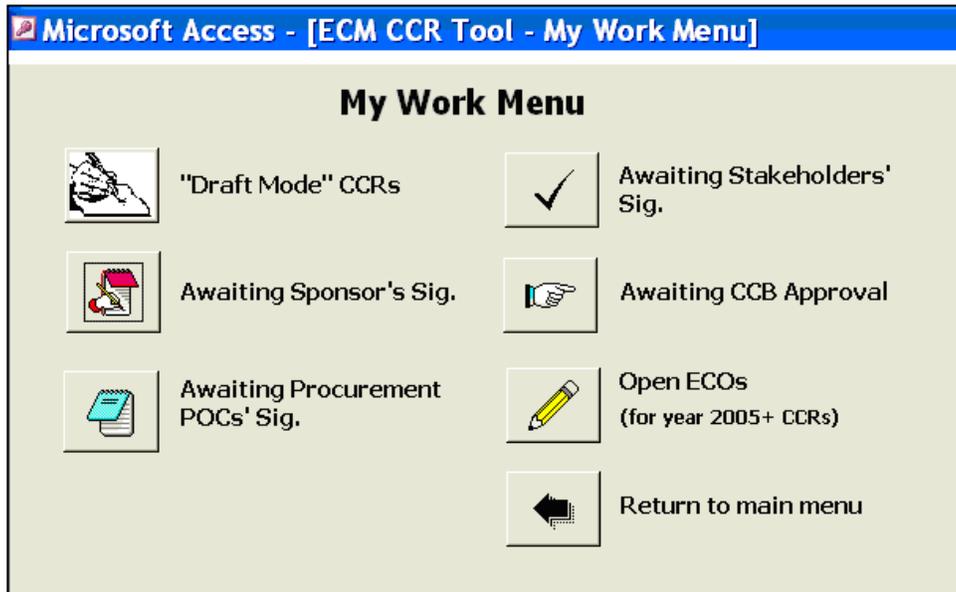
The perspective CCR sponsors will have received an email stating the CCR number that needs to be sponsored. Upon notification, the sponsor logs into the CCR tool and the Main Menu (Figure 4.3.2-44) is displayed.

To sign a CCR as a Sponsor, first click the button in the upper-right corner of the Main Menu.



**Figure 4.3.2-44. Main Menu**

The My Work Menu (Figure 4.3.2-45) will be displayed next. On the My Work Menu, click the “Awaiting Sponsor’s Sig.”



**Figure 4.3.2-45. My Work Menu (Sponsor Sig.)**

The My Work Menu – CCR Sponsor Signature Page (Figure 4.3.2-46) is displayed next. It will list all of the CCRs that are available for you to sponsor.

CCR Identifier	CCR Title
▶ 06-0075-	Demo CCR: Procure Navisphere Maintenance PCs for X2600 RAID at DAACs
05-0332-	Procure: EMD Task 107: Remote Data Storage FY2004, Phase 2- 1.h Alternative Storage Technologies for RDS
05-0350-	Procure: EMD Task 101 Renewal Maintenance - Sybase Program License, Maintenance through 12/31/06
05-0386-	Procure: EMD Task 101 - Microsoft Office 2003 for g0icp04
06-0036-	Final Procurement CCR Test 1, Create CCR
06-0040-	Testing
06-0042-	jffjij
06-0047-	Modify Procurement CCR
06-0060-	Final Procurement CCR Test
06-0062-	Testing ECO date
06-0063-	Testing ECO Drafts
06-0064-	flkffkfk,f,k;f

**Figure 4.3.2-46. CCR Sponsor Signature Form**

Click the desired CCR listed in the CCR Identifier column and the CCR identifier will be copied to the white space above the list of CCRs as shown above in Figure 4.3.2-46.

There are four possible actions that a Sponsor can take:

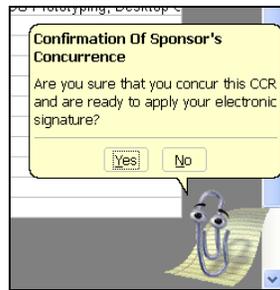
- 1) Review CCR – click the “Review CCR” button to review the contents of the CCR. All pages of the CCR will be available for review. If it is a procurement type CCR, then you can also review the BOM on the Supplementary Procurement Information page by clicking the “Display BOM” button on that page. Note, there is no Supplementary Procurement Information page in the non-procurement type CCR. Click the “Back” button on the Review CCR form to return to the Sponsor Signature form.
- 2) Concur w/CCR – click the “Concur w/CCR” button if you agree with the contents of the CCR. Once sponsor concurrence is obtained, a notification email message is sent to Procurement POCs (if this is a procurement type CCR) or to Stakeholders (if this is a non-procurement type CCR) for their review of the CCR, next. Refer to Section 4.3.2.6.1.1 for prompts and responses for this action.
- 3) NonConcur w/CCR – click the “NonConcur w/CCR” button if you disagree with the contents of the CCR. If you nonconcur, you have to provide a brief reason for

nonconcurring in the “Comments” box. The CCR tool will email the comments back to the originator and place the CCR in draft mode to enable the originator’s revisions. Refer to Section 4.3.2.6.1.1 for prompts and responses for this action.

- 4) Return – click the “Return” button if you want to return to the previous form, My Work Menu (Figure 4.3.2-45).

#### 4.3.2.6.1.1 Concur w/CCR Action

If the “Concur w/CCR” button is clicked, the Office Assistant will respond as shown in Figure 4.3.2-47.



**Figure 4.3.2-47. Confirmation of Sponsor’s Concurrence**

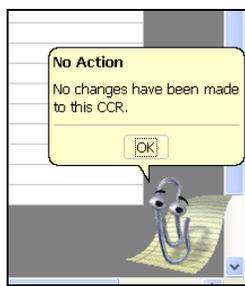
Click “Yes” to the Confirmation of Sponsor’s Concurrence prompt and the Office Assistant will respond as shown in Figure 4.3.2-48



**Figure 4.3.2-48. Sponsor Approval Response**

Click OK to close the Confirmation Office Assistant and the CCR tool places the focus back on the CCR Sponsor Signature form (Figure 4.3.2-46)

Click “No” to the Confirmation of Sponsor’s Concurrence prompt the Office Assistant will respond as shown in Figure 4.3.2-49.



**Figure 4.3.2-49. No Action Response**

Click OK to close the No Action Office Assistant and the CCR tool places the focus back on the CCR Sponsor Signature form (Figure 4.3.2-46).

#### 4.3.2.6.1.2 NonConcur w/CCR Action

For non concurrence actions, a brief comment must be entered into the “Comments” box then click the “Nonconcur w/CCR” button. The Office Assistant will respond as shown in Figure 4.3.2-50.

**CCR Sponsor Signature**

CCR Identifier:

Review CCR

Comments (Provide If Nonconcurring{250 characters or less})

Concur w/CCR

NonConcur w/CCR

Return

CCR Identifier	CCR Title
06-0075-	Demo CCR: Procure Navisphere Maintenance PCs for XZ600 RAID at DAACs
05-0332-	Procure: EMD Task 107: Remote Data Storage FY2004, Phase 2- 1.h Alternative Storage Technologies for RDS Prototyping, Desktop C
05-0350-	Procure: EMD Task 101 Renewal Maintenance - Sybase Program License, Maintenance through 12/31/06
05-0386-	Procure: EMD Task 101 - Microsoft Office 2003 for g0icp04
06-0036-	Final Procurement CCR Test 1, Create CCR
06-0040-	Testing
06-0042-	测试
06-0047-	Modify Procurement CCR
06-0060-	Final Procurement CCR Test
06-0062-	Testing ECO date
06-0063-	Testing ECO Drafts
06-0064-	flkflkfkfk;k;k;f

CCR #: 06-0075- has been successfully Non-Concurred  
 This CCR has been sent back to the Originator to be modified.

Form View NUM

**Figure 4.3.2-50. Sponsor NonConcur**

Click OK to close the Office Assistant and the CCR tool places the focus back on the CCR Sponsor Signature form (Figure 4.3.2-51). The CCR has now been removed from the list and has been placed back in draft mode to enable originator revision.

**CCR Sponsor Signature**

CCR Identifier:

Comments (Provide If Nonconcurring [250 characters or less])

Review CCR  
 Concur w/CCR  
 NonConcur w/CCR  
 Return

CCR Identifier	CCR Title
05-0332-	Procure: EMD Task 107: Remote Data Storage FY2004, Phase 2- 1.h Alternative Storage Technologies for RDS Prototyping, Desktop C
05-0350-	Procure: EMD Task 101 Renewal Maintenance - Sybase Program License, Maintenance through 12/31/06
05-0386-	Procure: EMD Task 101 - Microsoft Office 2003 for g0icp04
06-0036-	Final Procurement CCR Test 1, Create CCR
06-0040-	Testing
06-0042-	jjffjj
06-0047-	Modify Procurement CCR
06-0060-	Final Procurement CCR Test
06-0062-	Testing ECO date
06-0063-	Testing ECO Drafts
06-0064-	fkfkfkfk, kf, kf

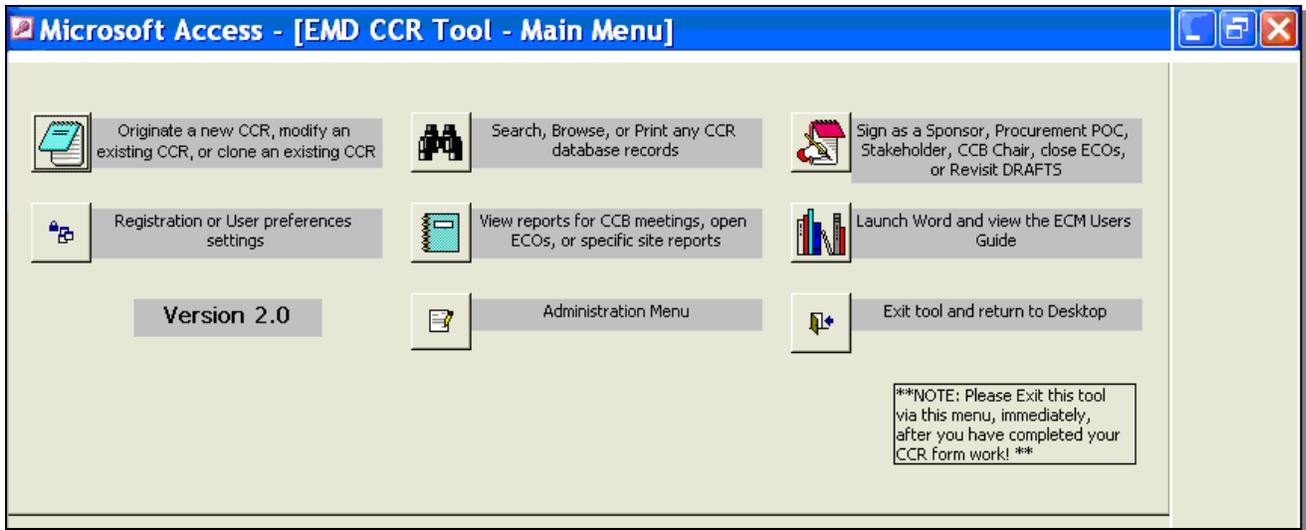
**Figure 4.3.2-51. CCR Sponsor Signature Form**

#### 4.3.2.6.2 Procurement POCs Signatures

The Procurement POCs (WBS Manager, Task Lead, Sub Task Lead (if assigned), SCM Manager, and Procurement Section) reviews procurement type CCRs after the Sponsor signs the CCR. After the Sponsor signs the CCR, the CCR tool sends an email message to the Procurement POCs (for procurement CCRs only). This section covers the instruction of electronically signing as a Procurement POC.

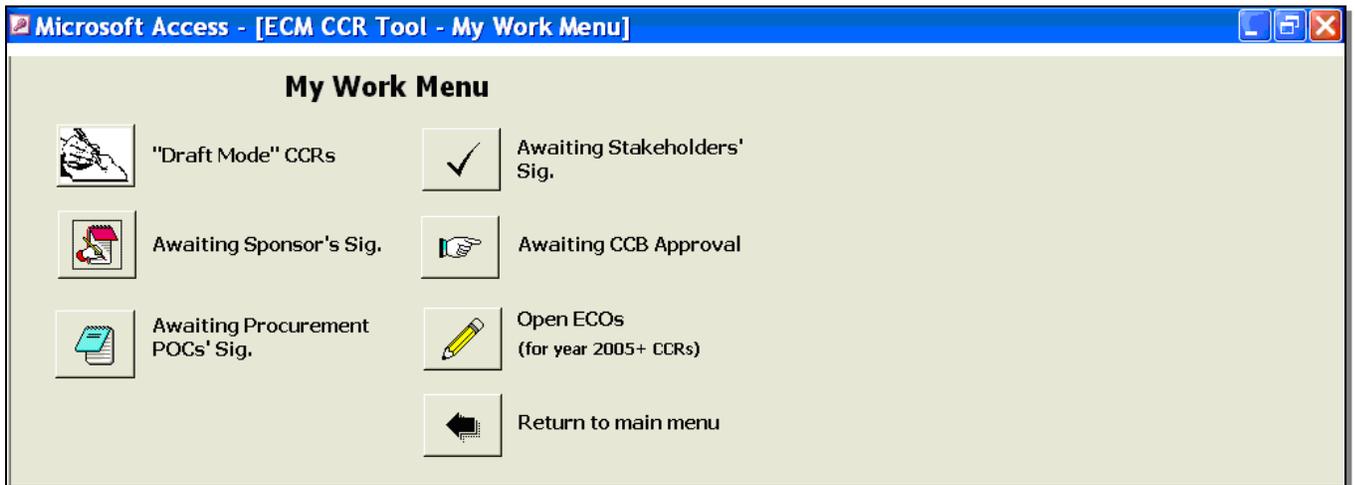
The perspective Procurement POCs will have concurrently received an email stating the CCR number that needs to be reviewed and concurred. Upon notification, the Procurement POC logs into the CCR tool and the Main Menu (Figure 4.3.2-52) is displayed.

To sign a CCR as a Procurement POC, first click the button in the upper right corner of the Main Menu and labeled “Sign as Sponsor, Procurement POC - - -”



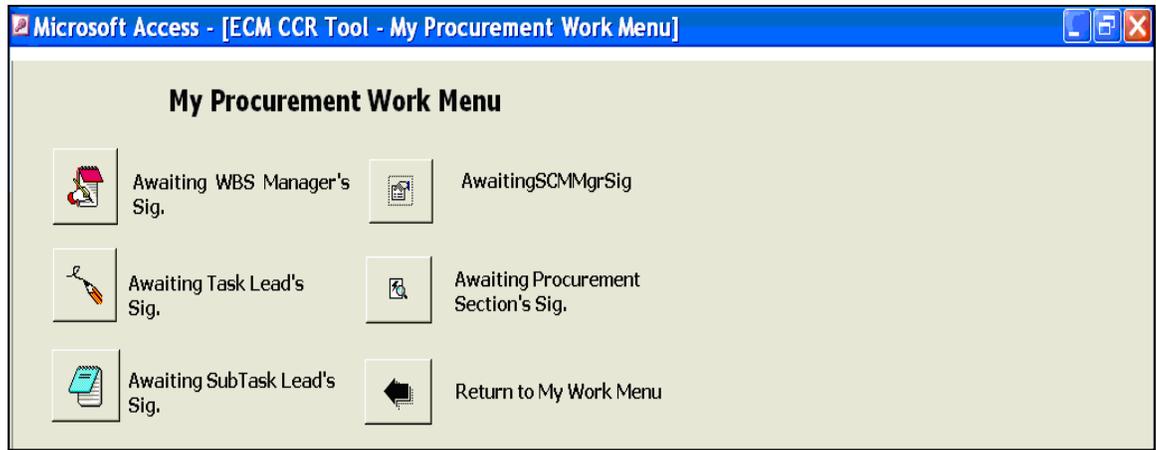
**Figure 4.3.2-52. Main Menu**

The CCR tool will display the My Work Menu as shown in Figure 4.3.2-53.



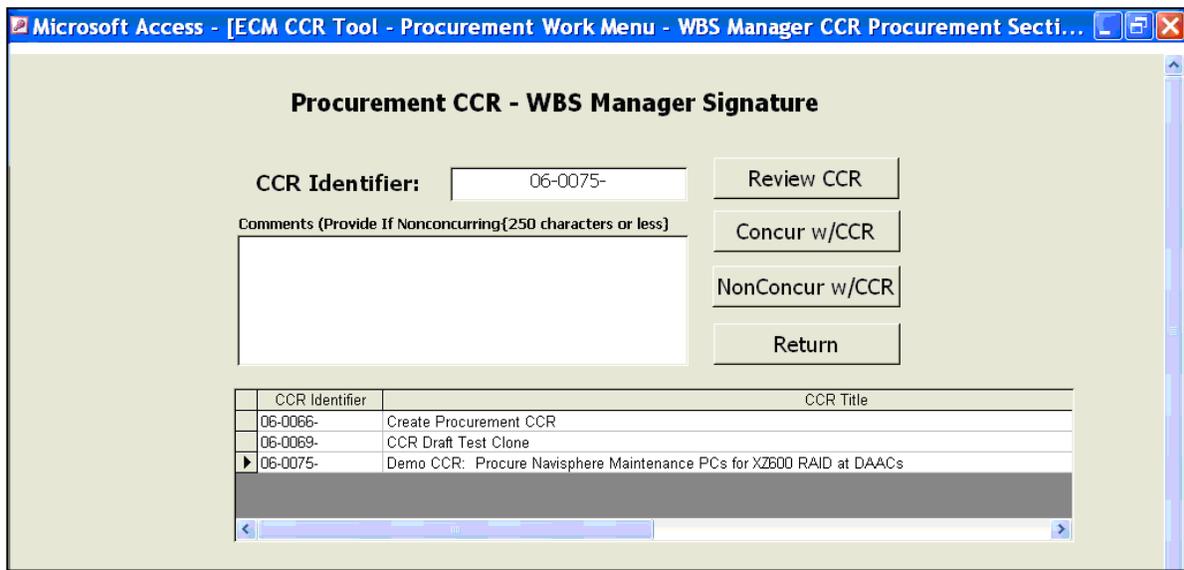
**Figure 4.3.2-53. My Work Menu**

Click the “Awaiting Procurement POCs’ Sig.” button and the My Work Procurement Menu is displayed as shown in Figure 4.3.2-54.



**Figure 4.3.2-54. My Procurement Work Menu**

On the My Procurement Work Menu click the button for the role that you play in the CCR approval process. In this example, the WBS Manager role is being used for demonstration purposes. The procedure is the same for all Procurement POCs. In this example the “Awaiting WBS Manager’s Sig. was clicked and the CCR tool displayed the Procurement CCR – WBS Manager Signature form as shown in Figure 4.3.2-55.



**Figure 4.3.2-55. Procurement CCR – WBS Manager Signature form**

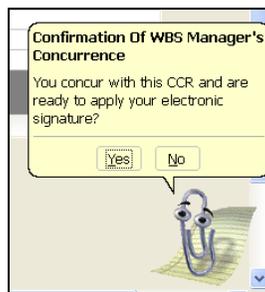
Click the CCR identifier in the CCR Identifier column and the CCR tool places the CCR identifier in the CCR Identifier’s box above the list.

There are four possible actions that a Procurement POC can perform:

- 1) Review CCR- click the “Review CCR” button to review the contents of the CCR. All pages of the CCR will be available for review. Access to the CCR’s BOM is set up on the Supplementary Procurement Information page. Click the “Display BOM” button on that page and the BOM will be displayed. Click the “Back” button on the Review CCR form to return to the Procurement POC’s Signature form.
- 2) Concur w/CCR – click the “Concur w/CCR” button if you agree with the contents of the CCR. Once all Procurement POCs concurrences have been obtained, a notification email message is sent to Stakeholders for their review of the CCR, next. Refer to Section 4.3.2.6.4.1 for prompts and responses for this action.
- 3) NonConcur w/CCR – click the “NonConcur w/CCR” button if you disagree with the contents of the CCR. If you nonconcur, you have to provide a brief reason for nonconcurring in the “Comments” box. The CCR tool will remove all signatures obtained up to this point, will email the comments to the originator and other signers and place the CCR in draft mode to enable the originator’s revisions. Refer to Section 4.3.2.6.2.1 for prompts and responses for this action.
- 4) Return – click the “Return” button if you want to return to the previous form, My Procurement Work Menu (Figure 4.3.2-54).

#### 4.3.2.6.2.1 Concur w/CCR Action

If the “Concur w/CCR” button is clicked, the Office Assistant will respond as shown in Figure 4.3.2-56.



**Figure 4.3.2-56. Confirmation of Procurement POC’s Concurrence**

Click “Yes” to the Confirmation of Procurement POC’s Concurrence prompt and the Office Assistant will respond as shown in Figure 4.3.2-57. No action is performed if “No” is clicked.



**Figure 4.3.2-57. Procurement POC Approval Response**

Click OK to close the Office Assistant and the CCR tool places the focus back on the Procurement CCR Signature form (Figure 4.3.2-58).

CCR Identifier	CCR Title
06-0066-	Create Procurement CCR
06-0069-	CCR Draft Test Clone

**Figure 4.3.2-58. Procurement CCR Signature Form**

#### 4.3.2.6.2.2 NonConcur w/CCR Action

For Nonconcurrency actions, a brief comment must be entered into the “Comments” box then click the “Nonconcur w/CCR” button. The set of actions follows similarly to Section 4.3.2.6.1.2.

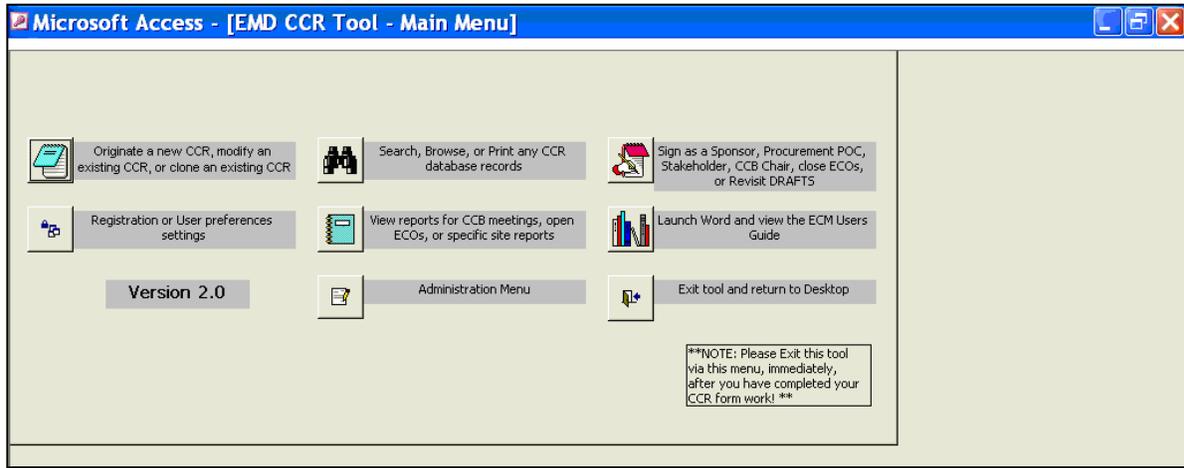
#### 4.3.2.6.3 Stakeholder Signature

The Stakeholders are asked to review the CCR and sign, once a Sponsor has signed and also Procurement POCs have signed (if it’s a procurement type CCR). The event of the Sponsor/Procurement POCs signing will cause the tool to email all of the perspective Stakeholders. This email list is comprised of all of the Authorized Signers based on the checked

boxes on the Stakeholder sheet. Each Office has at least two and up to five individuals who may review and sign the CCR as a Stakeholder. This section covers the instruction of electronically signing as a Stakeholder.

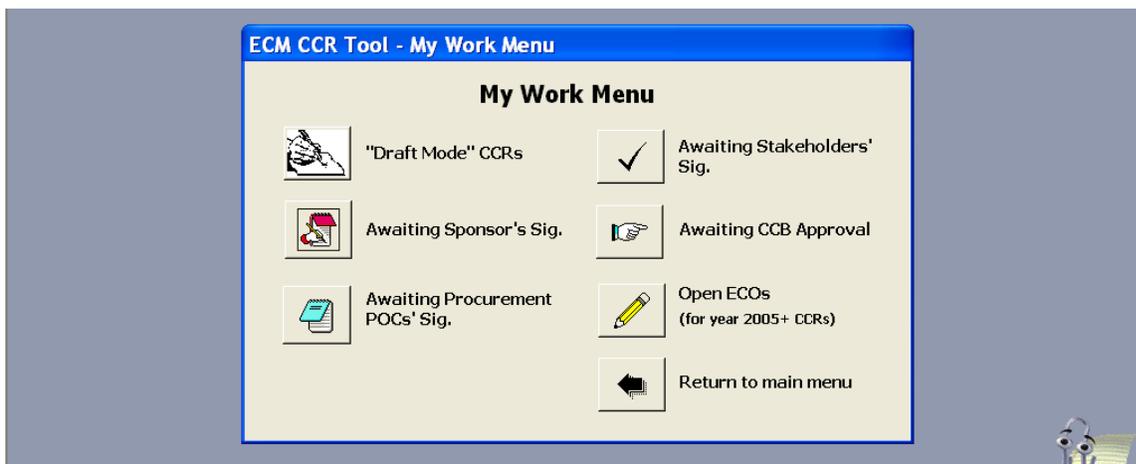
The perspective Stakeholder will have received an email stating the CCR number that needs to be reviewed and concurred. Upon notification, the Stakeholder logs into the CCR tool and the Main Menu (Figure 4.3.2-59) is displayed.

To sign a CCR as a Stakeholder, first click the button in the upper right corner of the Main Menu and labeled “Sign as Sponsor, Procurement POC, Stakeholder, - - - -”



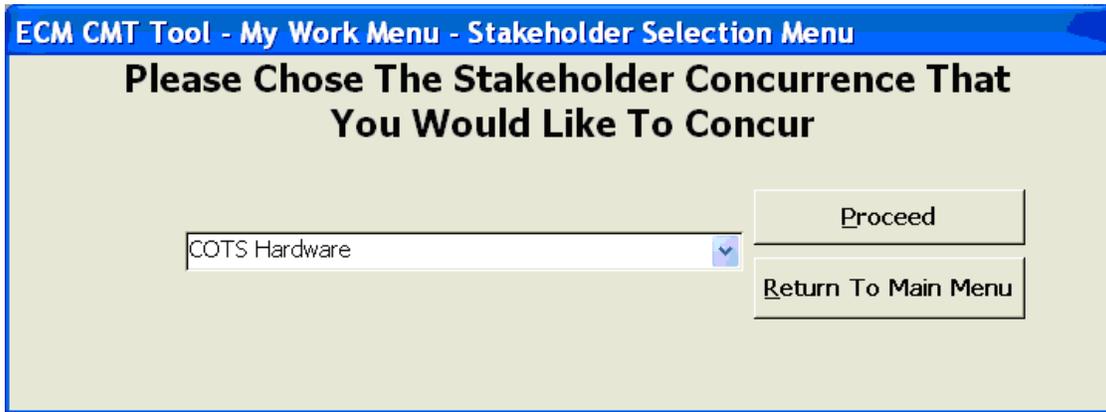
**Figure 4.3.2-59. Main Menu**

Upon clicking the aforementioned button, the CCR tool displays the My Work Menu as shown in Figure 4.3.2-60.



**Figure 4.3.2-60. My Work Menu**

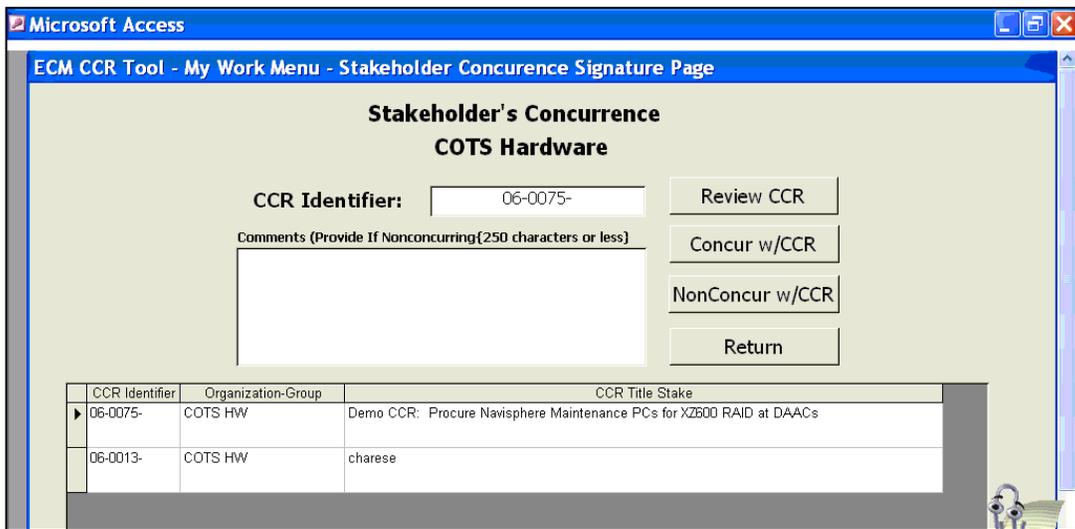
Click the button, “Awaiting Stakeholders’ Sig.” and the My Work Menu – Stakeholder’s Selection Menu is displayed as shown in Figure 4.3.2-61.



**Figure 4.3.2-61. Stakeholder’s Selection Menu**

Click the pull-down menu on the Stakeholder’s Selection Menu form and select the Stakeholder role that you are representing. In this example, the “COTS Hardware” Stakeholder was selected.

Click the Proceed button and the CCR tool displays the appropriate Stakeholder’s Concurrence Signature Page as shown in Figure 4.3.2-62. Click the CCR identifier in the CCR Identifier column and the CCR tool copies the identifier into the CCR Identifier box that is above the list.



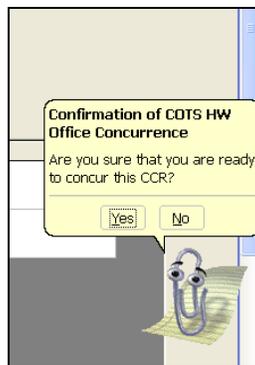
**Figure 4.3.2-62. Stakeholder Concurrence Signature Page**

There are four possible actions that a Stakeholder can perform:

- 1) Review CCR- click the “Review CCR” button to review the contents of the CCR. All pages of the CCR will be available for review. For a procurement type CCR only, access to the CCR’s BOM is set up on the Supplementary Procurement Information page. Click the “Display BOM” button on that page and the BOM will be displayed. Click the “Back” button on the Review CCR form to return to the Procurement POC’s Signature form.
- 2) Concur w/CCR – click the “Concur w/CCR” button if you agree with the contents of the CCR. Once all Stakeholders concurrences have been obtained, a notification email message is sent to the CCB Chairpersons for their review of the CCR, next. Refer to Section 4.3.2.6.4.1 for prompts and responses for this action.
- 3) NonConcur w/CCR – click the “NonConcur w/CCR” button if you disagree with the contents of the CCR. If you nonconcur, you have to provide a brief reason for nonconcurring in the “Comments” box. The CCR tool will remove all signatures obtained up to this point, will email the comments to the originator and other signers and place the CCR in draft mode to enable the originator’s revisions. Refer to Section 4.3.2.6.2.2 for prompts and responses for this action.
- 4) Return – click the “Return” button if you want to return to the previous form, My Stakeholder Selection Menu (Figure 4.3.2-61).

#### 4.3.2.6.3.1 Concur w/CCR Action

If the “Concur w/CCR” button is clicked, the Office Assistant will respond as shown in Figure 4.3.2-63. Click “Yes” to the Confirmation of Stakeholder’s Concurrence prompt and the Office Assistant will respond as shown in Figure 4.3.2-64. No action is performed if “No” is clicked.

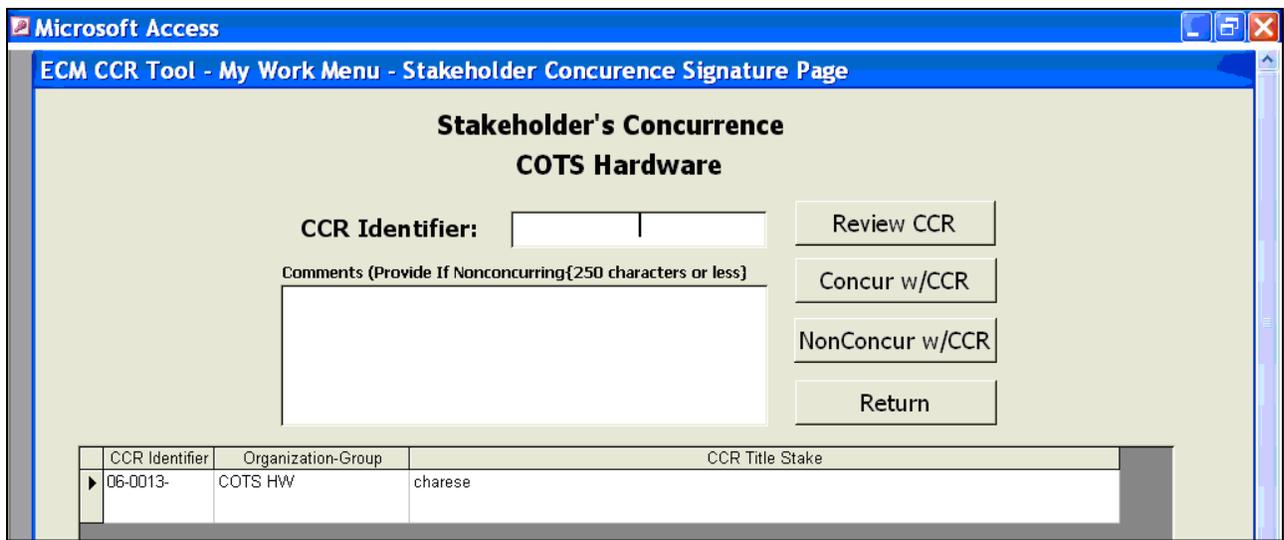


**Figure 4.3.2-63. Confirmation of Concurrence Prompt**



**Figure 4.3.2-64. Notification of Signature Applied**

Click the OK button on the “Signature Has Been Applied” message. The message prompt is removed, the now concurred CCR is removed from the Stakeholder’s Concurrence window as shown in Figure 4.3.2-65.



**Figure 4.3.2-65. Stakeholder’s Concurrence Window**

Click the Return button to return to the Stakeholder’s Selection window then click the “Return to Main Menu” button on the Selection window to get back to the Main Menu.

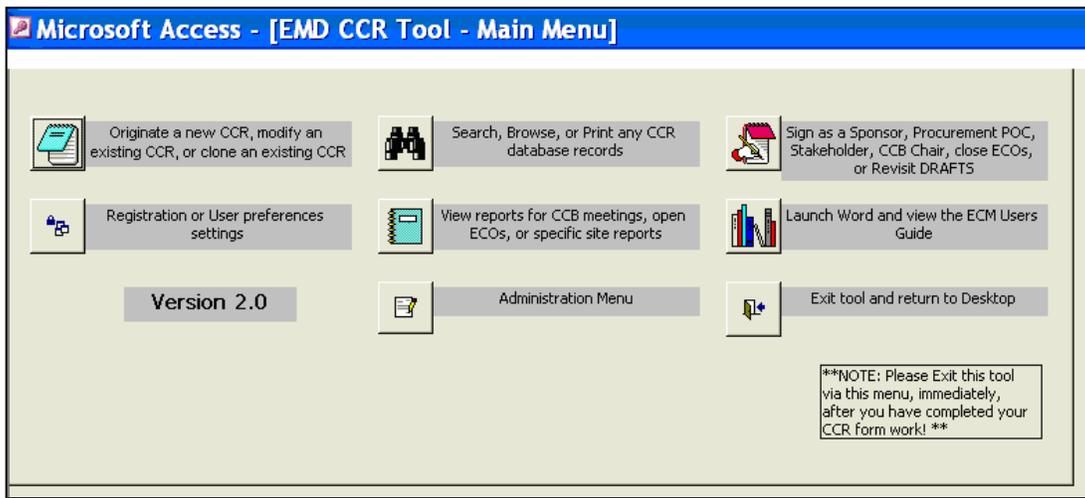
#### 4.3.2.6.3.2 NonConcur w/CCR Action

For Nonconcurrency actions, a brief comment must be entered into the “Comments” box then click the “Nonconcur w/CCR” button. The subsequent steps and displayed forms will occur as in previous sections for non concurrences.

#### 4.3.2.6.4 CCB Chairperson’s Approval

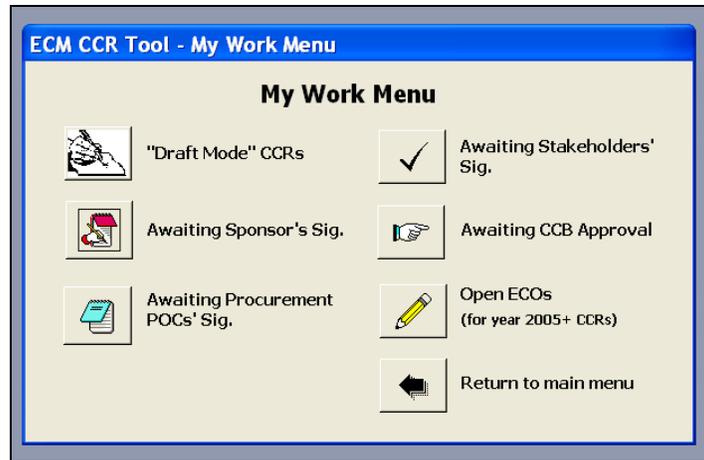
Once the Stakeholders have completed the Stakeholder sheet, an email is sent to the perspective CCB Chairperson(s), in order to notify the Chairpersons of a CCR that is ready for approval. The CCB Chairperson(s) perform the final review of the CCR.

There are three potential CCB Chairs that may need to approve a CCR: EDF CCB Chairperson, SCDV CCR Chairperson, and the ECS CCB Chairperson. CCB approval criteria included within the CCR tool’s code and the contents of the CCR enables the tool to determine which CCB Chair should be required to approve a CCR. This section covers the instruction of electronically signing as a CCB Chairperson. To sign as a CCB Chairperson, first click the button in the upper right corner of the Main Menu (Figure 4.3.2-66) and labeled as “Sign as a Sponsor, Procurement POC, Stakeholder, CCB Chair - - -”.



**Figure 4.3.2-66. Main Menu**

Upon clicking the aforementioned button, the “My Work Menu” (Figure 4.3.2-67) is displayed.



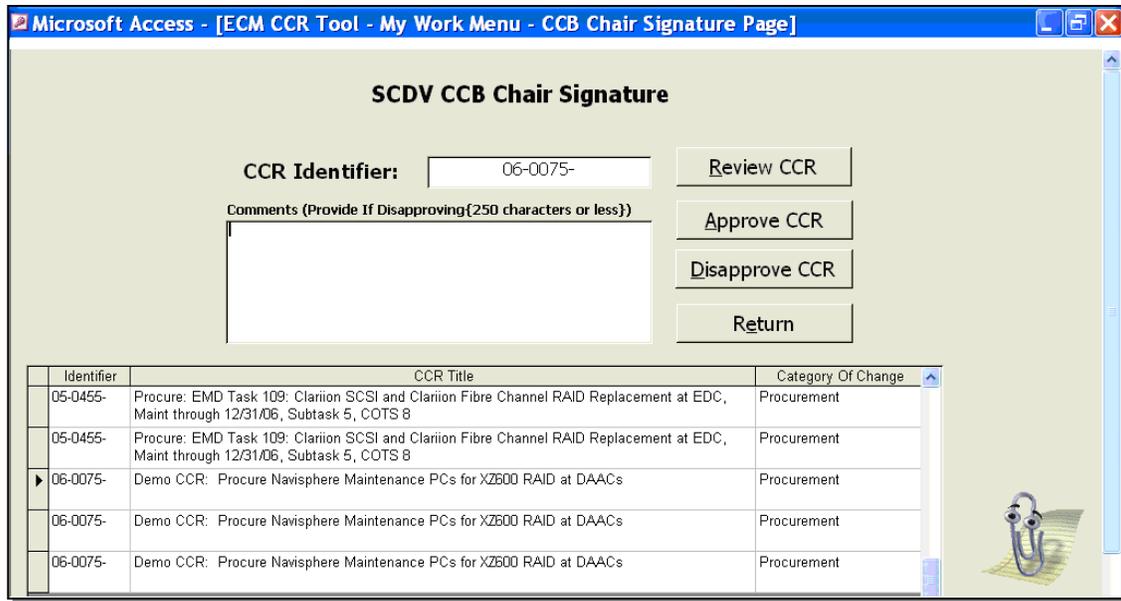
**Figure 4.3.2-67. My Work Menu**

Click the “Awaiting CCB Approval” button on the My Work Menu and the My CCB Chair Signature Menu (Figure 4.3.2-68) is displayed.



**Figure 4.3.2-68. My CCB Chair Signature Menu**

Note, that there is a button for each of the CCB Chairs on the My CCB Chair Signature Menu. Click the button for the CCB Chair that you represent. In this example, the “Awaiting SCDV CCB Chair Signature” button was clicked. The CCR tool responds by displaying the SCDV CCB Chair Signature window as shown in Figure 4.3.2-69.



**Figure 4.3-2-69. SCDV CCB Chair Signature**

On the <CCB Chair> CCB Chair Signature window, click the desired CCR’s identifier in the Identifier column and the CCR tool copies the identifier into the CCR Identifier box as shown in Figure 4.3.2-69.

There are four possible actions that a CCB Chairperson can perform:

- 1) Review CCR- click the “Review CCR” button to review the contents of the CCR. All pages of the CCR will be available for review. Access to the CCR’s BOM is set up on the Supplementary Procurement Information page. Click the “Display BOM” button on that page and the BOM will be displayed. Click the “Back” button on the Review CCR form to return to the CCB Chair’s Signature form.
- 2) Approve CCR – click the “Approve CCR” button if you agree with the contents of the CCR. Once all CCB Chairs (if more than one is required) have approved the CCR, Approved box is checked on the CCR Form page of the CCR; a notification email message is sent to all parties to let them know that the CCR has been approved. The ECO assignees are notified of their ECO tasks. Refer to Section 4.3.2.6.4.1 for prompts and responses for this action.
- 3) Disapprove CCR – click the “Disapprove CCR” button if you disagree with the contents of the CCR. If you disapprove, you have to provide a brief reason for disapproving the CCR in the “Comments” box. The CCR tool check the Disapprove box on the CCR Form page of the CCR; a notification email message is sent to all parties to let them know that the CCR has been disapproved. Refer to Section 4.3.2.6.2 for prompts and responses for this action.

- 4) Return – click the “Return” button if you want to return to the previous form, My CCB Chair Signature Menu, Figure 4.3.2-68.

#### 4.3.2.6.4.1 Approve CCR Action

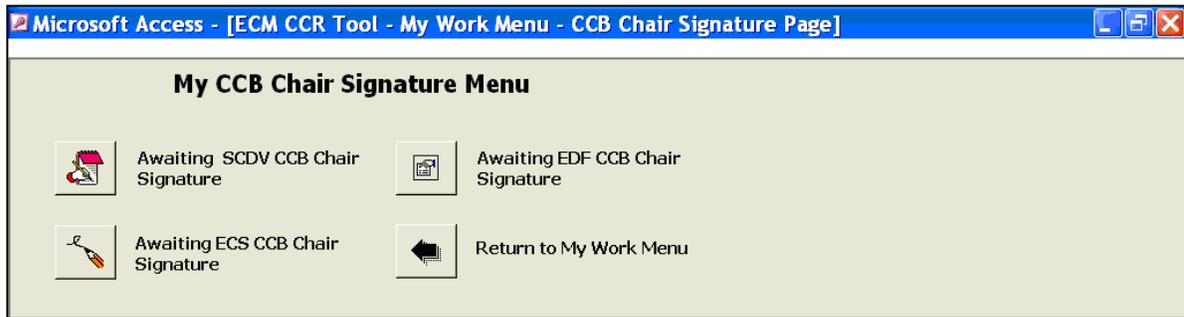
If the “Approve CCR” button is clicked, the Office Assistant will respond as shown in Figure 4.3.2-70.



**Figure 4.3.2-70. Confirmation of CCR Approval**

Click “Yes”, the CCR is approved and is removed from the list of CCRs; the message prompt is removed. Click “No” and no action is performed.

Click the “Return” button to return to the previous menu, My CCB Chair Signature Menu (Figure 4.3.2-71).



**Figure 4.3.2-71. My CCB Chair Signature Menu**

Click the “Return to My Work Menu” button on the My CCB Chair Signature Menu to get back to the My Work Menu. Then click the “Return to main menu” button on the My Work Menu to get back to the Main Menu. The front page of a CCB Approved CCR is shown in Figure 4.3.2-72.

Microsoft Access - [CCR LookUP - Procurement]						
CCR Form: Supplementary Procurement   Additional Sheet   Stakeholder's Concurrence   ECO Sheet						
<b>ECS/EMD Configuration Change Request</b>						06-0075
1. Originator:	2. Log Date:	3. CCR #:	4. Rev:	5. Telephone:	6. Rm #	7. Org.:
Benzel Floyd	3/15/2006	06-0075	-	(301) 929-0518	3107	COT5
8. CCR Title: Demo CCR: Procure Navisphere Maintenance PCs for X2600 RAID at DAACs						
9. Originator Signature/Date:			10. Class:	11. Program:	12. Need Date:	
Benzel Floyd 03/15/2006 10:29:29			II	ECS/EMD	3/20/2006	
13. CCR Sponsor Signature/Date:			14. Category of Change:		15. Priority:	
Benzel Floyd 03/15/2006 10:30:55			5		Routine	
16. Documentation/Drawings Impacted:			17. Schedule Impact:		18. Affected CI(s):	
None			None		None	
19. Affected Release:		20. Date due to Customer		21. Estimated cost:		
None		3/29/2006		Small <= \$100,000		
22. Source Reference: <input type="checkbox"/> NCR (attach) <input type="checkbox"/> Action Item <input type="checkbox"/> Tech. Ref. <input type="checkbox"/> GSFC <input checked="" type="checkbox"/> Other: EMD Task 109, Subtask						
23. Problem: Navisphere RAID software at the DAACs needs to be managed by a PC.						
24. Proposed Solution: Purchase one PC for each DAAC for the purpose of RAID software management.						
25. Alternate Solution: None						
26. Consequences if Change(s) are not approved: RAID failures cannot be monitored						
27. Justification for Emergency ( if block 15 is "Emergency" or "Urgent" )						
28. Affected Site(s): <input type="checkbox"/> EDF <input type="checkbox"/> PVC <input type="checkbox"/> YATC <input type="checkbox"/> SMC <input checked="" type="checkbox"/> LP DAAC <input checked="" type="checkbox"/> GSFC <input type="checkbox"/> LaRC <input type="checkbox"/> NSIDC <input type="checkbox"/> Other:						
29. Board Comments:			30. Work Assigned To:		31. CCR Closure Date:	
32. SCDV CCB Chair (Sign/Date):			Disposition: <input checked="" type="radio"/> Approved <input type="radio"/> App/Com. <input type="radio"/> Disapproved <input type="radio"/> Withdrawn			
Benzel Floyd 03/15/2006 11:06:52			<input type="radio"/> Fwd/ESDIS <input type="radio"/> Fwd/ESDIS ERB			
33. EDF CCB Chair (Sign/Date):			Disposition: <input type="radio"/> Approved <input type="radio"/> App/Com. <input type="radio"/> Disapproved <input type="radio"/> Withdrawn			
			<input type="radio"/> Fwd/ESDIS <input type="radio"/> Fwd/ESDIS ERB			
34. ECS CCB Chair (Sign/Date):			Disposition: <input checked="" type="radio"/> Approved <input type="radio"/> App/Com. <input type="radio"/> Disapproved <input type="radio"/> Withdrawn			
Benzel Floyd 03/15/2006 11:15:24			<input type="radio"/> Fwd/ESDIS <input type="radio"/> Fwd/ESDIS ERB			
Print			Back			
Record: 14 of 60						
Form View						

Figure 4.3.2-72. Approved CCR

#### 4.3.2.6.4.2 Disapprove CCR Action

For a Disapprove CCR action, a brief comment must be entered into the “Comments” box then click the “Disapprove CCR” button. The Office Assistant will respond as shown in Figure 4.3.2-73.



**Figure 4.3.2-73. Confirmation of Disapproval Prompt**

Click the “Yes” button. The CCR is disapproved and the Office Assistant will respond as shown in Figure 4.3.2-74. Click the “No” button and no action will be taken.



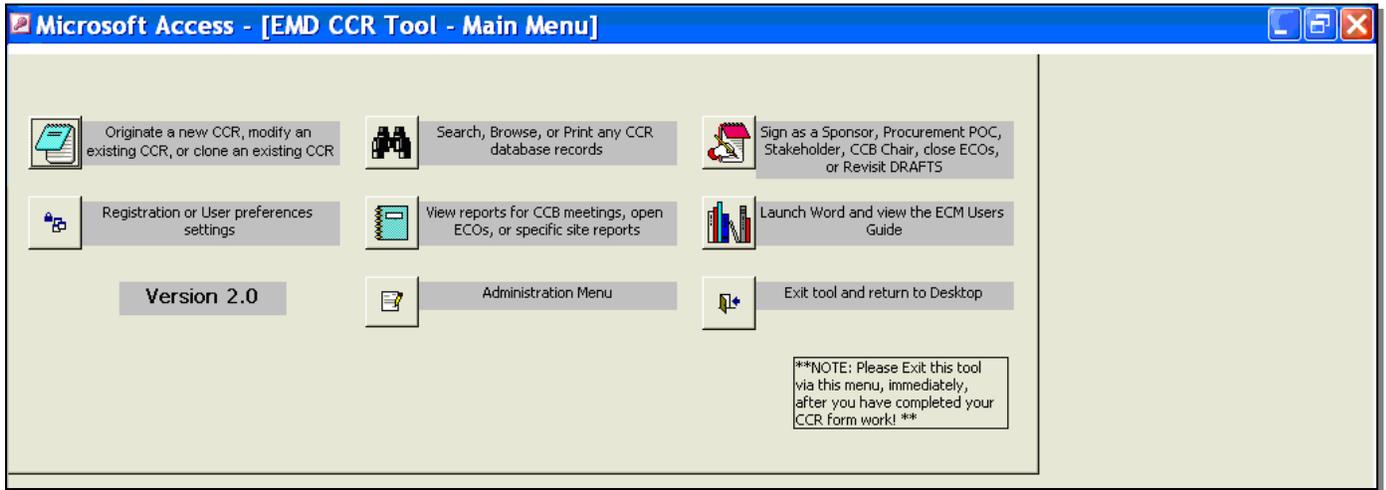
**Figure 4.3.2-74. Confirmation of a CCB Chair’s Disapproval**

Click OK on the disapproval message. The “Disapprove” box on the CCR Form page of the CCR will be checked. No further action will be taken on the disapproved CCR. Click the “Return” button on the <CCB Chair> CCB Chair Signature window and the CCR tool will take you back to the My CCB Chair Signature Menu. Click the “Return to My Work Menu” button on the My CCB Chair Signature Menu and the CCR tool will take you back to the My Work Menu. Click the “Return to main menu” button on the My Work Menu to get back to the Main Menu.

### 4.3.2.7 ECO Assignee Close ECO

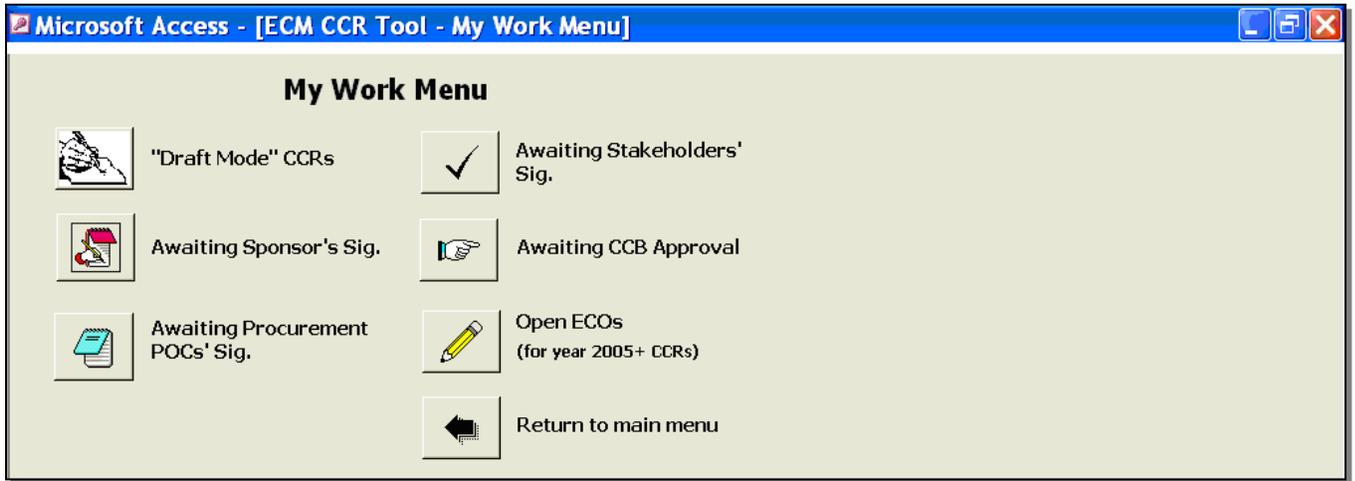
Once the CCR is approved, the Engineering Change Orders (ECOs) can be worked. The ECOs comprise the work of the CCR. Once a CCB Chairperson has approved a CCR and signed, an email is sent to the ECO Assignees, in order to notify them that the CCR has been approved and that the work of the CCR needs to be performed. When the ECO has been completed, the ECO Assignee should close the ECO. This section covers the instructions for electronically closing an ECO.

The ECO Assigned logs into the CCR tool and the Main Menu (Figure 4.3.2-75) is displayed.



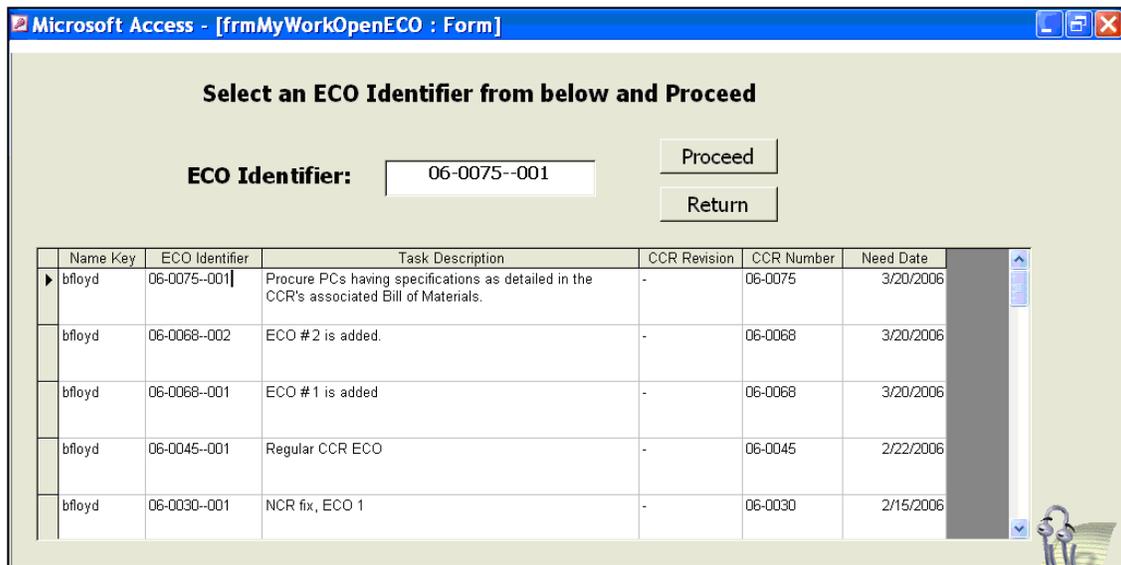
**Figure 4.3.2-75. Main Menu**

Click the “Sign as a Sponsor, Procurement POC, Stakeholder, CCB Chair, close ECOs - - -” button in the upper right corner. Upon clicking this button, the “My Work Menu” (Figure 4.3.2-76) is displayed.



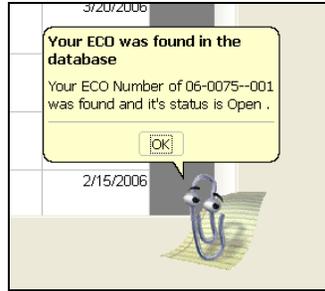
**Figure 4.3.2-76. My Work Menu**

Click the “Open ECOs” button on the My Work Menu and the frmMyWorkOpenECO form (Figure 4.3.2-77) is displayed. All of the current user’s open ECOs are displayed on the form.



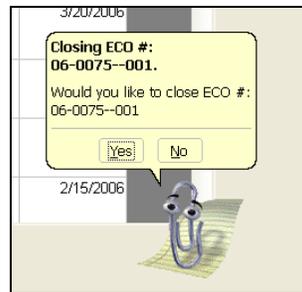
**Figure 4.3.2-77. List of Open ECOs**

Click the ECO identifier of the ECO (to be closed) in the ECO Identifier column and the CCR tool will copy the identifier into ECO Identifier box above the list. Click the “Proceed” button and the CCR tool displays the Office Assistant message as shown in Figure 4.3.2-78.



**Figure 4.3.2-78. Confirmation For Finding Open ECO**

Click the OK button on the Office Assistant and the CCR tool displays the next Office Assistant message as shown in Figure 4.3.2-79.

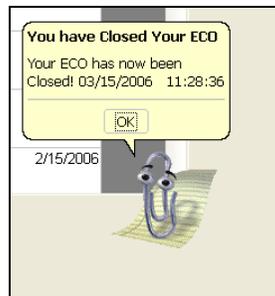


**Figure 4.3.2-79. Closing ECO Message Prompt**

Note, there are two possible responses, “Yes” and “No.” Section 4.3.2.8 (below) covers what happens if “Yes” is selected. Section 4.3.2.9 covers what happens if “No” is selected.

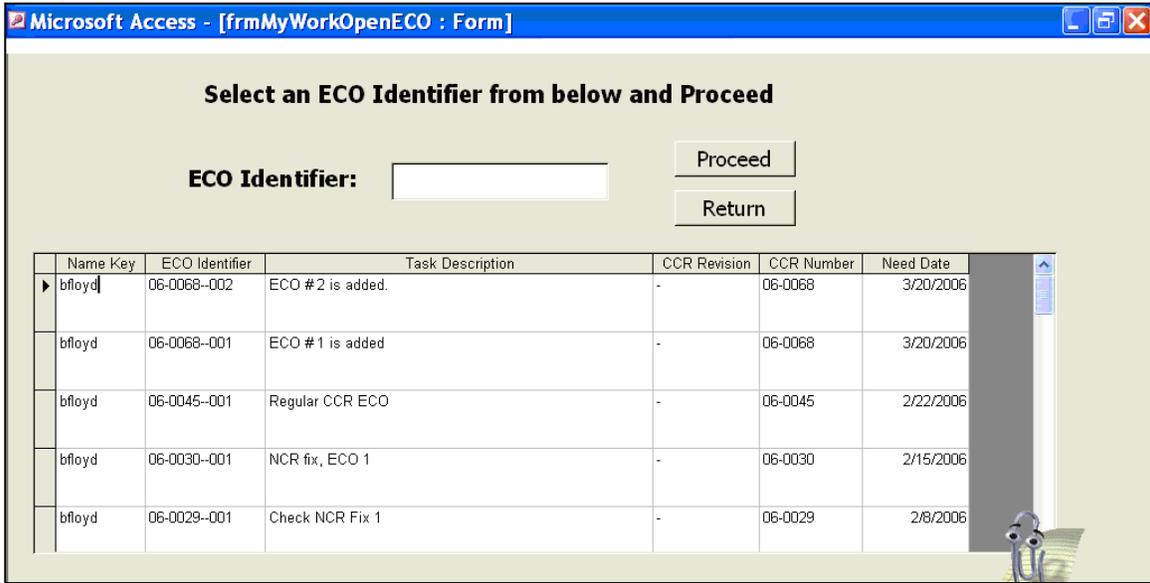
#### **4.3.2.8 ECO Assignee Close ECO**

Click “Yes” and the CCR tool responds with the Office Assistant message shown in Figure 4.3.2-80. At this point, the select ECO has been closed and the close date is been entered.



**Figure 4.3.2-80. Confirmation of Closed ECO**

The ECO is no longer listed in the list of ECOs (see Figure 4.3.2-81).

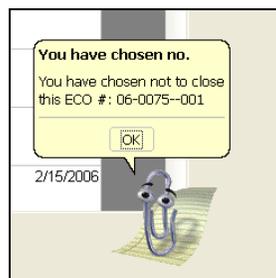


**Figure 4.3.2-81. List of Remaining ECOs**

Click the “Return” button to return to previous menu and then the “Return” buttons on the following menus to get back to the Main Menu.

#### **4.3.2.9 No Response to Close ECO**

If “No” is clicked, the CCR tool responds with the Office Assistant message shown in Figure 4.3.2-82. Click “OK” on the message prompt. The Office Assistant message is removed and no



**Figure 4.3.2-82. Choose Not To Close ECO Response**

action is performed on the ECO. Figure 4.3.2-80 is displayed. At this point, either an ECO identifier can be selected again or the “Return” button can be used to get back to previous forms and eventually to the Main Menu.

#### 4.3.2.10 Searching the CCR Database

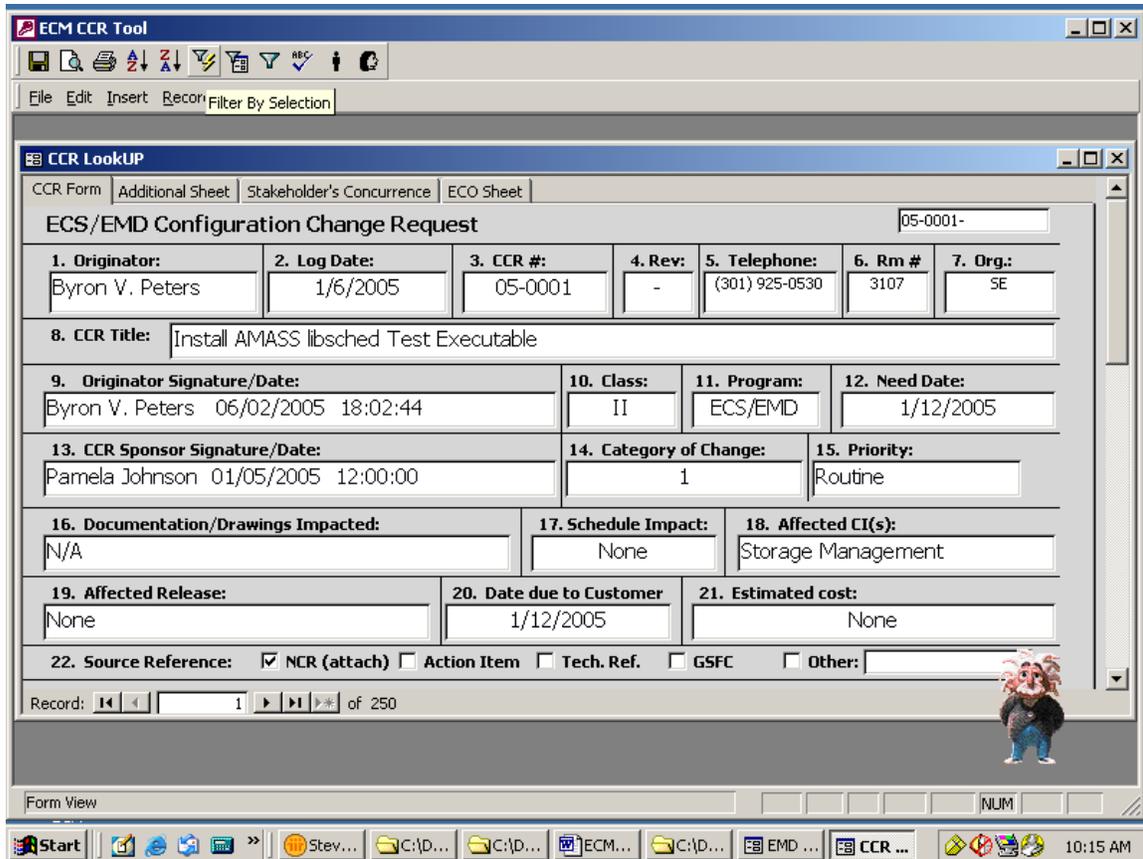
The Microsoft® Access Main Menu provides excellent search capabilities in conjunction with the EED CCR Tool’s tables. Select the binoculars icon within the Tool main menu (top right) to search across all CCRs that are in the Access database (the text to the right of the binoculars is **Search across entire CCR database for any information.**). Any CCR field may be searched, within the set of CCR form tabs: *CCR Form, Additional Sheet, Stakeholder’s Concurrence, or ECO Sheet.*

It is quite useful to search the database for any information about all CCRs. Microsoft® Access provides the functions for performing searches. It is easiest to show by example.

To obtain a particular CCR that is already in the database, perform the following steps:

- 1) Select the “Search across entire CCR database for any information.” button on the EED CCR Tool main menu. The button has a set of binoculars as an icon.
- 2) The tool will then launch the CCR form for the cover sheet for CCR 05-0001, which is the first CCR record carried within the tool. Each field can be searched for any character string, and, multiple field searches are also possible. To select CCR 05-0108, set the mouse cursor to the left of the 05-0001 text. The mouse wheel, when moved, will allow incremental movement across the database, but to get right to the CCR of interest, continue with steps below. Note that all of the CCR data can be readily viewed across all four Tabs mentioned above. Refer to Figure 4.3.2-83 on the next page.
- 3) In the Microsoft® Access menu bar at the very top of the window, note the three filter icons: Filter by Selection, Filter by Form, and Apply Filter. Positioning the mouse cursor on a Filter icon will cause some text from Access to appear to indicate the icon function. Three filter icons, which look like funnels, are present in the Access main menu bar once the binoculars button within the Access application is selected.
- 4) In the first Search example, the CCR 05-0108 will be obtained. After placing the mouse cursor in the CCR Form field “**3. CCR #:**”, select the Filter icon in the Access main menu bar that has the form next to the Filter icon (Filter by Form). Ensure that all of the fields are blank (use the delete key to blank any that are not), then place the mouse cursor in the “**3. CCR #:**” text box.
- 5) Next, type in the CCR of interest, in this case, 05-0108. Then select the Filter icon in the main menu bar. CCR 05-0108 will then be displayed. To return to the Main Menu, select the “Return to main menu” button on the bottom of the CCR page.

- 6) Similarly, and text can be searched within any of the CCR fields.
- 7) Next a search will be performed for all of the AMASS CCRs.
- 8) Select the binoculars in the Main Menu form.
- 9) Place the mouse cursor in the “**8. CCR Title:**” field, then select the Filter by Form icon on the Access main menu bar.
- 10) Delete any fields, then place the mouse cursor in the **8. CCR Title** text box. Enter the text \*AMASS\*. The wild card asterisks indicate that any text may exist before and after the AMASS string in any CCR Titles.
- 11) Select the Filter icon. Note that 5 records are returned. This is indicated at the bottom of the form, by the text “Record 1 of 5 (Filtered)”. The mouse thumbwheel can then be used to view each of the 5 returned AMASS CCRs.
- 12) Notice that the text searches are case insensitive. In this case, both strings AMASS and Amass provide hits.
- 13) All of the CCR tool form fields can be similarly searched.



**Figure 4.3.2-83. CCR Form Showing Tabs and Filter Controls**

### 4.3.2.11 CCR Reports

Several CCR Reports can be produced by the CCR tool. To get to the Reporting capability, click the “View reports for CCB meetings, open ECOs, or specific site reports” button on the Main Menu. Below is a brief description of these reports.

#### 4.3.2.11.1 New CCRs

The CCRs are those that are in the CCR database that have not been approved, are not Procurement type CCRs, and are not Draft CCRs. Selecting this button will provide options to Submit, Preview, or Cancel. Typically, Preview is selected just to see the list of new CCRs. A date field allows an Agenda Date to be selected. Currently, these Agenda Dates fall on Thursdays to support the SCDV CCB.

The Cancel button, when selected, simply returns the User back to the **CCB Agenda CCR Reports** menu.

#### **4.3.2.11.2 Deferred CCRs**

These CCRs have been presented to the CCB at least one time, but have been deferred for some reason. Typically, more time is needed to enable the CCR to continue.

#### **4.3.2.11.3 Approved Out of Board CCRs**

Most CCRs do not need to be presented at a CCB meeting, and can be approved out of board. An example is a Custom Code type CCR, which is generally approved the same day that it is written. This report function will show these CCRs. The period of time reflected in the report is from the **Begin Date** to the **End Date**, which can be varied according to the User's needs.

#### **4.3.2.11.4 SCDV/DAAC CCB Open ECOs**

Engineering Change Orders represent the work of the CCR. Once the CCR is approved, all of its associated ECOs become valid. ECO assignees should try to close the ECOs to the Due Date specified. These reports provide visibility to all approved CCRs' ECOs.

Open ECOs can pertain to the DAACs or Riverdale. This button, when selected, provides the User a choice to select either **Riverdale** or **DAAC**. Also an Agenda date can be entered. This date is used to determine the differences in the ECO due dates with the current date (Agenda date).

#### **4.3.2.12 CCR Tool Problem Reporting**

Anyone may create a new Trouble Ticket (TT) to document a problem with the tool. Use Seapine's TestTrack Pro tool to create a new TT. Before writing and submitting a new TT, do the following:

- 1) Review the ECM CCR Tool User's Guide to determine if you are executing the CCR tool properly. If not, follow the instructions in the guide.
- 2) Contact the CCR Tool Admin and ask for assistance.
- 3) Review the existing TTs and determine if your issue has already been reported. This is necessary to avoid duplicating an existing TT.

### **4.3.3 IBM® Rational® ClearCase® Baseline Manager (BLM)**

ClearCase BLM is a custom application specifically designed to serve as an efficient configuration management tool to manage the ECS Baseline. It generates and maintains records that describe what comprises baselined operational system configurations for the DAACs, ECHO, VATC, PVC, and the EDF2 hosts at the ECS Development Facility (EDF). These records identify baselined versions of hardware and software items as well as their assembly structures and interdependencies. ClearCase BLM keeps chronological histories of baseline changes and traceability of items to predecessor versions and system releases. In addition, the tool provides visibility to CCR approved baseline changes, as well as references to associated Release Notes documents.

ClearCase BLM does this by maintaining a set of ClearCase version-controlled elements along with scripts and internal information about how they relate. Control item records represent physical resources such as COTS software and host names assembled to form operational systems, as well as logical artifacts such as baselines and other configuration items. They are designated to relate system entities directly to discrete responsibilities and actions associated with configuration management of the system. ClearCase BLM's catalog of control items is called the /ecs/cm/CIDs directory record set. The ClearCase BLM tool is an enhanced ClearCase GUI that uses the power of the ClearCase code management system to manage the GUI scripts, records, and scripts used to manage the baseline. Baseline records can only be changed with approved CCRs.

The most significant relationship maintained among control items is product structure. Product structure is the term for the ClearCase BLM data constructs that define the ingredients – or bill of material -- for a site. Product structures have corresponding CCR approval dates that establish the baseline change effectivity dates, and they reference CCRs numbers, as well as Release Notes.

ClearCase BLM is installed only at the EDF in Riverdale, MD, where it is used by CM personnel to manage baseline data about resources deployed to all external ECS sites, including the DAACs, ECHO, as well as the three internal ECS sites, the PVC, VATC, and the EDF2 string (Evolution). The ECS Baseline Information System (EBIS) is available to the Riverdale staff at URL <http://pete.edf.rvl.us.ray.com/baseline/>. Also, each site has an EBIS that is served locally. These EBIS sites are served from LP DAAC e4iils01, ASDC l4iil01, and NSIDC n4iil01. Also, a site for ESDIS access is provided by [ebis.gsfc.nasa.gov](http://ebis.gsfc.nasa.gov). Each DAAC site manages access to their EBIS file systems, while ESDIS site access is provided by firerule rules in Riverdale. In the course of baseline updates, the data is replicated from “pete” to the other 4 EBIS servers. Each site offers a consolidated view of baseline data system-wide, as well as site-specific views. ClearCase BLM generates specific baseline reports that can be viewed, printed, or saved in a file. These reports are automatically formulated, posted to “pete”, and then replicated to the external servers.

### 4.3.3.1 Internal ClearCase BLM Data Constructs

The ECS baseline data for COTS S/W, COTS S/W patches, Operating Systems, O/S patches, data files, databases, ECS hosts and host functions, resides in ClearCase as “text\_file” elements. A default configuration specification is used to view the information, using the CM\_MASTER view tag name.

A variety of files and methods hold this information, which are explained in detail below. Note that the architecture of the data design portion of ClearCase BLM minimizes the number of steps to update the baseline, by either implementing new CCRs or correcting previously entered CCR data.

There are 10 data constructs described below. One or more constructs is referenced by scripts in order to generate the specific Baseline Reports.

#### 4.3.3.1.1 Control Item Identifiers

This describes the Control Item Identifiers (CIDs) for the ECS COTS S/W. The ClearCase directory that holds all of the CIDs is /ecs/cm/CIDs/. Within this directory are ClearCase text\_file elements. Text\_file elements are used because they can be directly edited, and they require the least amount space for storage.

Each CID is a Comma Separated Variable (CSV) formatted file, which means that each of the fields uses a comma (,) as a delimiter. This format was chosen since the files can be readily exported/imported with Microsoft Windows products, such as Excel. The record format for each CID is contained on one line, and consists of 16 items, described below:

- 1) ECS NAME - This is the name of the ECS COTS S/W, using a familiar nomenclature. The ECS NAME may contain 30 characters or less, with no embedded commas. Other restricted characters are: !, @, #, \$, %, ^, &, \*, ~, `, ?. These characters have special meaning in the UNIX Operating System.
- 2) COMMODITY CODE – A character used to convey the procurement nature of the COTS product. This field is 1 character, and can be a “P” to mean Purchased, and “F” to mean Freeware, an “S” to mean Shareware, or a “-“ to mean “unknown”. These four characters are the only characters known to the algorithms that reference this field.
- 3) RESP ORG – This is the Responsible Organization, or the group which has the most knowledge regarding the use and placement of the product. A maximum of 6 characters may be used to represent the RESP ORG item within each CID record. A “-“ indicates that the RESP ORG is unknown.
- 4) VARIANT – This item may use at most 10 characters, and is the host O/S that would have this COTS S/W installed. Current variants are “Solaris”, “Linux”, “Windows”, OpenBSD, MacOS, and “AIX”.
- 5) MFR/DEV NAME – This is the manufacturer or developer of the COTS S/W. A maximum of 30 characters can be used to represent the name of the manufacturer or developer. A “-“ indicates that the MFR/DEV NAME is unknown.

- 6) VERSION – This is the version of the COTS S/W. Specifically, the version nomenclature used by ClearCase BLM is the manufacturer nomenclature. The manufacturer nomenclature may contain “minor” version information that must be represented in the baseline data for accurate tracking and identification. A maximum of 21 characters can be used to represent the VERSION.
- 7) PRINCIPAL DIRECTORY – A maximum of 50 characters conveys the installation location. Nearly all COTS S/W resides in multiple sub directories. To keep the installation location reasonable, the highest sub directory is represented. All of the COTS S/W must reside at the PRINCIPAL DIRECTORY or lower.
- 8) CONTROL ITEM ID – A Control Item Identifier is a 9 character string which uniquely identifies a record with the /ecs/cm/CIDs ClearCase BLM directory. The first character is always a “b”, and is always followed by an 8 character integer. The storage of this value in the record, which is also the file name within the /ecs/cm/CIDs directory, provided redundancy. All CIDs range from b00084000 through b00086000, with CIDs above b00085000 being dedicated for ECHO.
- 9) COMMENT – In order to provide further information, a maximum of 60 characters may be used. Commas may not be used, as well as the character set described in the ECS NAME field in 1).
- 10) CRITICAL ITY – Each COTS S/W is either Critical or Not Critical. A Critical COTS S/W product is required in order that the custom software may operate on the installed host. The CRITICALITY is either “YES”, “NO”, or “-“ for unknown. This field must be equal to or less than 3 characters in length.
- 11) ITEM SUBCLASS – A maximum of 7 characters may represent the item subclass. Typical subclasses are “program” or “OS”, and describe a major category in which the COTS S/W belongs. Nearly all CIDs are either “program” or “OS” (Operating System). A “-“ indicates that the ITEM SUBCLASS is unknown.
- 12) REF CODE – A REF CODE may be at most 1 character, and is a Reference Code. A “-“ indicates that the Reference Code is unknown.
- 13) CSCI – Computer Software Component Identification – A CIDs CSCI may be at most 5 characters. A “-“ indicates that the CSCI is unknown.
- 14) RELEASE NOTES – Usually, but not always, a COTS S/W product uses a Software Release Notes document to provide installation instruction, installation hosts, and a variety of other pieces of information. The format of this record may use a maximum of 16 characters. A typical Release Notes field looks like “914-TDA-349”. A “914-TDA-xxx” is used if the Release Notes is not applicable.
- 15) CCR – Configuration Change Request. As any baseline change requires a CCR, it is useful to contain this number in the CID record. A CCR may contain up to 7 characters, but usually 6 characters are sufficient. A CCR looks like “09-0123”. Revision A to CCR “09-0123” would be “09-0123A”.
- 16) EFFECTIVITY DATE – For the ClearCase BLM tool, the effectivity date is the CCR approval date. This date signals that the change request is approved. The EFFECTIVITY DATE contains 8 characters, and is of the format mm/dd/yy, e.g., “03/20/09”.

#### 4.3.3.1.2 Current Hosts List

The Current Hosts list contains all of the ECS baseline hosts. The ClearCase path is “/ecs/cm/host\_data/current\_hosts”. The UNIX file date for this file is the timestamp to indicate when the file was last changed.

There are as many lines to the file as there are current hosts. There are four fields within each record. Column 1 is the ECS host name. Column 2 is the ECS sub system to which the ECS host belongs. Column 3 is the CSCI for the ECS host, and column 4 is the ECS host major function.

- 1) ECS Host Name – This is the string returned from “uname -n” while logged onto the ECS host. Host name formats are 7 letters, generally. The first letter designates the ECS site, “e” for EDC, or LP DAAC, “c” for ECHO, “l” for LaRC, or ASDC, “n” for NSIDC, “p” for PVC, “t” or VATC, and “f” for EDF2. Also, the letters “c”, “d”, “f”, and “i” designate the Riverdale Linux Evolution hosts. (e.g., “c4cbl01”). ECHO host names do not follow ECS naming conventions, and are alphabetic strings from between 3 and 10 characters.
- 2) ECS Host Subsystem – This is the ECS functional component. The sub system name is three letters followed by the word “Subsystem”. The second column is always exactly 13 characters long, e.g “AST Subsystem”.
- 3) CSCI – A specific set of up to 5 characters which identify the Computer Software Component Identification.
- 4) ECS Host Major Function – Each ECS host exists for a purpose. The purpose is stated in column 4 of this construct, and may contain a maximum of 30 characters.

#### 4.3.3.1.3 Data List

There are two entities that are present in the reports, “data” and “databases”. The Data List construct exists to provide the “data”. This construct path is /ecs/cm/BLM/host\_data/data, and is a Clearcase text\_file element that is directly editable. It is a CSV formatted file.

Each record (line) within this file is comprised of 7 fields:

- 1) ECS Host Name – This is the name of the hosts, e.g., “e4eil01”. The name can be a maximum of 10 characters.
- 2) Data Name – This is the data that is conveyed by the Construct. A typical data name is “Production data”, or “Ingest files”. The Data Name can have a maximum of 50 characters.
- 3) Data Version – This is the version of the Data Name. This can be at most 7 characters, and represents the major version of the data, such as “6A”.
- 4) Data Construct Type – For this construct, the fourth field must always say “data”.
- 5) Data CID – Data Control Item Identifier. This field has a CID format entry, and has to be exactly 9 characters in length.
- 6) Data CSCI – Computer Software Component Identification – A CSCI may be at most 5 characters.
- 7) Data Responsible Organization – The cognizant ECS organization for the data; the owner of the data. This field may be a maximum of 6 characters.

#### 4.3.3.1.4 Databases List

There are two entities that are present in the reports, “data” and “databases”. The Databases List construct exists to provide the “databases.” This construct path is /ecs/cm/BLM/host\_data/databases, and is a Clearcase text\_file element that is directly editable. It is a CSV formatted file.

Each record (line) within this file is comprised of 8 fields:

- 1) ECS Host Name – This is the name of the hosts, e.g., “e4eil01”. The ECS Host Name can be a maximum of 10 characters.
- 2) Database Name – This is the data that is conveyed by the Construct. A Database Name example is “Remedy DB”. The Database Name can have a maximum of 50 characters.
- 3) Database Version – This is the version of the Database Name. This can be at most 7 characters, and represents the major version of the database, such as “7.22”.
- 4) Database Construct Type – For this construct, the fourth field must always say “database”.
- 5) Database CID – Database Control Item Identifier. This field has a CID format entry, and has to be exactly 9 characters in length.
- 6) Database Code – A single character, either blank, or the letter “T”.
- 7) Data CSCI – Computer Software Component Identification – A CSCI may be at most 5 characters.
- 8) Data Responsible Organization – The cognizant ECS organization for the database; the owner of the database. This field may be a maximum of 6 characters.

#### 4.3.3.1.5 Hosts’ Functions List

In the ClearCase BLM 920-TDx-002 Hardware/Software Map reports, there may be a few lines, just after the host name, that describe more host attributes, or functions, such as ” FLEXnet License Server”, or “NIS Master Server”. This construct path is /ecs/cm/BLM/host\_data/host\_functions, and is a Clearcase text\_file element that is directly editable. Each record consists of two column groupings.

Each record (line) within this file is comprised of the following:

- 1) ECS Host Name – This is the name of the host, e.g., “e4eil01”. The ECS host name can be a maximum of 10 characters. The ECS host name must begin in column 1.
- 2) Host Function – This is a text string with a maximum of 50 characters. This descriptive text provides information regarding host functionality. The Host Function text must begin in column 14, in order for the data to align correctly in the reports. Embedded commas are permitted in this construct.

Note that the spacing of the host name and the text appears in the record lines exactly as in the output 920-TDx-002 reports. No reformatting of the data is performed in the generation of the reports.

#### 4.3.3.1.6 Control Item Identifier Type List

For the 910-TDA-003 report, another piece of information is required. This is the category to which the CID belongs. Examples of these CID functional groupings are: Compilers, Editing & Viewing, Operating Systems, and the like.

Each record of this file consists of two column groupings:

- 1) Functional Group Name – The first character of the string must be placed in column 1. The string length may be up to 38 characters.
- 2) CID – Control Item Identifier number. This number must exist with the /ecs/cm/CIDs directory, described above as Data Construct 1. The 9 character CID must begin in column 39.

#### 4.3.3.1.7 Operating System Patch Sets

Patch\_sets are described in this section. These are sets of information, residing in the directory /ecs/cm/BLM/patch\_sets/. There are about 20 patch sets that are named according to their function. A patch set name may be up to 30 characters in length. An example Patch Nomenclature name is “RedHat\_5.2\_core”. Each line within a patch set (record) is comprised of 6 column groupings, and are described below:

- 1) Patch Nomenclature – This is a name of the patch set. The string must start in column 4, and may use up to column 27, for a total maximum character length of 24 characters.
- 2) Patch Description – A comment-like character string that adds information value and detail to the Patch Nomenclature. This data must start in column 29 and be complete by column 83 (or a maximum string length of 55 characters).
- 3) Patch reference – With each patch release, there is a related Release Notes Technical Document, e.g., 914-TDA-430, or a related Patch Technical Document, such as 911-TDA-022. This field begins in column 85 and is 16 characters in length (to column 101).
- 4) CCR – This is the CCR number which authorized the patch set’s placement in the ECS baseline. Columns 107 through 114 house the CCR number.
- 5) Release Notes tech doc - With each patch release, there is a related Release Notes Technical Document, e.g., 914-TDA-430. This field begins in column 118 and is 16 characters in length (to column 133).
- 6) ECS Subsystem – Up to three characters long, this field relates the patch information to the cognizant sub system, such as “IDG”.

Note that the column positions are critical; the generated 920-TDx-014 Patch Maps take these records and directly import them into the records with no reformatting.

With the introduction of the Linux Operating System, all RPMs (Package Manager) are now baselined. Please reference the new Technical Document 911-TDA-022, for example, to view the Red Hat Linux Release 5 update 2 method for patching the Operating System.

#### 4.3.3.1.8 Configuration Change Request (CCR) Data

The ClearCase BLM Tool relates all change requests to the items changed, including an effectivity date. This date is the effective date for which the change pertains. CCR information is stored in Data Construct 8. This construct exists as directory /ecs/cm/CM. Under this directory are sub directories, one for each year for the CCRs. For the year 2009, the sub directory name is 2009\_CCRs. So any 2009 year CCRs are found in the path:

/ecs/cm/CM/2009\_CCRs/.

For each CCR, another sub directory exists, which consists of the last four digits of the CCR, or five digits if the CCR has been revised, like “0123A”. The first two digits of the CCR represent the year. So for the example of the CCR 09-0123A, a directory /ecs/cm/CM/2009\_CCRs/0123A/ exists. Data Construct 8 is probably the most important of all the Data Constructs, as it provides the relations of the CIDs to the ECS hosts. For each CCR sub directory, there are the following sub constructs:

- 1) “CID\_map” file – This file, always named “CID\_map”, provides the relations of the Machine Impacted file(s) (MI) to the CIDs. It always has at least one line, but may contain more than one line, as a single CCR may relate more than one CID to a host set (MI) file. It has two columns. The first column is the name of an “MI” file, up to 20 characters in length.
- 2) “MI” file(s) – This is an abbreviation for the “Machines Impacted” file. The source of this information is derived from the CCR’s Release Notes document (914-TDA-xxx). Within the Release Notes document is a section that describes *which hosts* should receive *what COTS S/W*. Most CCRs have a CID\_map file with only one MI and CID.
- 3) CCR pdf file – This file is the Portable Data Format (Adobe) CCR.

#### 4.3.3.1.9 ClearCase BLM Sequencer

A single file, “/ecs/cm/BLM/scripts/Sequencer”, controls which CCRs are applied to the baseline, and in what order. This editable yet executable file provides the mechanism for relating the application of CCRs, their MI files and CID\_maps, to populate what is known as the “dartboard” area. The first record in this file applies the first CCR to a “null,” or empty baseline. The last record applies the last CCR to the “dartboard”. The format of each record of this file is:

- 1) Function Call – This is always the same string, “/ecs/cm/BLM/scripts/Implement\_CCR”. This function applies the first argument of the call, which is the CCR, to the “dartboard”.
- 2) CCR – Configuration Change Request. A number that identifies a change to a baseline. It authorizes the application of a COTS S/W product to an ECS host or set of ECS hosts.
- 3) Comment 1 – This comment is the “function”, or COTS S/W name, of the CCR.
- 4) Comment 2 – The CCR approval date (Effectivity Date)
- 5) Comment 3 – This is the Release Notes Tech Doc number, which is referred to in the CCR.

#### 4.3.3.1.10 ClearCase BLM Dartboard

The ClearCase Derived Objects, located within the “/ecs/formal/BLM/dartboard” directory, comprise the Dartboard. This directory contains one file representing the collective assembly of all applicable COTS S/W products as authorized by approved CCRs for each ECS host. COTS S/W application is performed by using file concatenation. The first CCRs (earliest) show up first in these dartboard files. The last applied CCR shows up as the last record in these files.

Each dartboard file name is an ECS host, like “e4eil01”.

The format of each line in a host dartboard file is as follows:

- 1) ECS host name – This is the ECS host name.
- 2) Authorizing CCR – This is the CCR from the Sequencer file.
- 3) BLM Tool user – This is an authorized User of the ClearCase BLM tool.
- 4) Timestamp – This is the time at which the CCR was applied to the file in the dartboard.
- 5) CID Echo – This is the entire contents of the CID record, as specified by the CCR’s CID\_map, MI files, and CID reference.

Note that Data Construct 10 is a ClearCase derived object, and is not “checked-in” like the first Data Constructs. The dartboard directory, in conjunction with the “/ecs/cm/BLM/host\_data/current\_hosts” file, is used to populate the 920-TDx-002 Hardware Software Map Technical Documents.

#### 4.3.3.2 ClearCase BLM Graphical User Interface (GUI)

The ClearCase BLM tool makes use of an OSF Motif graphical user interface. This provides convenient drop down menus, and provides a convenient method for dynamically formulating the contents of the drop down menus. The ClearCase BLM tool has been ported to the Linux operating system. It may be launched on Linux host “c4cbl01.” The GUI now uses “emacs” for certain text editing windows, rather than Solaris 8 “textedit.”

##### 4.3.3.2.1 ClearCase BLM “New CCR” GUI Drop Down Menu

Use the “New\_CCR” ClearCase BLM Tool GUI to enter data associated with newly approved CCRs. The design of the tool and GUIs have been optimized to minimize the time needed to process approved CCRs. Refer to Figure 4.3.3-1 to view the New CCR drop down menu.

The first step is to enter the new CCR number. Syntax checking is performed to ensure that the entered CCR number is of the correct format. See Figures 4.3.3-2 and 4.3.3-3 for the New CCR Drop Down Menu and Entering a New CCR Number screens.

The next set of steps taken depends on the nature of the CCR. A COTS S/W CCR will only affect the 920-TDx-002 Maps for instance, while O/S patch changes will affect the 920-TDx-014 reports.

For COTS S/W changes, a new CID usually needs to be created. Use the “Construct new CID” menu item in the “New\_CCR” main menu bar to construct the new CID. Scripts have been

written to assist this step. Usually an existing CID can be copied, and only minor adjustments made, such as the CCR approval date or Release Notes document number, and usually the COTS S/W version number. This CID is then checked in to the CIDs directory (/ecs/cm/CIDs), and is later referenced in the CID\_map file for the new CCR. When a CID becomes obsolete, it is moved to the /ecs/cm/CIDs/OLD\_CIDs/ directory and is removed from the /ecs/cm/CIDs/ directory. When the baseline is built later, each CID in the /ecs/cm/CIDs/ directory will have a corresponding entry in the 910-TDA-030 Where-Used Report.

Also, a Machines Impacted (MI) file will need to be created. This MI file and the new CID will be associated in the new CID\_map file. Depending on the CCR, more than one MI file linking another new CID may be required. Perform these steps as needed, then check in the CCR as the last step. This step will check in the CID\_map file, any new MI files, and finally the CCR itself.

The Sequencer, depicted in Figure 4.3.3-1 below, is then updated. This figure shows the last entries of the Sequencer. Usually the CCR is added to the end of the Sequencer. The entries are placed according to approval dates. Sometimes, earlier entries or CCR constructs may need to be removed, so that more than one version of a COTS product will not appear in the 920-TDx-002 reports. The Sequencer is internal to the tool and is not exported.

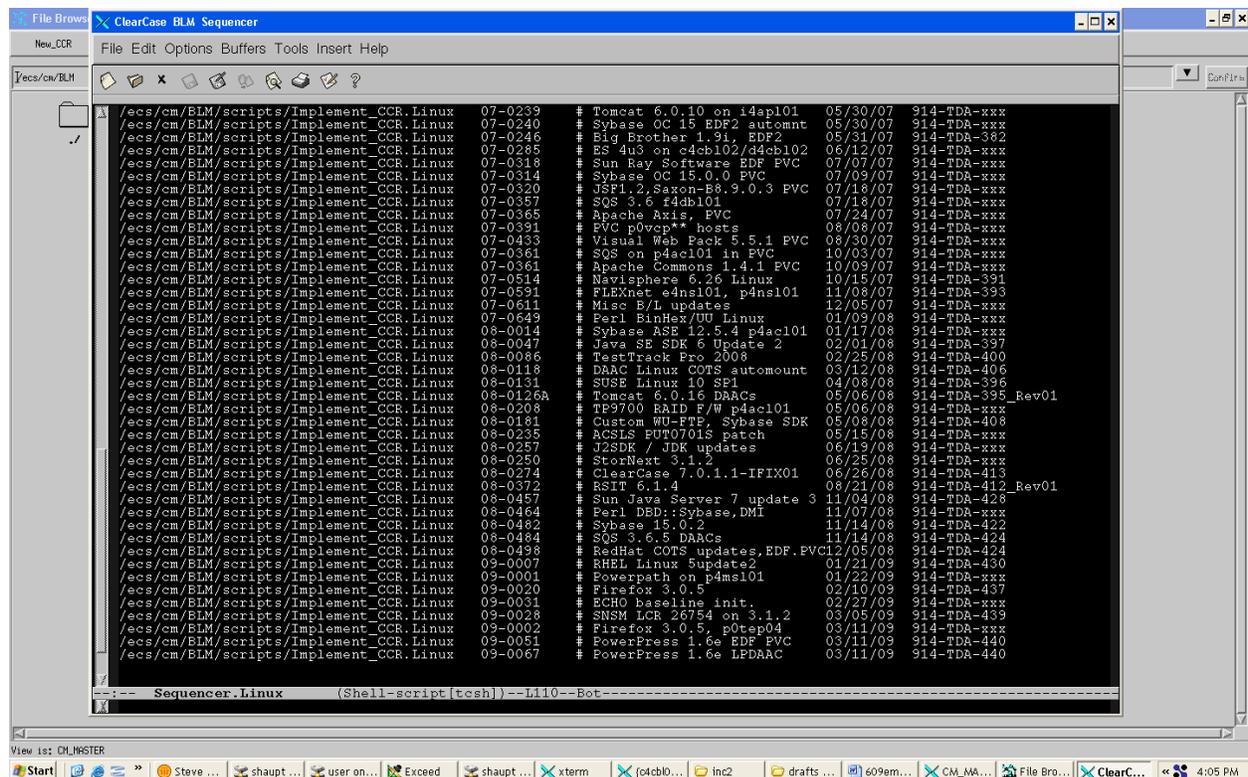


Figure 4.3.3-1. The ClearCase BLM Internal Sequencer

Other less frequently used data may need to be altered, and again this depends on the nature of the CCR. To remove an ECS host for example, select the “Update Current ECS Hosts” menu line item, and delete the ECS host. If a new CID is added to the database, its function must also be added using the “Update CID Functions” line item.

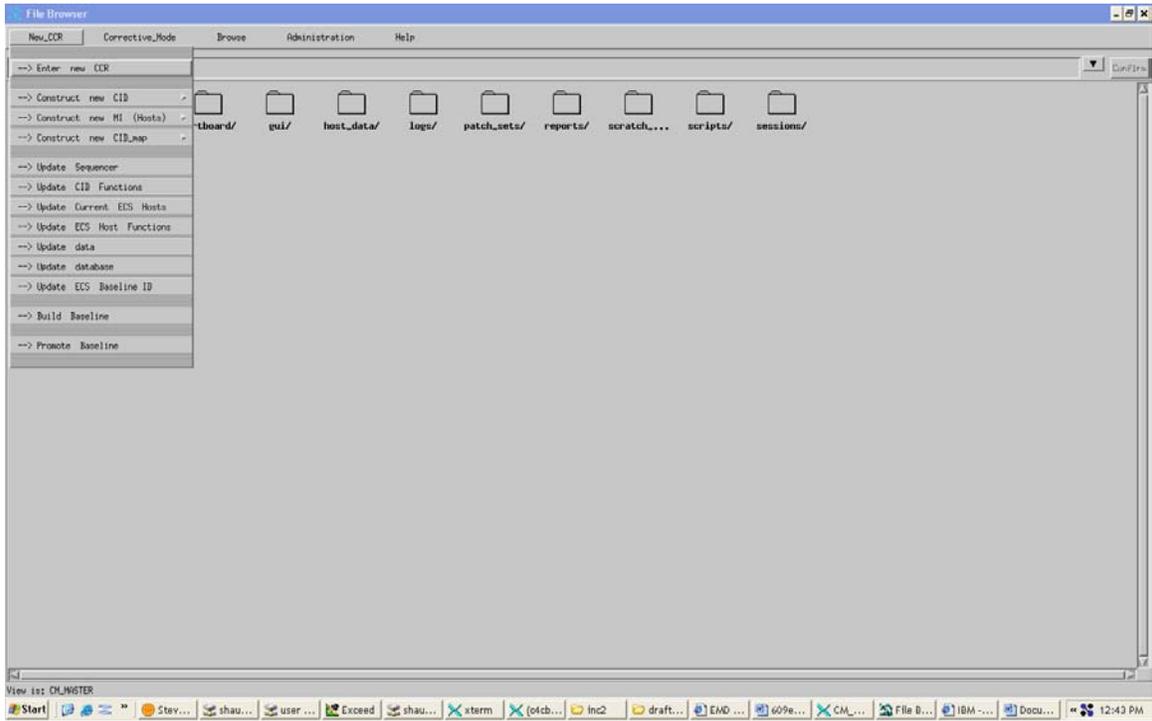
Selecting the “Build Baseline” line item will generate all of the ClearCase BLM reports, and selecting the “Promote Baseline” line item will place all of the reports in the proper directories on “pete”, “e4iil01”, “14iil01”, “n4iil01”, and “ebis” for ESDIS

The “Build Baseline” function will generate all the new baseline technical documents and place them on the primary EBIS server for review. Each ClearCase BLM generated technical document has the normal Current and Previous directories. The Current directories hold the Current version and the Previous directories hold all of the previous versions. The new technical documents are placed in the QA\_Check directories for review. This ensures that there is a step to ensure correctness before the Promote Baseline step. The “Build Baseline” step generally takes 15 minutes to complete.

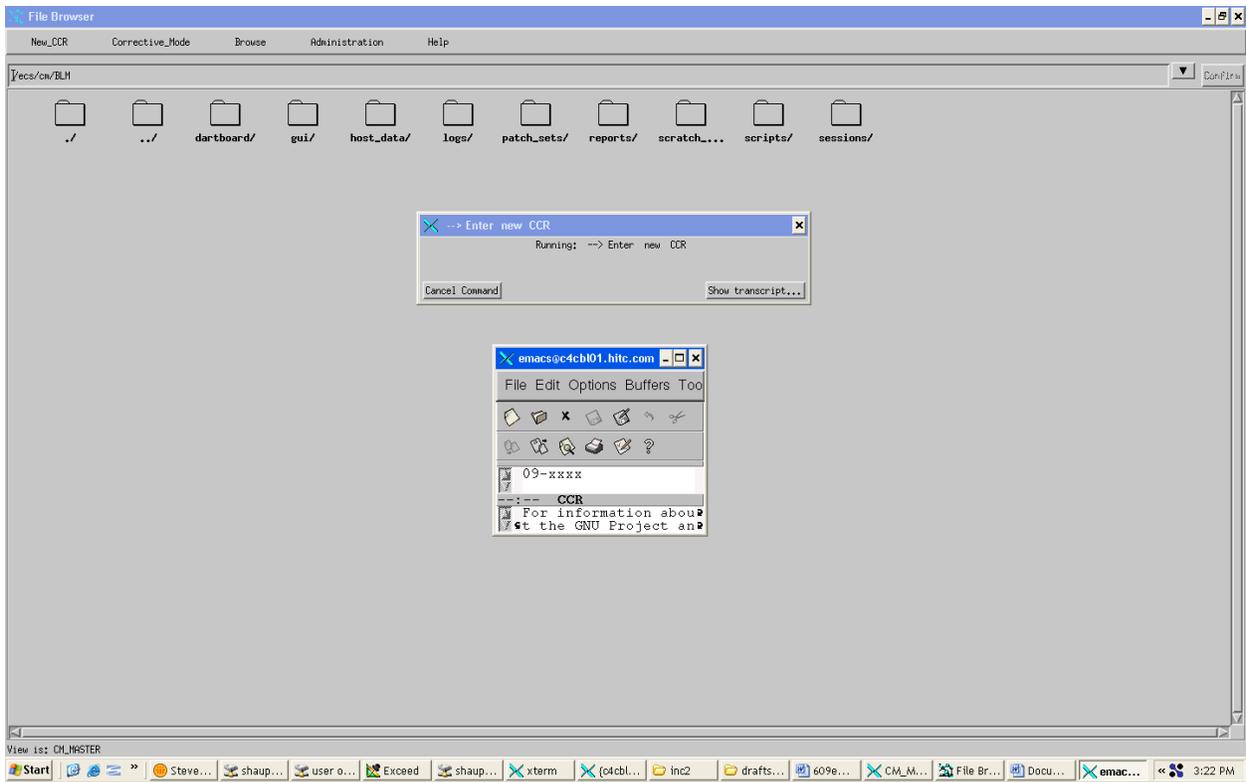
The “Promote Baseline” function then moves the newly generated versions into the Current directories, from all of the QA\_Check directories. Secure shell scripts are then executed to place the new files at the 4 remote sites, including LP DAAC, ASDC, NSIDC, and the EBIS server for ESDIS. The previously Current versions are moved to the Previous directories. The “Promote Baseline” step takes 6 minutes to complete.

See the Figure 4.3.3-2 below. The last two items, when selected, execute the “Build Baseline” and “Promote Baseline” steps. Timestamped log files are kept in the /ecs/cm/BLM/logs/ directory and should contain no errors.

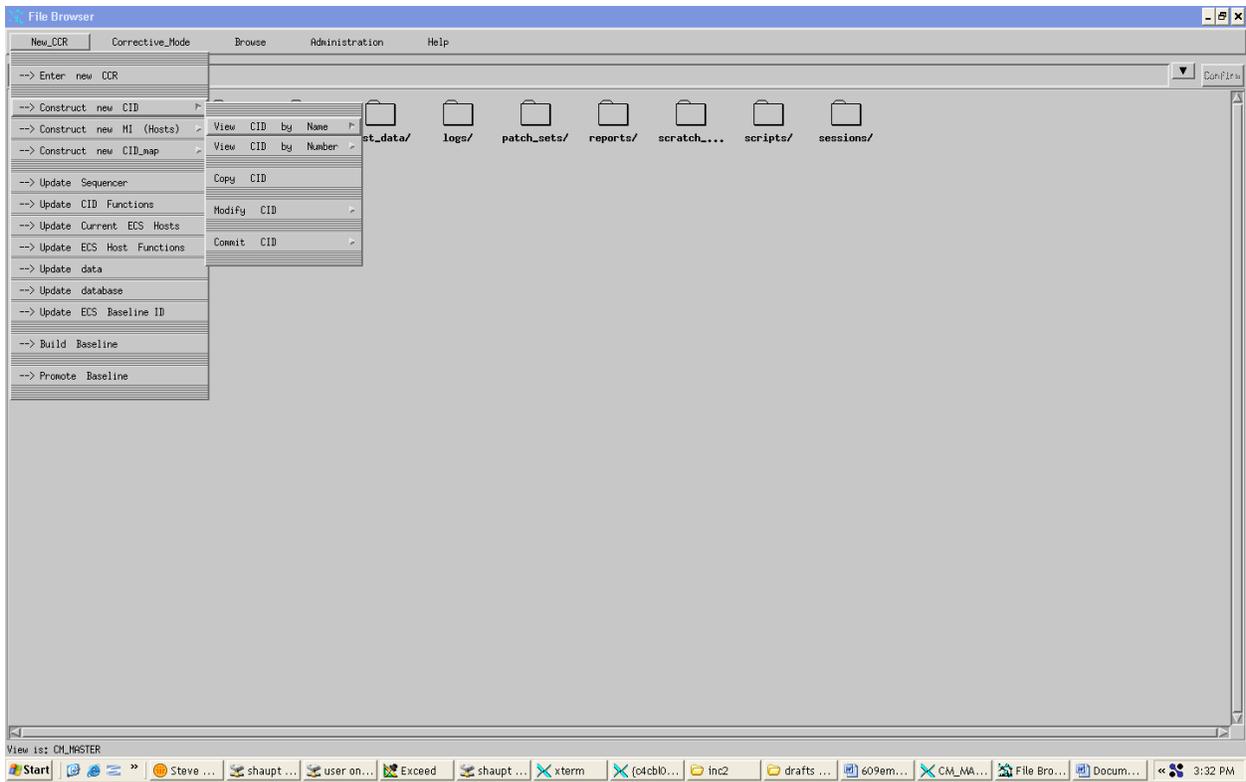
Figure 4.3.3-3 and 4.3.3-4 show the screens for new CCRs. Figure 4.3.3-5 shows the View CIDs by Name Drop Down Sequence.



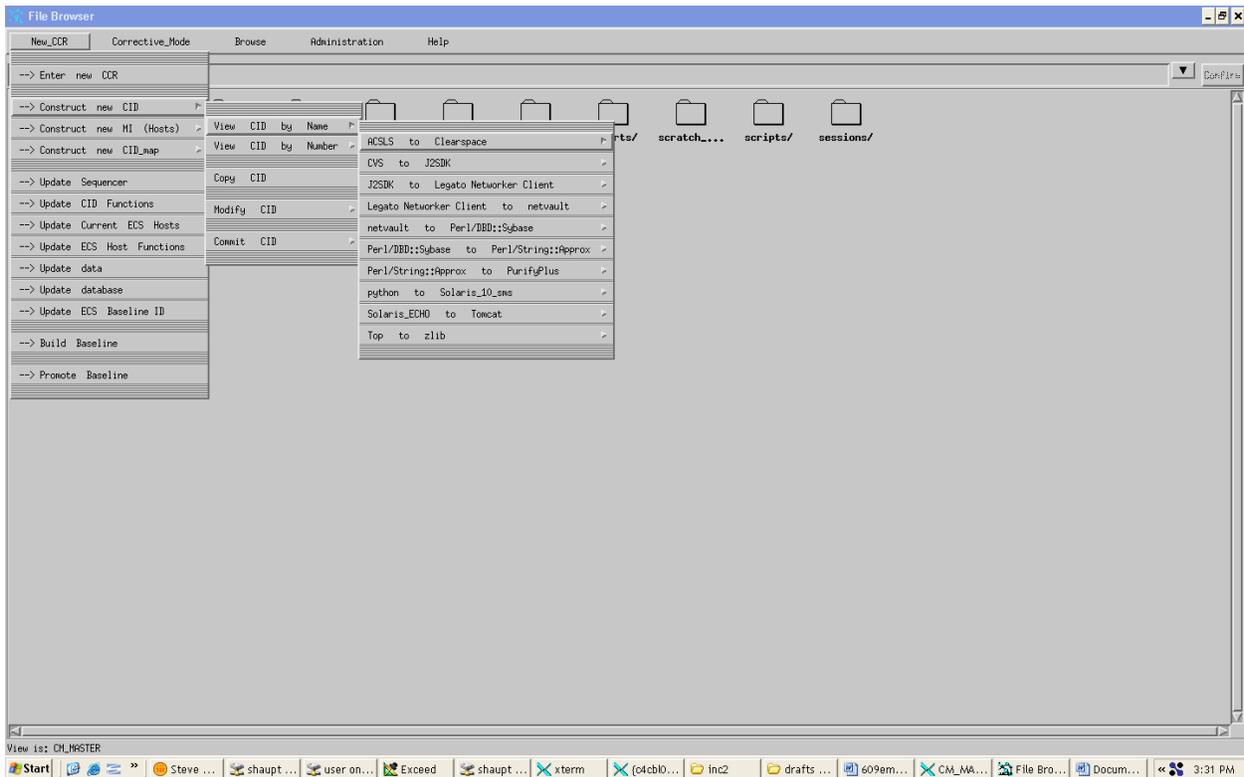
**Figure 4.3.3-2. New CCR Drop Down Menu**



**Figure 4.3.3-3. Entering a New CCR Number**

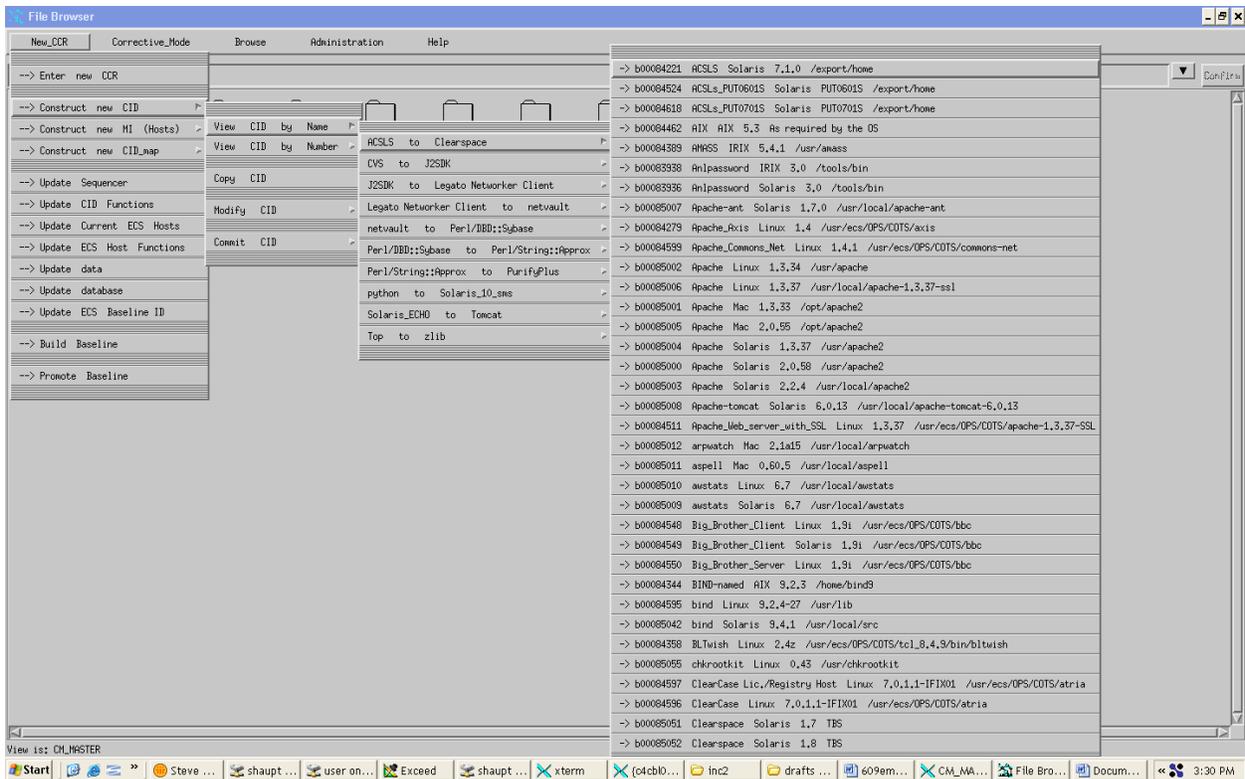


**Figure 4.3.3-4. New CCR Drop Down with Construct New CID Selected**



**Figure 4.3.3-5. View CIDs by Name Drop Down Sequence**

Visibility to the /ecs/cm/CIDs/ directory is by selecting “New\_CCR” on the tool’s main menu bar, then “Construct new CID”, then “View CID by Name”. The next menu is generated at tool launch, and allows the user to view a CID. Figure 4.3.3-6 below shows the CIDs for the first group. Selecting a particular CID will then show the complete CID record. This assists in implementing new CCRs. For each CID, the menu shows the CID number, COTS software name, version, and installation path, which is a subset of the information contained in the CID record.

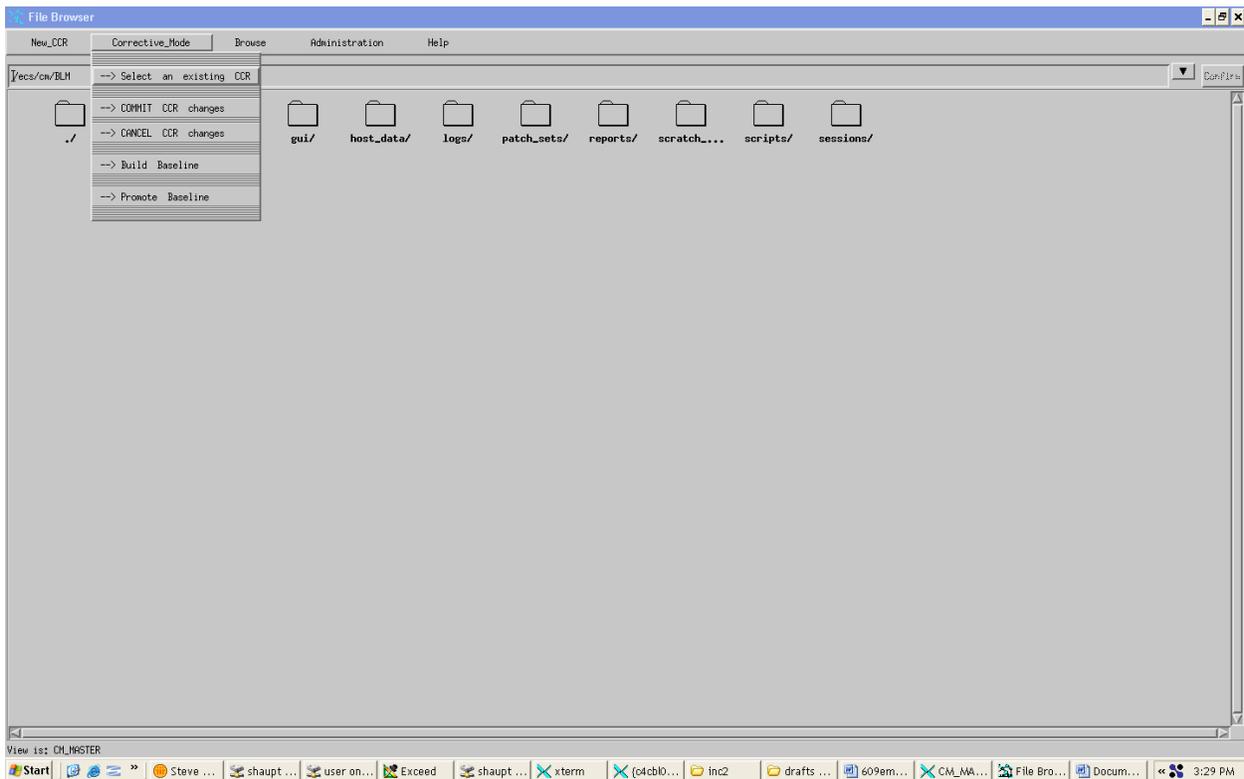


**Figure 4.3.3-6. CID Selection Drop Down**

#### 4.3.3.2 ClearCase BLM “CORRECTIVE MODE” GUI Drop Down Menu

Figure 4.3.3-7 shows the ClearCase BLM Tool mode drop down that is used for correcting information that has already been entered for an approved CCR. The basic steps are:

- 1) Select an existing CCR number
- 2) Alter the data
- 3) Either COMMIT the changes, or CANCEL the changes
- 4) Build the baseline, incorporating the changed data, if COMMITed
- 5) Promote the baseline, after ensuring that the changes were made as intended by reviewing the QA\_Check directories on the Riverdale EBIS.



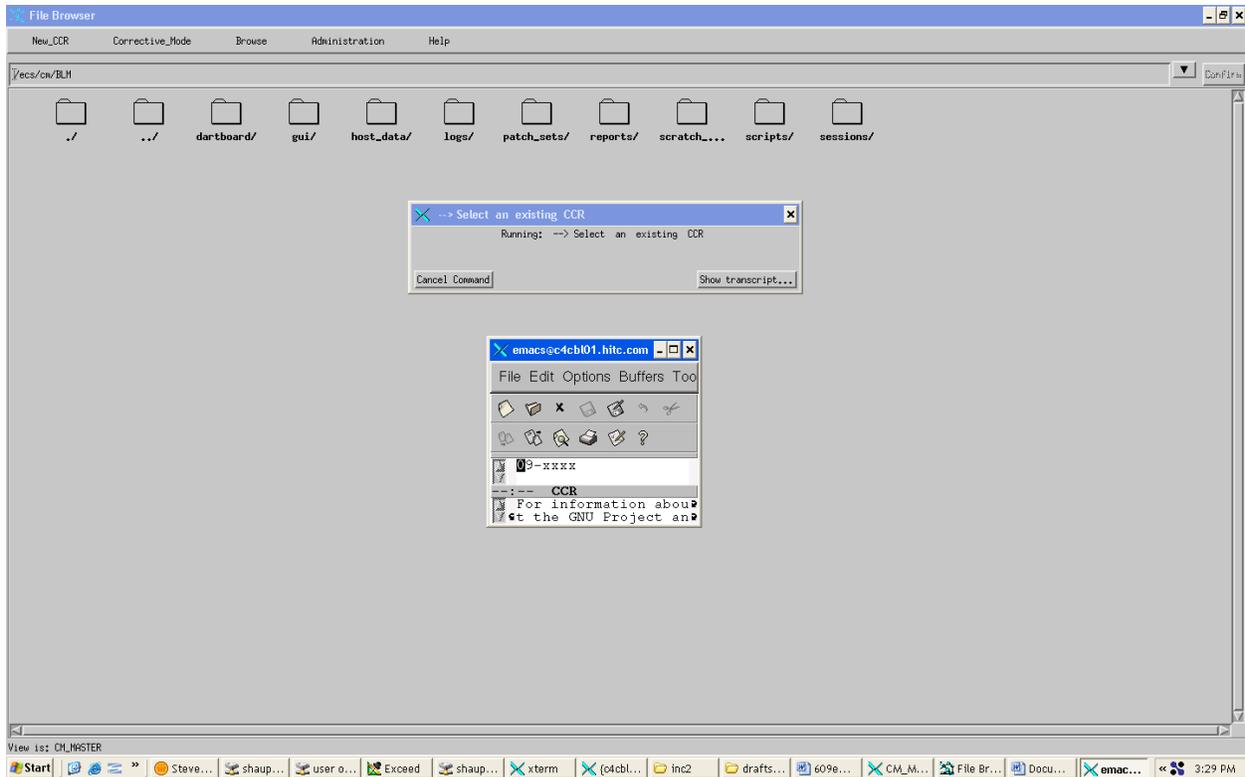
**Figure 4.3.3-7. Corrective Mode Drop Down Menu**

An error will be returned in the build baseline log file if the CCR does not exist in the ClearCase data structures.

The design intention of this mode was to allow corrections to data that had already been entered. In order to get the ECS baseline data perfected, it was necessary to allow controlled editing of historical files, including the CID\_map, any Machines Impacted (MI) files, and any associated Control Item Identifier (CID) records.

Each approved CCR has only one CID\_map. This correlates the MI files to the CID. Sometimes there are two variants (host types, like Linux and Sun) of COTS S/W which must be accounted. The CID\_map would then have two lines, one MI file for Linux hosts (MI\_Linux), and one MI file for Sun hosts (MI\_Sun). There would also be two CIDs to account for the Linux and Sun variants. The CID\_map would then relate the MI\_Linux hosts to the Linux variant CID, and the MI\_Sun hosts to the Sun variant CID.

The snapshot below in Figure 4.3.3-8 shows the File Browser for entering the CCR number.



**Figure 4.3.3-8. Enter Existing CCR Number Interface**

The script will then determine the data structure for the entered CCR. The simplest structure will have one MI file and one CID\_map file. The most complex CCR is an “automount” CCR, where there are many line items in the CID\_map file, placing many COTS S/W products (CIDs) onto the hosts stated in the MI file(s).

Once the appropriate changes are made to the CID\_map and MI files, return to the “Corrective Mode” Main Menu bar item, and select either “COMMIT CCR Changes”, or “CANCEL CCR Changes.” The scripts behind the File Browser GUI will perform the necessary ClearCase CheckIns or ClearCase UnCheckouts. A “COMMIT CCR Changes” selection will execute the ClearCase command “cleartool ci -nc CID\_map MI” (check in the CID\_map and MI files with

no comment) Also, each emacs window will close once the appropriate ClearCase commands have been executed. Checksums are performed on all of the text edit files once they were checked out of ClearCase. Once the COMMIT CCR Changes menu item is selected, all of the files are checksummed once again. If any files were edited, the checksums are different. A ClearCase CheckIn command is executed if the file has been changed (file has a different checksum), and a ClearCase UnCheckOut (cleartool unco -rm CID\_map MI) command is executed if the file was not changed. (file has the same checksum).

Select “Build Baseline” from the drop down menu shown by selecting the “Corrective Mode” menu item. This functions exactly like the “New\_CCR” “Build\_Baseline” item.

Once the /QA\_Check files look okay, select the “Promote Baseline” line item.

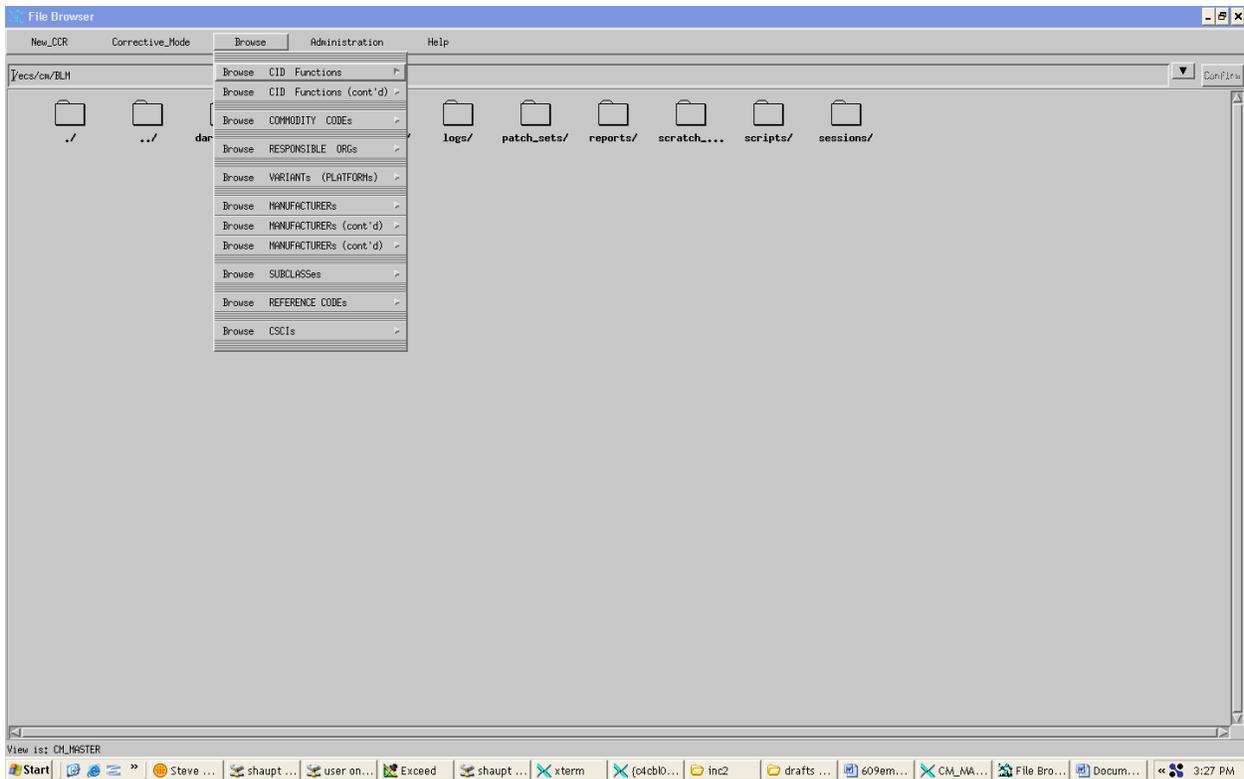
All changes are recorded within ClearCase history files, and there is also a ClearCase BLM Tool log file kept at /ecs/cm/BLM/logs for the Build sessions. More useful logs emitted from the scripts are at /ecs/cm/BLM/sessions/\$DISPLAY/\$TIMESTAMP/logs/ClearCase\_commands

These logs show each of the ClearCase commands exercised for all of the script executions.

#### **4.3.3.2.3 ClearCase BLM “BROWSE” GUI Drop Down Menu**

This particular feature of the ClearCase BLM Tool was added late in the development of the tool. While using the tool, it became apparent that it would be useful to be able to “see” any of the data items tucked away in the tool’s repository.

There are 8 different items that can be observed using the “Browse” selection as shown in Figure 4.3.3-9. Each selection has a unique number of attributes that can be viewed. Windows are launched so that the GUI user can “see” the different data.

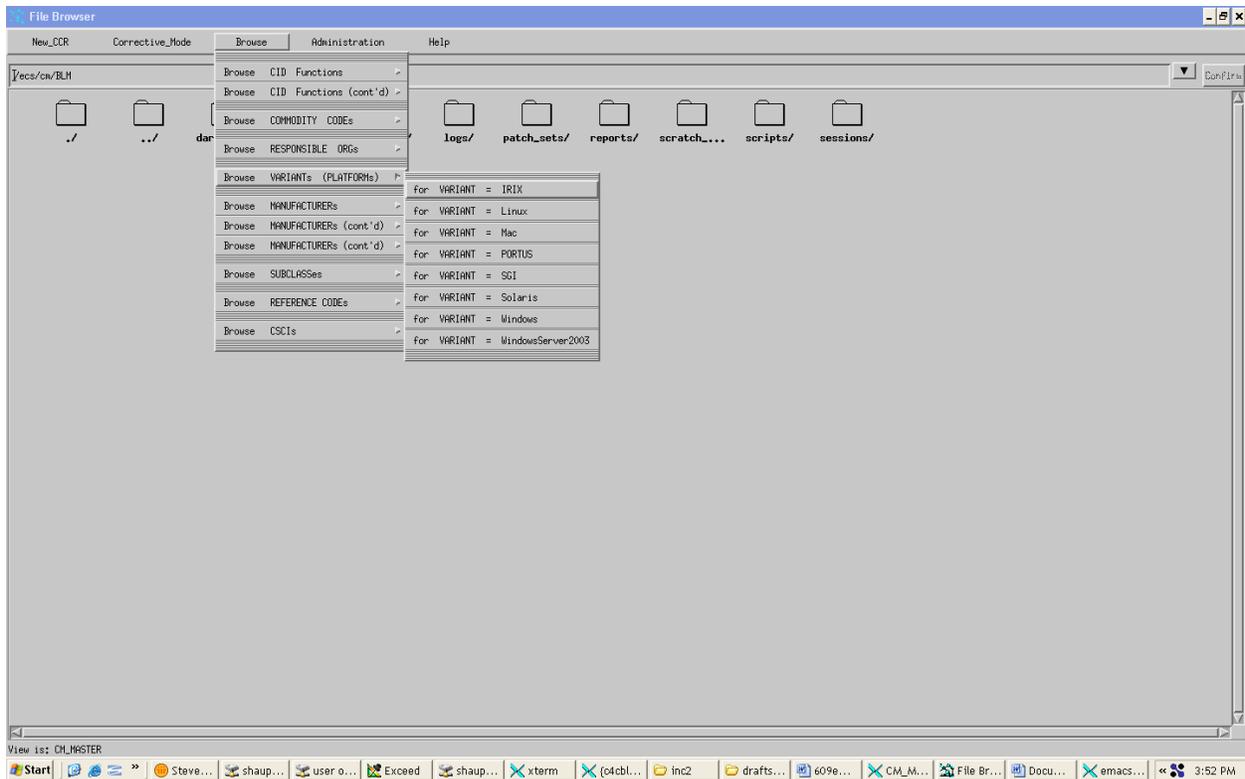


**Figure 4.3.3-9. Browse Drop Down Menu**

These drop down menus and data files are generated at the time that the GUI is launched, so it's important to remember that newly added records will not appear in these windows.

In the example below, a ClearCase BLM Tool user wants to know what variants (platforms) exist within the ECS baseline.

To determine this, select "Browse" from the File Browser main menu bar, then select "Browse VARIANTS" as shown in Figure 4.3.3-10.



**Figure 4.3.3-10. Browse Drop Down with VARIANTS Selected**

Similarly, any of the “Browse” drop down menu items may be selected.

#### **4.3.3.2.4 ClearCase BLM “ADMINISTRATION” GUI Drop Down Menu**

The “Modify Users” line item under the “Administration” main menu bar enables one to add, modify, or remove a UNIX user. The ClearCase file which facilitates this function is /ecs/cm/BLM/scripts/authorized\_DISPLAYs. Selecting the “Modify Users” line item initiates a text edit window session using the “authorized\_DISPLAYs” file. The format of this file is as follows:

The first three lines of the file are comments that identify the file’s location.

The next items are constructs that enable the BLM tool to determine authorized users of the BLM tool, and also authorized terminals. Access control is performed at the time the tool is launched.

Each construct must contain at least one line for each BLM tool user. Users may launch the tool from more than one location and terminal, which requires more than one line for the construct. There may be up to five fields within each line. Each field must not have any embedded spaces;

spaces (blanks) are used to separate the fields. For readability, user constructs should be separated with blank lines.

The *first field* indicates the display nomenclature. For X terminals, this is the string representation of “ncdp10:0.0”, for example. This has to be the same string that is known as the DISPLAY environment variable. For PCs, this field needs to be set to the correct IP address associated with the PC. Note that the tool may be used remotely using RSVPN.

The *second field* contains the physical location of the terminal. This should be either “home” for off site usage, or the room or cubical number at Riverdale that contains the terminal.

The *third field* is the UNIX user. The UNIX user must be known to the EDF. The UNIX user format usually consists of the first letter of the first name of the user, followed by up to a maximum of 7 letters of the user’s last name, all lower case.

The *fourth field* indicates whether the terminal is a PC or is served differently.

The *fifth field* contains the IP address resolution of the first field, if the first field is not already an IP address.

### **TO ADD A USER:**

Add a construct to the end of the file with the above fields completed. To determine the first field (DISPLAY) on a PC, run “winipcfg” from the “Start”/”Run” window. It will return the PC’s IP address. To determine the first field (DISPLAY) on an X terminal, type “printenv DISPLAY”. It will return the value of the DISPLAY environment variable. In other cases the display setting gets automatically set, such as RSVPN.

NOTE: A newly added user must also be added to the UNIX “ccs” group and UNIX “blm\_tool” group. To determine whether a user is currently in the group, type “ypcat -k group | grep ccs” and “ypcat -k group | grep blm\_tool”. Being a member of the “ccs” group gives one write access to ClearCase BLM records within the ClearCase /ecs/cm VOB. Being a member of the “blm\_tool” group allows one to execute the ClearCase BLM scripts which are referenced by the ClearCase BLM GUI. This provides another level of security for the tool.

### **TO MODIFY A USER:**

Simply edit the “authorized\_DISPLAYs” file to include the correct information.

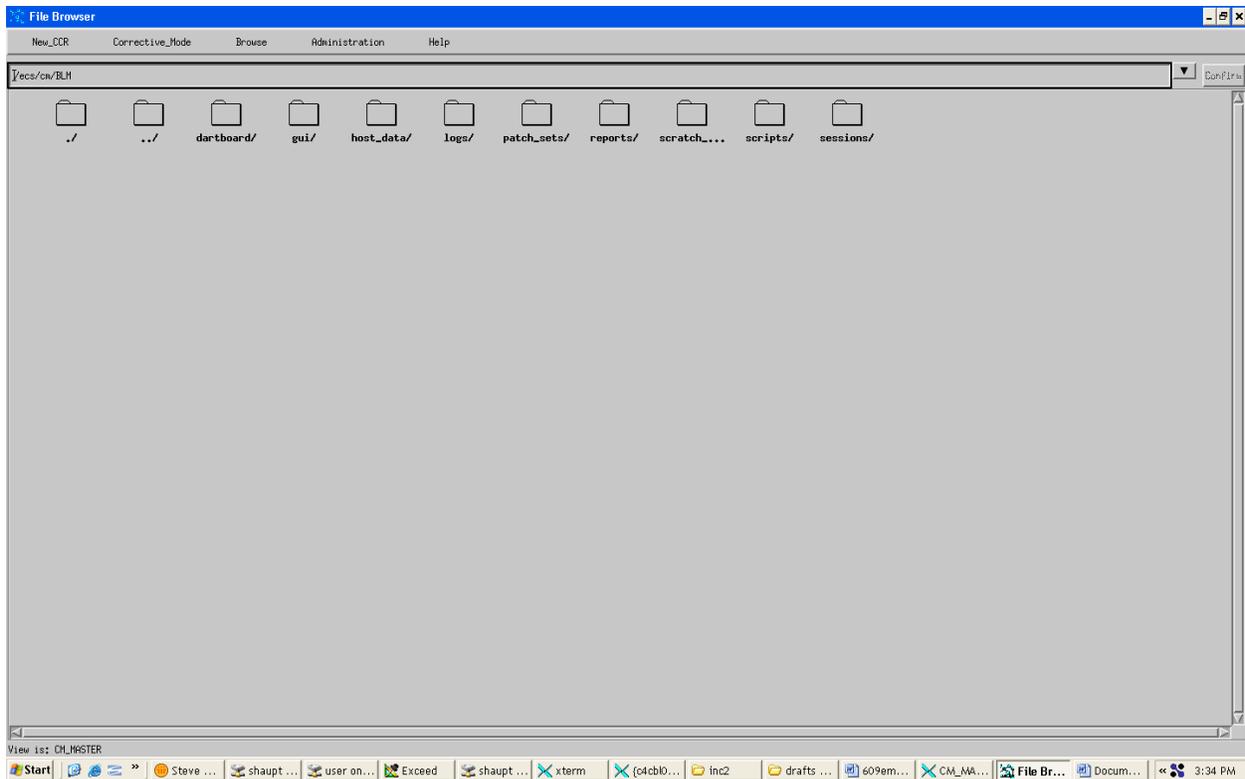
### **TO REMOVE A USER:**

Simply delete all of the lines within the “authorized\_DISPLAYs” that contains the user’s UNIX name.

Note that the tool needs to be launched again in order for any changes in the “authorized\_DISPLAYs” file to take effect.

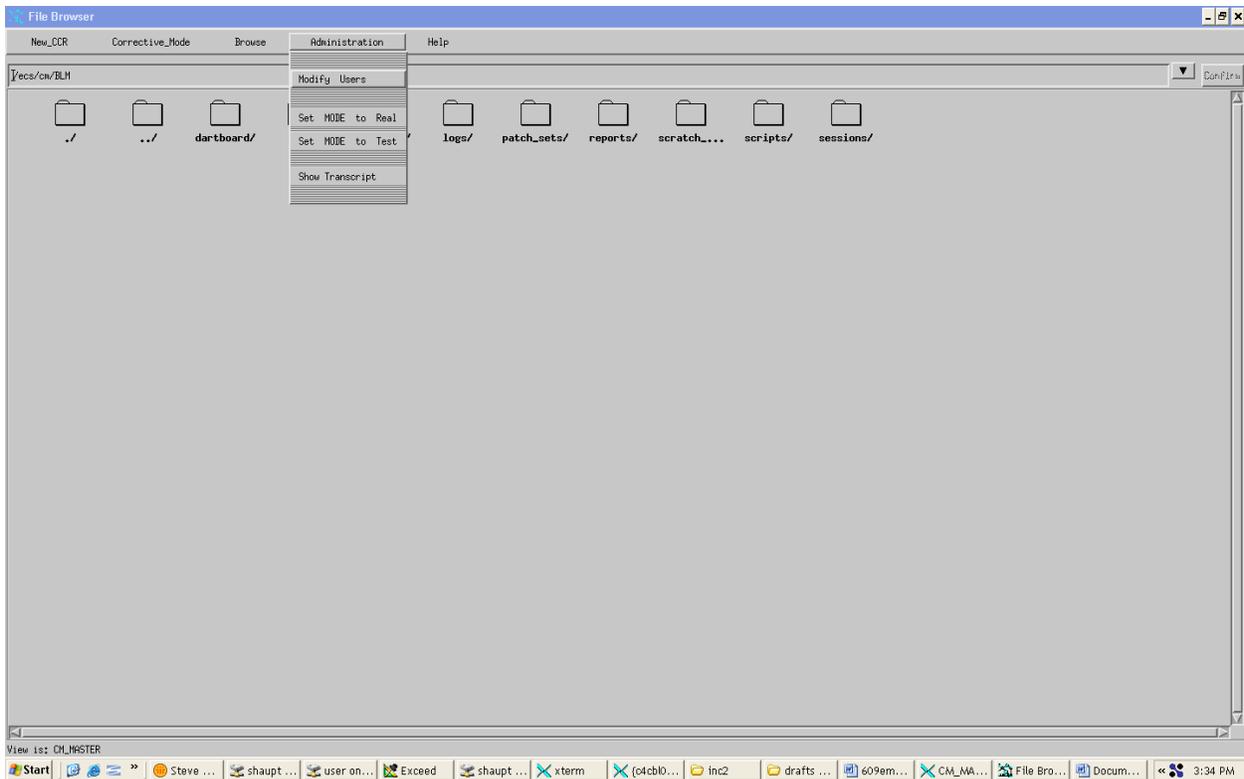
The following three snapshots show the screens that were just discussed:

Figure 4.3.3-11 shows the ClearCase BLM Main Menu. This section discusses “Administration,” which is the fourth item on the Main Menu bar.



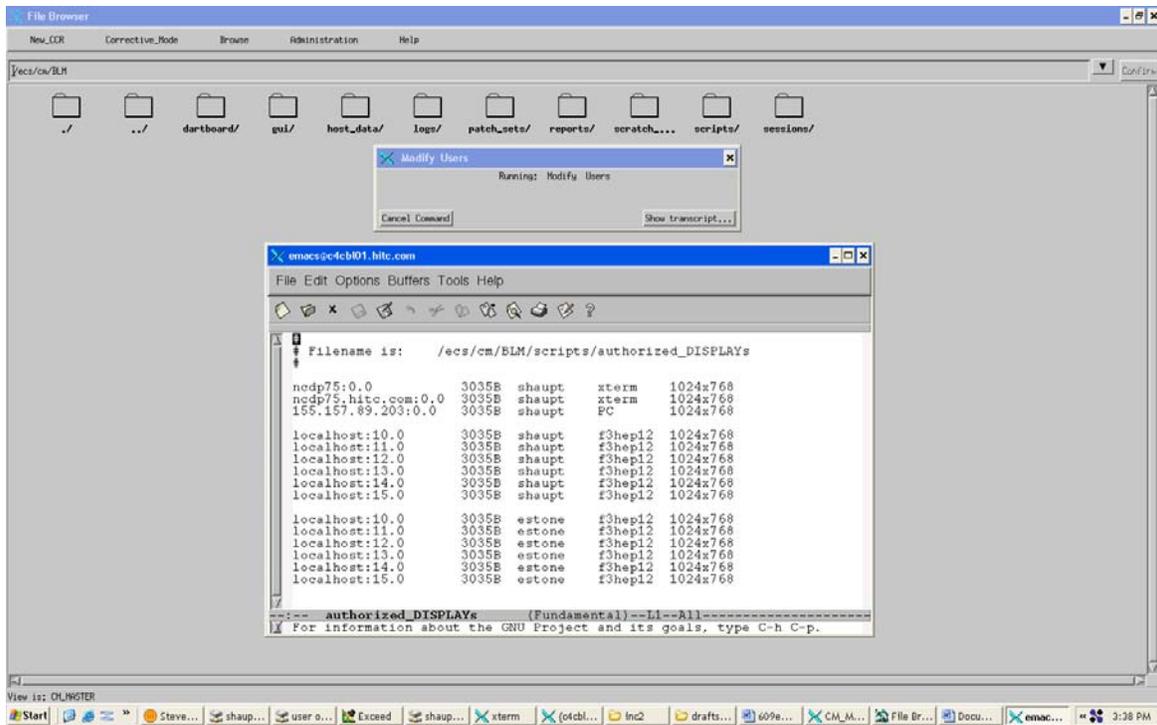
**Figure 4.3.3-11. ClearCase BLM Main Menu**

To modify a user, select “Modify Users” on the drop down menu, after selecting the “Administration” item on the main menu bar. This is shown in Figure 4.3.3-12 on the next page.



**Figure 4.3.3-12. Administration Drop Down Menu**

Selection of “Modify Users” will launch an emacs window. This is shown on the next page. The text edit window in Figure 4.3.3-13 shows the file that can be edited.



**Figure 4.3.3-13. Administration Modify Users Screen**

Follow earlier instructions for changing users shaup or user information.

### 4.3.3.3 ClearCase BLM Reports

The reports that are generated using the ClearCase BLM tool are listed in Table 4.3.3-1.

**Table 4.3.3-1. ClearCase BLM Reports**

910-TDA-003a	SDPS COTS S/W VERSION Baseline Report
910-TDA-003b	ECHO COTS S/W VERSION Baseline Report
910-TDA-003c	URS COTS S/W VERSION Baseline Report
910-TDA-005a	SDPS SITE-HOST Map Report
910-TDA-005b	ECHO SITE-HOST Map Report
910-TDA-005c	URS SITE-HOST Map Report
910-TDA-023a	SDPS CRITICAL COTS SOFTWARE LIST
910-TDA-023b	ECHO CRITICAL COTS SOFTWARE LIST
910-TDA-023c	URS CRITICAL COTS SOFTWARE LIST
910-TDA-030a	SDPS COTS S/W Where-Used Reports
910-TDA-030b	ECHO COTS S/W Where-Used Reports
910-TDA-030c	URS COTS S/W Where-Used Reports
920-TDx-002	Site Hardware-Software Maps
920-TDx-014	Operating System Patch Maps

These reports are accessible at the URLs:

<a href="http://pete.edf.rvl.us.ray.com/baseline/">http://pete.edf.rvl.us.ray.com/baseline/</a>	(for Riverdale use only, primary repository)
<a href="http://ebis.gsfc.nasa.gov:10160/baseline/">http://ebis.gsfc.nasa.gov:10160/baseline/</a>	(ESDIS only)
<a href="http://e4iil01u.ecs.nasa.gov:10160/baseline/">http://e4iil01u.ecs.nasa.gov:10160/baseline/</a>	(LPDAAC only) (aka EDC)
<a href="http://14iil01u.ecs.nasa.gov:10160/baseline/">http://14iil01u.ecs.nasa.gov:10160/baseline/</a>	(ASDC only) (aka LaRC)
<a href="http://nn4iil02u.ecs.nasa.gov:10160/baseline/">http://nn4iil02u.ecs.nasa.gov:10160/baseline/</a>	(NSIDC only)

The design of the distributed EBIS servers and data ensures that EBIS information is secure. The 910-TDA-003 report shows all of the COTS S/W that is managed on the EED program. The software is ordered by the software function, such as “Compilers”. Each record entry lists the ECS NAME, the Commodity Code, the Responsible Organization, the Variant, the Manufacturer, the Version, the Principal Directory, the authorizing CCR, and any comments that may be needed for clarification. The report is generated when the “Build Baseline” line item is selected in the **New\_CCR** drop down menu.

The 910-TDA-005 report shows all of the ECS hosts that are managed on the EED program. The format of the file is a matrix, with the columns containing all of a site’s hosts, with the rows showing the host names, in addition to Host Functions, Sub systems, and SRC CIs.

The 910-TDA-023 report shows COTS software products’ criticality. A critical COTS product is defined as software whose removal from the host would cause the system to not function with respect to ECS custom code. A critical COTS product is designated by a "YES" in the first column below. A "NO" indicates that the COTS software product is not critical to the performance of the system's functions.

The 910-TDA-030 report allows a user to see all of the COTS S/W, and each host that should have it. A table containing links provides this information. For each COTS product, a link will provide the complete CID record for the product, as well as a matrix showing all of the ECS hosts. Those hosts which should have the product installed have an arrow next to each host name. These Where-Used reports are also used to provide input with new CCRs to affect changes to the baseline. Changes to the CID record, such as a new version, or new hosts, can be recorded and submitted using a mark up of this printout. Links also provide ready access to the approved CCRs for each CID, as well as any Release Notes documents, should they apply (e.g., 914-TDA-340).

The 920-TDx-002 reports show the mapping of the COTS S/W to the managed ECS hosts. There are 7 reports, one for each site. Refer to Table 4.3.3-2.

**Table 4.3.3-2. ClearCase BLM Hardware-Software Map Reports**

920-TDE-002	LP DAAC (formerly known as EDC)
920-TDL-002	Langley DAAC
920-TDN-002	NSIDC DAAC
920-TDU-002	URS (at GSFC)
920-TDC-002	ECHO (at GSFC)
920-TDP-002	PVC (at Riverdale)
920-TDV-002	VATC (at Riverdale)
920-TDF-002	EDF2 (at Riverdale)

Each site report shows all of the COTS information for each host. The information that is shown for each host includes the host name, any host functions, specific COTS S/W that should be installed, each COTS S/W version and principle directory, the authorizing CCR, associated Release Notes document, and the effective date of the baseline change (CCR approval date).

These reports are subsequently used as a baseline reference for configuration audits.

The 920-TDx-014 reports show the mapping of the Operating System patches to the managed ECS hosts. There are 7 reports, one for each site. Refer to Table 4.3.3-3.

**Table 4.3.3-3. ClearCase BLM Operating System Patch Map Reports**

920-TDE-014	LP DAAC (formerly known as EDC)
920-TDL-014	ASDC (formerly known as LaRC DAAC)
920-TDN-014	NSIDC DAAC
920-TDU-014	URS (at GSFC)
920-TDC-014	ECHO (at GSFC)
920-TDP-014	PVC (at Riverdale)
920-TDV-014	VATC (at Riverdale)
920-TDF-014	EDF2 (at Riverdale)

Each site report shows all of the O/S patches for each host. The information that is shown for each host includes the host name, the O/S patch nomenclature, an O/S patch description, any related 911-TDA-xxx references, the authorizing CCR, associated Release Notes document, and the effective date of the baseline change (CCR approval date). A table at the beginning of each report shows the incorporation dates of the CCRs.

These reports are subsequently used as a baseline reference for configuration audits for Operating System patches.

EED Baseline maintenance using the custom ClearCase® BLM tool averages 4 hours per month.

#### **4.3.4 AssetSmart-ILM (Inventory, Logistics and Maintenance (ILM) Manager)**

The EDF replaced the previous Remedy system with the The AssetSmart COTS package. AssetSmart will be used to implement the Inventory Logistics Management (ILM) capabilities. The basic ILM activities are still regularly performed but now rely on the AssetSmart COTS package instead of the Remedy COTS package.

The ILM Property Custodian and Property Maintenance Engineer are the principal users of ILM system capabilities. The ILM tool will be centralized at the EDF in Riverdale, and will be accessible via the AssetSmart web-interface. Asset Smart improves the current system and processes by providing modules that allow for less data redundancy, appropriate allocation of funds, unified transaction logs, and remote accessibility. This software integrates mission critical real time data with process improvements to provide seamless asset investment planning, asset record management, acquisition, maintenance, EIN Structures, location and asset change tracking, property moves, shipments and installations, utilization status, consumable tracking, disposal and real time asset reporting—empowering the EED property team and equipment end users to make more timely and cost effective decisions, leading to better infrastructure management and customer support.

The EDF maintains the principal data repository and processes all inventory changes. AssetSmart ILM will have the largest positive affect on the other sites, (ASDC, LPDAAC, NSIDC, and ECHO) that has no real-time access to the Remedy- ILM. The AssetSmart ILM tool will provide the other sites via the Internet the ability to view a read only version of the ILM database in order to gain knowledge of system maintenance information before contacting the ILM Property Maintenance Engineer. Through the use of a centralized repository the data will be more searchable, complete, accurate and auditable.

The Asset Smart ILM primary function will be to maintain a system-wide inventory of all hardware and COTS software contained within ECS project. Each inventory item is identified by a unique equipment inventory number (EIN). The most significant relationship maintained among inventory items is EIN structure. EIN structure is the pairing of a parent EIN with its components to define the configuration for an assembly. Each EIN structure has active and inactive dates that establish the time frame during which the pairing is in effect. For tracking and auditing purposes, inventory items (especially hardware), get allocated to ECS parent machines, and some of the items are shipped to sites and installed. After a period, some items may be transferred to other locations or relocated for use with other parent machines. Items are archived when no longer needed or serviceable. Management of consumables is similar to managing spares. Consumables are located centrally at the EDF and at the DAACs. The Property Custodian will control the use of consumables and may request additional consumables.

With the Asset Smart tool, EED will be able to manage and organize all CAP, GFE and IAGP property assets and financial information in a single unified repository that maintains full interactive updates, field validation, and online history of all property transactions. With Asset Smarts Customizable security-protected menus, customizable navigation links and shortcuts, and direct screen to screen navigation, Asset Smart will fit the needs of all end users from Property Administrators to System Hardware and Software engineers.

This document will discuss Asset Smarts primary operational uses and highlight key functionalities. For more information regarding the more advanced modules and functions please refer to the Asset Smart PEMS help manual.

#### **4.3.4.1 Asset Smart Modules**

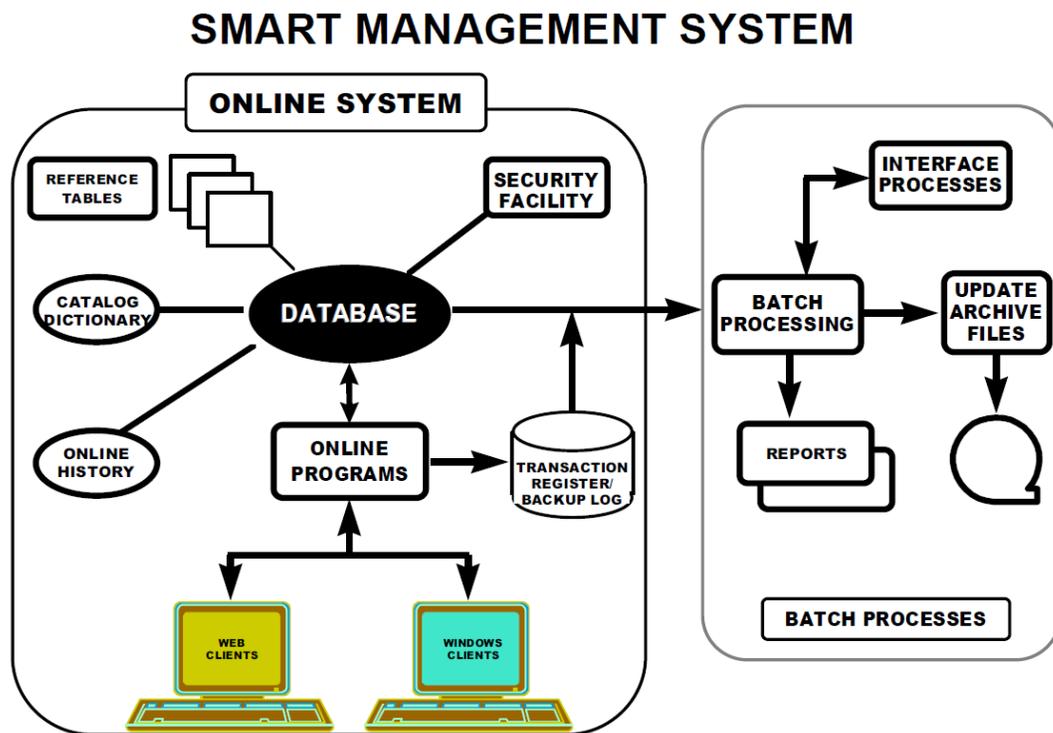
Two modules of AssetSmart were purchased for the use of the problem. SMART|PEMS and SMART|AMIIX which are both outline below.

##### **4.3.4.1.1 SMART|PEMS**

**The Asset Smart Property and Equipment Management System** delivers substantial cost savings and process improvement benefits to EED. The application offers comprehensive tracking and management of company and government property, reducing asset downtime, maintenance and management costs and increasing asset utilization and redeployment. Asset Smart will optimize lifetime value of assets by integrating asset planning/acquisition/tracking/disposal/investment recovery phases into a cohesive continuum.

#### **PEMS Features include:**

- AssetSmart's open user architecture enables EED to maintain all mission critical asset data in a single integrated repository which standdizes business processes across the entire project and significantly increasing efficiency.
- AssetSmart has a web interface in which will enables interactive accessibility worldwide to the EED users. Property Managers and end-users can access real-time asset data from any web browser worldwide.
- AssetSmart has powerful online search tools which allow users to search by any tracked attribute to find required information.
- All interfaces, menus, attributes, business rules, status tracking and data fields can be customized to meet requirements, without requiring significant consulting or configuration by AssetSmart engineers.
- Asset Smart is FAR compliant and has added features that integrate with multiple federal reporting systems such as PCARRS, NASA1018, CHATS, DD250, and the 20-4.



**Figure 4.3.4-1. Smart Management System**

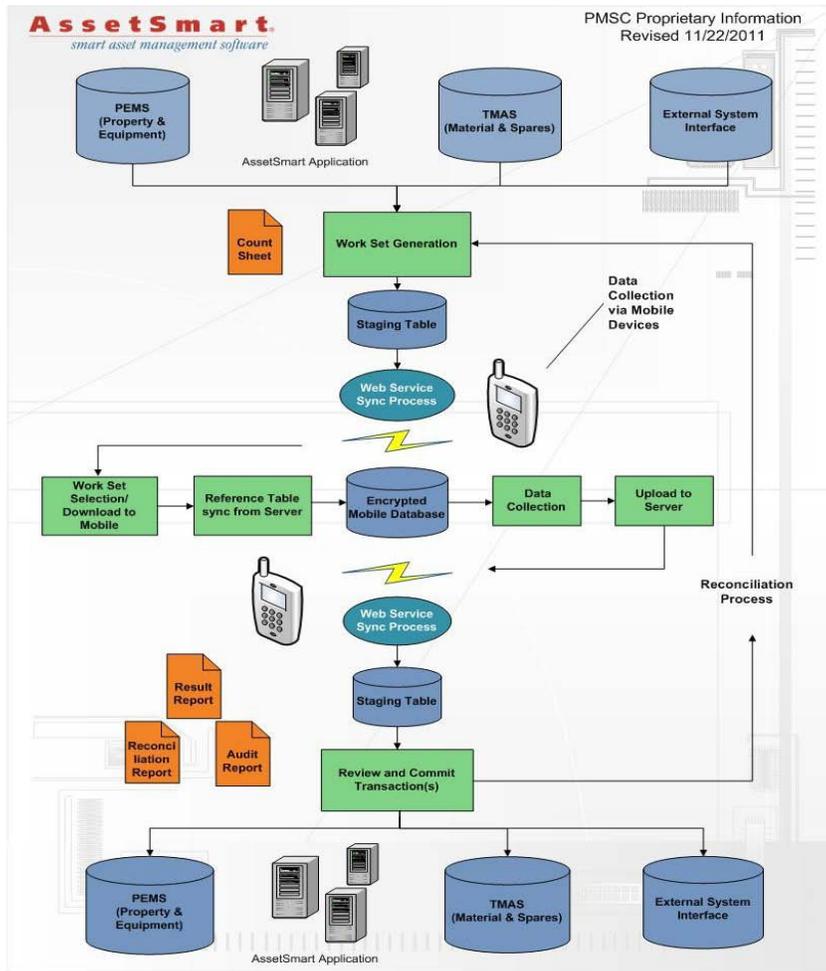
### 4.3.4.1.2 SMART|AMIIX

**Mobile Work Management Module** is a server-based management module that allows for real-time status tracking of unlimited working inventory sets. AMIIX is compatible with Oracle and SQL Server, and runs completely hardware independent, as a disconnected (or connected) operation model. When inventory is completed, AMIIX seamlessly uploads data back to the server, allowing for full online review and approval. AMIIX allows EED to simplify life cycle of asset management and maximize utilization of idle resources.

**AMIIX features include:**

- Improved data integrity across the life cycle asset management system, eliminating errors and duplicates and ensuring accurate reporting maximized asset utilization across the enterprise.
- Improved speed and access to real-time, accurate inventory information.
- An integrated, one-stop solution for managers and end-users to review and approve inventory data.

- An external interface that can hook into any outside application or data source via API and backend staging tables.
- Compatible with Microsoft SQL Server, Oracle and any other SQL compliant data source.
- Mobile Technology:
  - Developed on the Microsoft .NET Compact Framework
- Microsoft SQL Server Compact Database backend:
  - Hardware Independent
- Compatible with any device running Windows Mobile 5.x or higher.
- Supports both a disconnected and connected operation model.
- Supports Secure Socket Layer (SSL) Security.
- Requires NO middleware software, device communicates directly with the Web Service.



**Figure 4.3.4-2. Process Flow**

#### 4.3.4.2 Accessing the Asset Smart Application Via Web

Asset Smart is located at the following URL

<http://155.157.31.126/smart36/>

To Log on, you must enter your User ID and Password on the Logon page to access the Main Page.

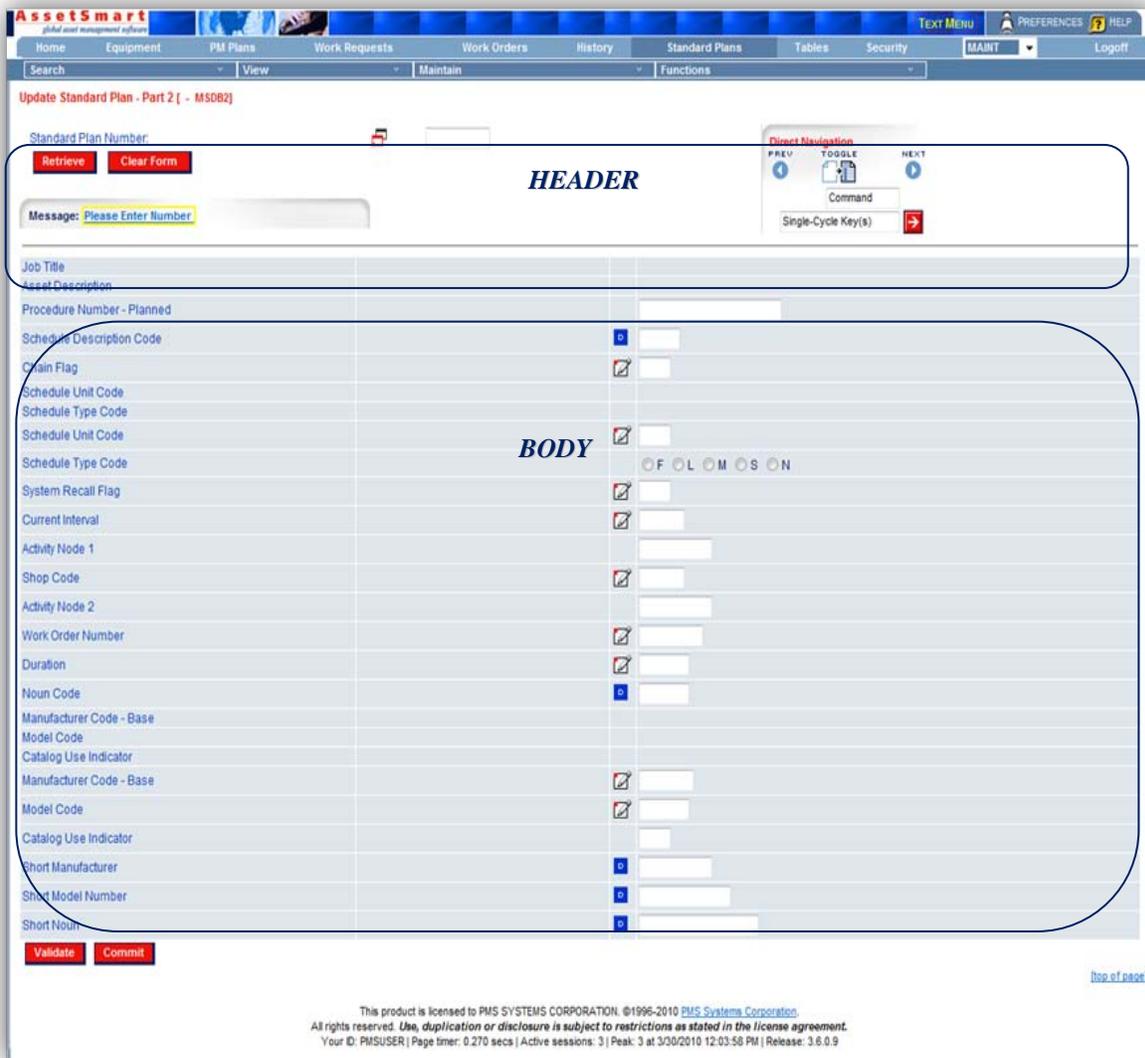


### Main page appears after log-on

The main Navigation feature is the top menu bar, used for accessing screens with drop-down menus.



### Two major regions are featured in a transaction screen: Header and Body



#### 4.3.4.3 Asset Smart User interactive Roles

There are ideally four main user types that will interact with the Asset Smart System on a consistent basis. More information regarding the Asset Smart users' processes are outlined and explained in detail in the EED Property Management Plan as well as the EED Process Property Document.

**Table 4.3.4-1. Common Users and Operatotions Performed with Asset Smart**

Operating Function	Description	When and Why to Use
<b>General</b>	Search for property items using a specified query performed by a hardware engineer or management	To search for information regarding a item or data set in reagrards to its location, maintenance information, vendor, etc
<b>Property Management</b>	Maintain information about accountable property items, their product structures, and inter-relationships.	To maintain information that specifies the identity, source, location, transfer, relocation, and installation of procured inventory items.
<b>Property Maintenance</b>	Manage information for required maintenance repairs.	To predefine and monitor scheduled maintenance activities.
<b>System Administrator/Power User</b>	Manage System upates and install patches and implement security roles.	To revise, add, or delete Asset Smat users, security levels, and access permissions.

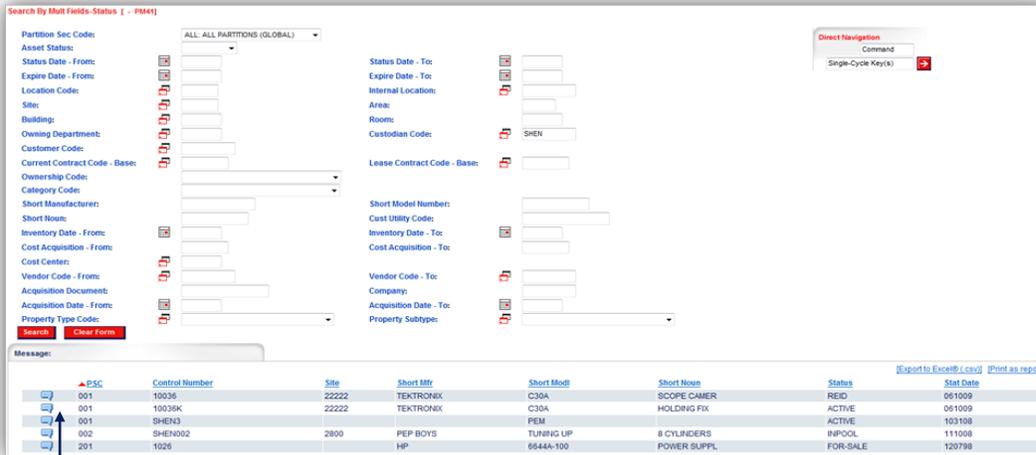
#### 4.3.4.3.1 General Functions

All general functionalities are performed by every functional role and will be accessible to all users.

##### 4.3.4.3.1.1 Search By Multiple Fields

PM41 lets you search Master Property Records by means of a selection of entry keys. Use the drop-down lists and pop-ups provided, when available, to enter your search values. Any combination of searches is supported as long as you enter at least one search key. Your records will be displayed sequentially by number. You have the option to sort and/or print and/or export as .csv (data repository) files these one-line summaries, by clicking on the related links.

click **Property** on the top menu bar  
 select **Search** on the drop-down menu bar  
 click **By Multiple Fields B** on the drop-down menu  
 enter one or more search keys  
 click **Search**  
 click on [hyperlinks](#) to sort/export/print your results

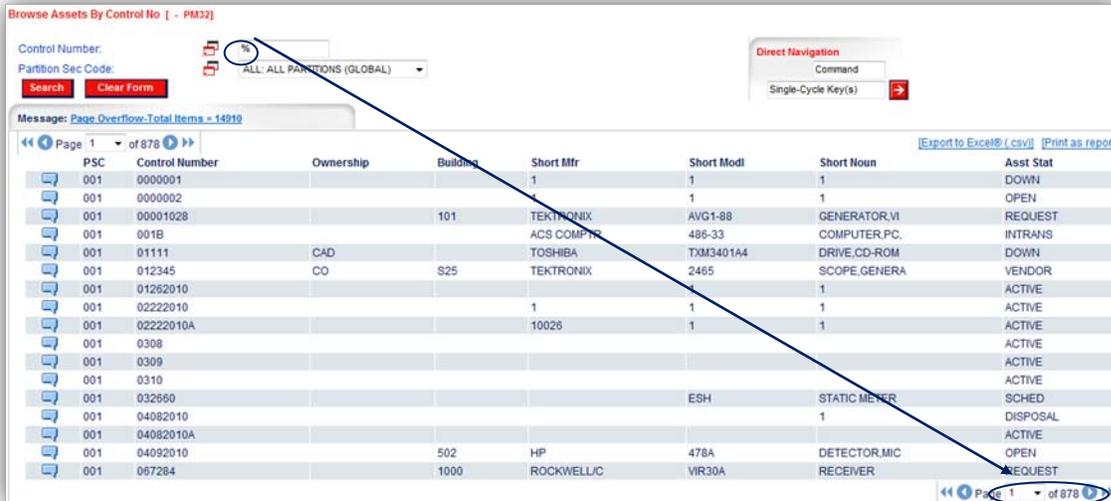


PM2, PM5, PMD4, PSD4, PMDR1, PLD4, PRD4

#### 4.3.4.3.1.2 Partial String Search

Partial string searches are available on all transaction screens where they may be of use

They are an easier and speedier way to make inquiries because they allow you to only enter part of a search key (number or code). A variety of options is available: the simplest is to enter a *percentage sign [%]* or a *forward slash [/]* in the search key field and retrieve all records. In the example below, 878 pages of items are returned.

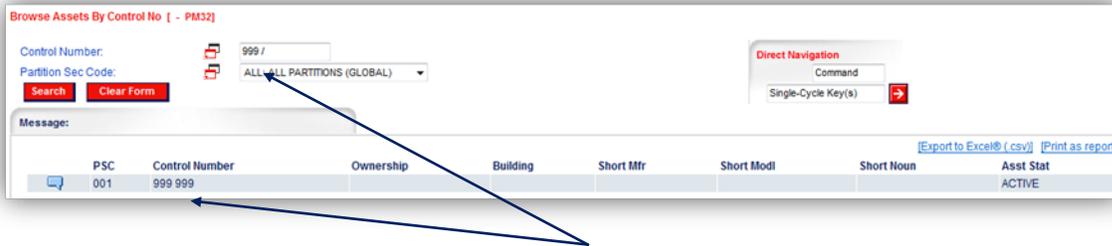


#### 4.3.4.3.1.3 Enter a leading string to narrow your search

A partial string can originate from the beginning, anywhere in the middle, or the end of the search key.

To narrow down your search, the easiest option is to simply enter the first few characters of the search key, i.e., a leading string.

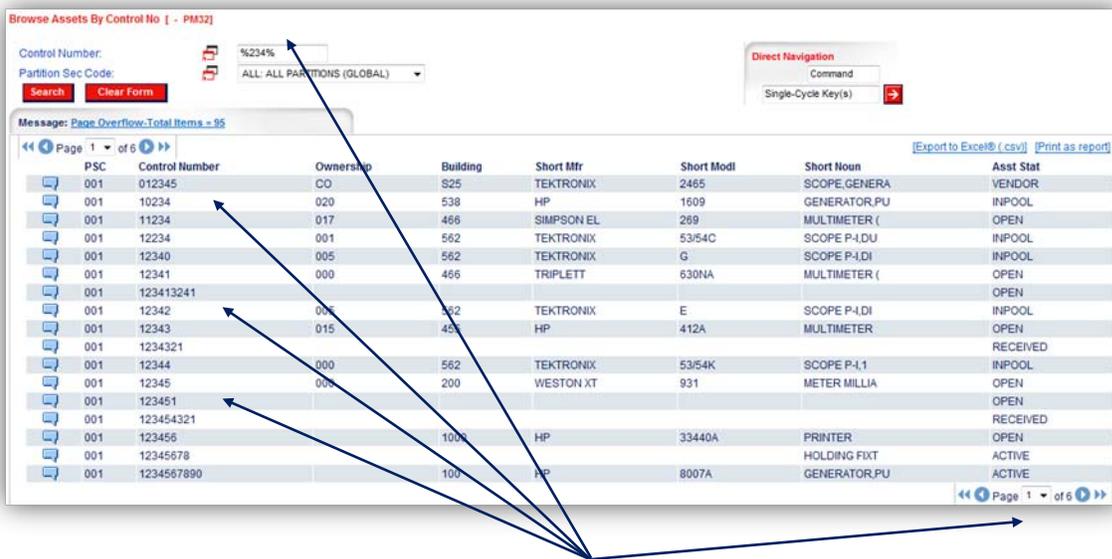
### Follow a leading string that has trailing spaces with a [%] or [/]



*Enter '999 /' or '999 %' to display all control numbers starting with '999' followed by a space*

### 4.3.4.3.1.4 Place a [%] before and after a string

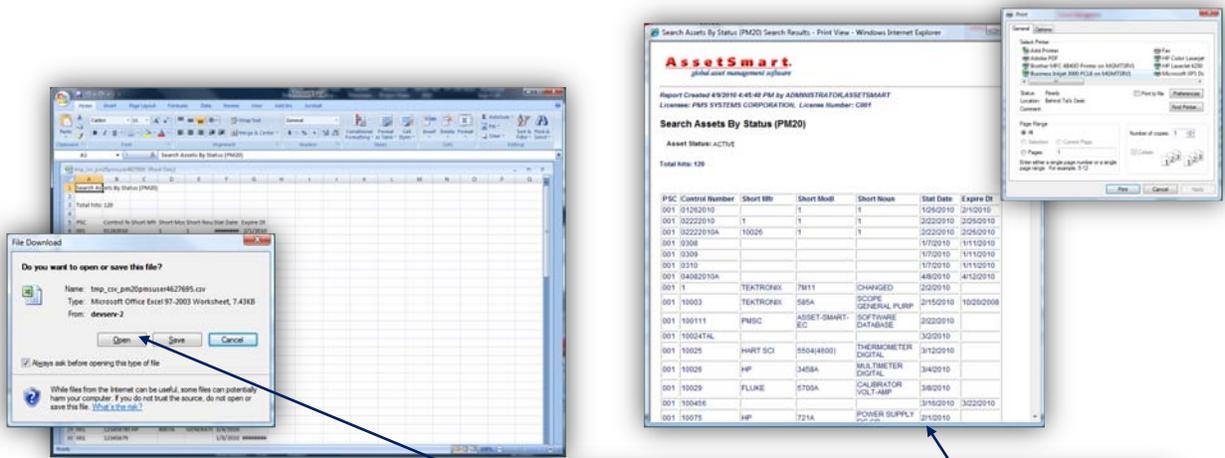
In order to search via a string originating from anywhere (including the beginning and the end) within the search key, the string must be led by a percentage sign or surrounded with percentage signs.



*Enter '%234%' or '%234' to display all control numbers containing that string*

### Search screen types display one-line summaries of the resulted records

You may avail yourself of capabilities such as scrolling through pages, sorting your results, exporting them to an Excel file and printing them. Each resulted record may also be accessed with related screens.



**Search Assets By Status [ - PM20 ]**

Asset Status: ACTIVE

Status Date - From: [ ]

Status Date - To: [ ]

Expire Date - From: [ ]

Expire Date - To: [ ]

[ Search ] [ Clear Form ]

Message: Page Overflow-Total Items = 3534

Click header hyperlink to sort results

PSC	Control Number	Short Mfr	Short Model	Short Name	Start Date	Expire Dt
001	10	TEKTRONIX	310A	SCOPE,GENERAL PURP	7/1/2008	
001	100			DRILL JIG	5/5/2009	5/11/2009
001	1000	TELENETICS	ED208	MODEM,DATA	10/16/2008	10/20/2008
001	1000000				12/23/2008	12/25/2008
001	1000000000000000				2/2/2009	2/6/2009
001	10000009			W	5/8/2008	5/12/2008
001	100003	HP	1609	GENERATOR,PULSE	2/11/2008	
001	10001	TEKTRONIX	585A	SCOPE,GENERAL PURP	11/5/2008	4/21/2008
001	10002	TEKTRONIX	585A	SCOPE,GENERAL PURP	10/8/2008	
001	100020	HP	180A	SCOPE,GENERAL PURP	5/15/2009	5/19/2009
001	10003	TEKTRONIX	585A	SCOPE,GENERAL PURP	11/30/2008	10/20/2008
001	10004	TEKTRONIX	10A2	SCOPE P-I,DUAL TRAC	8/6/2008	12/17/2007
001	10008	TEKTRONIX	2465	SCOPE,GENERAL PURP	12/8/2008	
001	10009	HP	5245L	COUNTER,MULTI-FUNCT	9/16/2004	
001	1000A	TELENET	670AAAB2702	BOARD, TP	11/21/1987	
001	10012	HP	150-400	POWER SUPPLY,SPECIA	6/25/2008	
001	10014	HP	5245L	COUNTER,MULTI-FUNCT	4/1/2009	4/6/2009

Direct Navigation: Command [ ] Single-Cycle Key(s) [ ]

Click icon to access related screen links

001 10087

- Display Asset Tracking Data
- Display Cal Lab Tracking Data
- Modify Cal Item/Plan
- Move Equipment Item
- Change Asset Status
- Equipment Pool Loan/Issue
- Return Equipment Item To Pool

Click any hyperlink to access screen

Go to first page

Go to previous page

Click to access desired page

Page count

Go to next page

Go to last page

#### 4.3.4.3.1.5 View Transaction

PM1 lets you view data from a Master Property Record by means of its EIN Number. The fields displayed by PM1 have previously been entered/updated with PAD1/2, PBD2, PCDA2 and PCDB2.

click **Property** on the top menu bar  
 select **View** on the drop-down menu bar  
 click **Acquisition Data** on the drop-down menu  
 enter an EIN number  
 click **View**

Display Basic Asset Data [ - PM1]

Control Number:  

**View** **Clear Form**

Message:

Manufacturer/Source [HEWLETT PACKARD CO](#)  
 Model Number [4000-4150](#)  
 Noun Description [CAPACITOR, FIXED,CERAMIC \(08724\)](#)  
 Catalog Code [01604T 0A20A](#)

**Related Asset Information**  
 Accountability Data (PM7)  
 Life-Cycle History (PM19)  
 Transaction History (PM17)

**Direct Navigation**  
 PM7 PAD2 PM2  
 PREV EDIT NEXT  
 Command  
 Single-Cycle Key(s) 

OWNERSHIP		CONTRACT	
Partition Sec Code	001	Acquisition Contract Code - Base	
Plant	28	Contract Type Code	
Record Access Code	FMA	Current Contract Code - Base	
Ownership Code	CEX	Contract Type Code	
Property Type Code	CIP	Lease Vendor Code - Base	FB5606
Division	DR4	WARRANTY	
Owning Department	400	Warranty Flag	W
Cost Center	AERO	Warranty Date - From	5/11/2009
		Warranty Date - To	5/11/2010
		Install Date	5/11/2009
		Open/Close Flag	0

ACQUISITION / IDENTIFICATION	
Acquisition Vendor Code - Base	FB4800
Acquisition Date	5/5/2009
Acquisition Cost	9990.00
Acquisition Document	ACQ-DOC
Document Reference Type	PCD
Purchase Order - Acquisition	PODOC
Po Line Number	5
Serial Number	43567
Cross-Reference	CROSS252

#### 4.3.4.3.2 Property Management

Property Administrators can submit new records, modify existing ones, and perform transactions that capture installation, relocation, movement, and shipment and archive activities. These transactions are logged for historical purposes.

##### 4.3.4.3.2.1 Add and modify records in your database

The body of basic update (add/modify) type screens features data entry fields and flag field radio buttons where values may be entered or set interactively. These values are often edited, validated, and/or defaulted according to individual conditions specified in the transaction descriptions of each module. The field status buttons to the left of entry fields specify what type of operation is required or will occur and can often be clicked to access nested search screens. Many mandatory and defaulted fields are subject to validation and/or editing as well. To ensure valid values are entered, combo boxes and calendar pop-ups are extensively employed.



*A value must be entered or set, field is mandatory*



*A value will default if specified conditions are met, but a different value may be entered*



*Entered value will be validated and/or edited*

#### 4.3.4.3.2.1.1 Adding a Record

PAD1 sets up a Master Property Record by means of a new EIN number which you can either enter yourself or have assigned automatically. You can only use this function once per record; if you need to modify the data entered after you have committed PAD1, use PAD2 (select Modify instead of Add on the drop-down menu). On PAD2, you'll need to enter EIN number of the record you want to update. You can view the fields updated by PAD1 and similar functions with PM1, PM2, and PM3.

click **Property** on the top menu bar  
select **Maintain** on the drop-down menu bar  
select **Add** on the drop-down menu  
click **Master Acq./Data** on the sub-menu  
enter a EIN number or select **Auto-Assign Number**  
click **Begin Add**  
enter your data  
click **Validate** and **Commit**

Add Basic Asset/Equipment Rec [ - PAD1]

Control Number: 23456810  
 Partition Sec Code: 001: DEFAULT PARTITION  
 Auto-Assign Number:  Y  N

Message: Add Transaction Completed

Manufacturer/Source: HEWLETT PACKARD CO  
 Model Number: 4000-4150  
 Noun Description: CAPACITOR, FIXED,CERAMIC (08724)  
 Catalog Code: 01604T 0A20A

ASSET IDENTIFICATION	
Manufacturer Code - Base	01604T
Model Code	0A20A
Manufacturer Name	HEWLETT PACKARD CO
Model Series	
Model Number	4000-4150
Alternate Model Type	
Noun Major	CAPACITOR
Noun Minor	FIXED,CERAMIC
Serial Number	
Asset Status	ACTIVE

ACQUISITION	
Purchase Order - Acquisition	PODOC
Po Line Number	5
Po Date	8/12/2009
Acquisition Vendor Code - Base	FB4800
Acquisition Date	8/10/2009
Acquisition Cost	999.00
Estimated Cost Flag	<input type="radio"/> Yes <input checked="" type="radio"/> No
Install Date	8/12/2009
Record Access Code	FMA

OWNERSHIP	
Division	DR4
Owning Department	400
Cost Center	AERO
Ownership Code	CEX

#### 4.3.4.3.2.1.2 Modifying a record

PBD2 adds tracking data to a pre-existing Master Property Record by means of its EIN number. The Partition Security Code will default according to the Control Number. You can use this function as many times as you need to. You can make this record part of a System by entering a EIN number in the System field. Enter the same EIN number of the record you're updating to make it the top component (level '0') of its System; enter a different Control Number to make it a child record (System Level is assigned automatically). Provided that this record has no lower components or children, you can remove it from a System -- by entering the 'not' code (^) in the System field -- or change the System number. You can view the whole hierarchy with PM21 and build a System with PBS4 Click the Create button to access RMMD1 and add a multimedia object such as a PDF file or other resource, view it with. View references to multimedia with PM59 and on PM2. View other fields updated by PBD2 on PM1 and PM2.

click **Property** on the top menu bar  
 select **Maintain** on the drop-down menu bar  
 select **Add** or **Modify** on the drop-down menu  
 click **Tracking Data** on the sub-menu  
 enter a EIN number  
 click **Retrieve**  
 enter your data  
 click **Validate** and **Commit**

*PAD2 PMI PCDA2*

**Mod Asset Tracking Data [ - PBD2]**

Control Number: 252  
 Partition Sec Code: 001: DEFAULT PARTITION

Message: **Completed-Sys Loc Discrepancies Exist**

Manufacturer/Source: HEWLETT PACKARD CO  
 Model Number: 4000-4150  
 Noun Description: CAPACITOR, FIXED,CERAMIC (08724)  
 Catalog Code: 01604T 0A20A

**STATUS**  
 Asset Status: ACTIVE  
 Status Date: 5/11/2009  
 Status Expire Date: 5/15/2009

**LOCATION**  
 Location Code: 0030  
 Plant/Site: 28  
 Area: 51  
 Building: 07QLAA  
 Floor: 1  
 Room: 2  
 Column: 3  
 Bin: 45  
 System: 00001028  
 System Level: 2  
 Internal Location: CORP

**LEASE**  
 Lease Vendor Code - Base: FB5606  
 Lease Contract Code - Base: LM1001

**SERVICE**  
 Warranty Date - From: 5/11/2009  
 Warranty Date - To: 5/11/2010  
 Warranty Flag: W  
 Service Vendor Code - Base: FB5000  
 Service Contract Code - Base: BRUCE001

**OTHER DETAILS**  
 Media Reference  
 Customer Code - Base: C1000  
 Customer Code - Suffix: 00000  
 Work Order Reference: 111

#### 4.3.4.3.2.1.3 Basic Validation

##### Error messages and field status buttons

As part of the validation process, the interactive message area will display instructions when an error occurs. In the example below, a mandatory entry field has been left empty. Notice how a validation error button appears next to the entry field being validated.

*Follow error message instructions*

Message: **Mandatory Field - An Entry Is Required**

Manufacturer/Source: HONEYWELL  
 Model Number: VENTURIO.75IN  
 Noun Description: FLOWMETER,VENTURI F.

DATE / TIME  
 Transaction Date: 3/8/2010  
 Transaction Time: 3:29:00 PM

OTHER REFERENCES  
 Document Reference

*This button appears next to an entry field when a validation error occurs*

##### Blank out values with the not-code

The option exists to blank out a value from a data entry field using the not-code [^] by entering SHIFT+6 and clicking the Validate button. Due to data entry logic, some fields will feature a button signaling that a field cannot be blanked out.

Custodian Code: 1000

Custodian - To: 2000

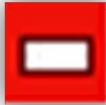
*These two field values may be modified but not blanked out*



*When this button appears, a valid value must be entered*



*Enter these two keys together in a data entry field and press ENTER to blank out its value*



*When this button appears, an entered value may not be blanked out*

### All entered values must be valid before committing your transaction to the database

Click the Validate button at any time to ensure your values have been accepted. When green checkbox buttons appear signaling it's safe to update your database, click the Commit button and you're done.

Move Equipment Item [ - PMD4 ]

Control Number: UK100

Retrieve Clear Form

Message: Press Commit Button To Complete Cmd

Manufacturer/Source: NONE  
Model Number: VENTUR80.758N  
Name Description: FLOWMETER, VENTURI F.

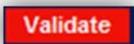
DATE / TIME  
Transaction Date: 3/8/2010  
Transaction Time: 3:29:00 PM  
Actual Transaction Date:   
Actual Transaction Time:  0946

ASSET STATUS  
Asset Status: ACTIVE  INTRANS  
Status Date: 3/8/2010  041310  
Status Expire Date:  051310

LOCATION  
Location Code: 1234  1001  
Plant: 2800  MAN  
Area:  100  
Building: 111111  100  
Floor:  1  
Room:  109  
Column:  V14F4  
Internal Location:   
Bin:   
System:   
System Level:

OTHER REFERENCES  
Document Reference:  DOCCREF1  
Document Reference Type:  PMO  
Notes One: LOCATION CHANGE/MOVE

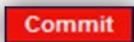
Validate Commit



*Click this button or enter Alt+V to have the system validate your entries*

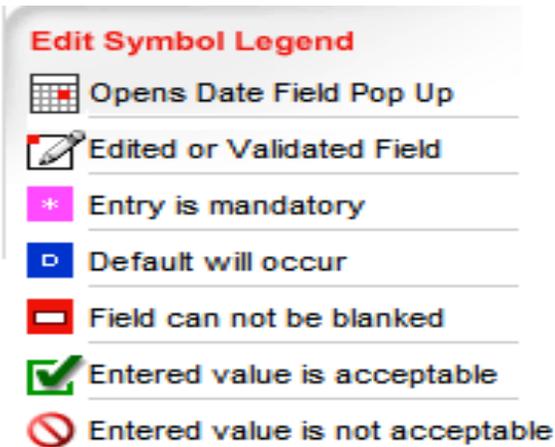


*When these buttons appear, it is safe to click the commit button and update the database*



*Click this button or enter Alt+S to update a record in the database*

## Asset Smart Symbol Legend



### 4.3.4.3.3 Property Maintenance

The Contract reference table is the source for all maintenance contract entries and updates. The Contract table defines accountable maintenance contract number, Vendor name, vendor address, and contact information, contract date, and open/closed status.

To Display the Contract table:

click **Tables** on the top menu bar  
select **A-C** on the drop-down menu bar  
select **Contract** on the drop-down menu  
click **Display All Records** on the sub-menu

You can also choose to display the contract by number or status if the information is available.

Adding a record

The screenshot shows a software interface with a search menu. The menu is open, displaying various options for searching and managing records. The 'Contract' option is highlighted, and its sub-menu is visible, including 'Display All Records (RCN11)', 'Display One Record (RCN1)', 'Display Rec Part 2 (RCN2)', 'Search By Status (RCN20)', 'Search By Contract (RCN21)', 'Browse (RCN22)', 'Add (RCND1)', 'Modify (RCND2)', 'Delete (RCND3)', 'Update Part 2 (RCNB4)', 'Update Provisions (RCND4)', and 'Display Provisions (RCE11)'. The 'Add (RCND1)' option is highlighted in red. The interface also includes a 'Search' button, a 'Clear Form' button, and a message bar at the bottom that says 'Please Enter Search Key'.

## Adding a New Maintenance Contract

Adding a maintenance contract is similar to that of adding a new record. However, the maintenance contract is being added directly to the reference table so that the contract can be accessible by multiple asset records. To create an contract:

- click **Tables** on the top menu bar
- select **A-C** on the drop-down menu bar
- select **Contract** on the drop-down menu
- click **ADD (RCND1)** on the sub-menu
- enter The new Contract information
- Click **Validate** and **Commit** to add to Database

Add Contract Code Record [ - RCND1]

Contract Code - Base:

Partition Sec Code:

**Begin Add** **Clear Form**

Message: [Please Enter Contract Code](#)

CONTRACT IDENTIFICATION	
Contract Number	<input type="text"/>
Contract Line Number	<input type="text"/>
Contract Name	<input type="text"/>
Contract Type Code	<input type="text"/>
Use Rent-Free Code	<input type="text"/>
Followon Contract Code - Base	<input type="text"/>
Followon Contract Code - Task	<input type="text"/>
Contract Admin	<input type="text"/>
Prime Contractor Id	<input type="text"/>
AGENCY OR SUPPLIER	
Agency Code - Base	<input type="text"/>
Agency Code - Suffix	<input type="text"/>
Agency Name	<input type="text"/>
Vendor Code - Base	<input type="text"/>
Vendor Code - Suffix	<input type="text"/>

**Validate** **Commit**

TERM AND STATUS	
Contract Start Date	<input type="text"/>
Contract Expire Date	<input type="text"/>
Fiscal Year	<input type="text"/>
Status	<input type="text"/>
Status Date	<input type="text"/>
OTHER REFERENCES	
Product Line	<input type="text"/>
Product Used On	<input type="text"/>
Media Reference	<input type="text"/>
Contract Data 1	<input type="text"/>
Contract Data 2	<input type="text"/>
Open Date	<input type="text"/>
Date Closed	<input type="text"/>
Open/Close Flag	<input type="radio"/> O <input type="radio"/> C

Direct Navigation TOGGLE NEXT  
Command  
Single-Cycle Key(s)

## Modifying a record

Modifying an already existing Maintenance contract is similar to modifying an asset record. To modify an existing record:

click **Tables** on the top menu bar  
 select **A-C** on the drop-down menu bar  
 select **Contract** on the drop-down menu  
 click **ADD (RCND1)** on the sub-menu  
 enter The new Contract information  
 Click **Validate** and **Commit** to add to Database

### 4.3.4.3.4 System Administrator/Power User

#### 4.3.4.3.4.1 AMIX (Mobile Inventory)

Please refer to the Asset Smart AMIIX mobile device manual for AMIIX inventory instruction.

#### 4.3.4.3.4.2 Security and New User Adds

The system controls security for application transactions by assigning each to a security class defined by the system security administrator. Each system user's access to any application transaction in turn is controlled by the specific classes to which he is assigned. Use of the system involves access to two tables:

- Command Table
- User Table

When any user initially enters any application running under the security system, a master menu screen will be displayed from which the user must enter an identification code and a password. The system will verify these codes against the user security table. If the data is incorrect or

missing, the user will be prompted for a valid identification and/or password. Once the initial ‘logon’ has been established, the user may then execute any of the commands in the applications for which he is authorized.

Validation of any transaction command in the system is accomplished by verifying the security class for the transaction and then validating this against the set of authorized security classes for the user.

The security class code is comprised of three alpha-numeric characters, thus allowing an almost limitless number of combinations available to the security administrator. For example, Transactions SM1 and SAD1 might be assigned security classes of S01 and SI3 respectively. User A, who is authorized to access both S01 and SI3, can therefore execute both transactions. User B, on the other hand who can access only S01 can execute SM1, but not SAD1. If the security class is not specified for a particular transaction command in the command table, then no security is enforced for that transaction and all users may have access.

The security facility includes a “wild card” feature wherein an asterisk ‘\*’ may be included in the user security class to indicate broader access. For example, a user table with the security code of ‘S0\*’ allows access to all commands in security classes starting with ‘S0’.

A user with a code of ‘S\*\*’ can access all commands in classes starting with ‘S’.

A user with ‘\*\*\*’ can access all transactions in the system except those that control access to his own security record.

### To Display one security record

Enter **AS1** into the Direct Navigation Command field  
 Enter the User name  
 select **View**

**Display Single User Id Record [ - AS1]**

User Id:  Direct Navigation  
EDIT  
Command  
Single-Cycle Key(s)

Message:

USER INFORMATION		RECORD ACCESS CODES	
Employee Code	ADMIN	Record Access Code 1	*****
Contact Name	ADMINISTRATOR_ASSETSMART	Record Access Code 2	
Partition Sec Code	001	Record Access Code 3	
Global Security Flag	Y	Record Access Code 4	
Password Expire Date		Record Access Code 5	
Approval Authority	ZZ	Record Access Code 6	
Internal Location	CR1	Record Access Code 7	
Stock Location Code		Record Access Code 8	
Menu Set Code	DEFAULT	Record Access Code 9	
Operating System User Id		Record Access Code 10	
SECURITY CLASSES / GROUPS			
Security Class1	***		
Security Class2			
Security Class3			
Security Class4			
Security Class5			
Security Class6			
Security Class7			
Security Class8			
Security Class9			
Security Class10			

Enter **ASD1** into the Direct Navigation Command field

Enter the User name

select **Begin Add**

enter The new employee username and security information

Click **Validate** and **Commit** to add to Database

Add User Security Id Record [ - ASD1]

User Id:  

**Begin Add** **Clear Form**

Message: **Press Commit Button To Complete Cmd**

**Direct Navigation**  
TOGGLE  
Command   
Single-Cycle Key(s)  

USER INFORMATION		SECURITY CLASSES / GROUPS	
Employee Code	<input checked="" type="checkbox"/>	SCHUETZ	<input checked="" type="checkbox"/>
Contact Name		SCHEUTZ,MIKE	<input checked="" type="checkbox"/>
Partition Sec Code	<input checked="" type="checkbox"/>	001: DEFAULT PARTITION	<input checked="" type="checkbox"/>
Global Security Flag	<input checked="" type="checkbox"/>	<input checked="" type="radio"/> Y <input type="radio"/> N	<input checked="" type="checkbox"/>
Record Access Code	<input checked="" type="checkbox"/>	<input type="text"/>	<input checked="" type="checkbox"/>
Approval Authority	<input checked="" type="checkbox"/>	<input type="text"/>	<input checked="" type="checkbox"/>
Internal Location	<input checked="" type="checkbox"/>	<input type="text"/>	<input checked="" type="checkbox"/>
Stock Location Code	<input checked="" type="checkbox"/>	<input type="text"/>	<input checked="" type="checkbox"/>
Menu Set Code	<input checked="" type="checkbox"/>	<input type="text"/>	<input checked="" type="checkbox"/>
Operating System User Id	<input checked="" type="checkbox"/>	<input type="text"/>	<input checked="" type="checkbox"/>
PASSWORD			
Password Current	<input checked="" type="checkbox"/>	*****	<input checked="" type="checkbox"/>
Password Expiration - Days	<input checked="" type="checkbox"/>	<input type="text"/>	<input checked="" type="checkbox"/>
Password Expire Date	<input checked="" type="checkbox"/>	<input type="text"/>	<input checked="" type="checkbox"/>
Execution Code	<input checked="" type="checkbox"/>	<input type="text"/>	<input checked="" type="checkbox"/>
Expire Password First-Time Flg		<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="checkbox"/>

**Validate** **Commit**

#### 4.3.4.4 System Reporting

All system reporting will be intergrated with the Crystal reports application. The system will use the previous report designs and layout built for the Remedy application to ensure report consistency between the two systems by making a seamless transistion.

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### 4.3.5 FLEXnet Publisher

FLEXnet (formerly FLEXlm) is a commercially available network license management product from Acresto Software that helps ECS sites administer licenses and enforce licensing provisions for FLEXnet-enabled COTS software. It enforces licensing provisions based on information from vendor-provided license keys and lets license administrators allow, deny, or reserve check out of licenses based on user, host, or display. FLEXnet handles floating (concurrent use) licenses, node locked licenses, and combinations of the two.

FLEXnet processing elements include license manager daemons, vendor daemons, license files, and FLEXnet-enabled applications. One or more license manager daemons control vendor daemon operations and enables client applications to contact them. Vendor daemons grant or deny concurrent use licenses requested by applications, tracking how many are checked out and by which users. License files are text files that contain the provisions for one or more licenses from one or more vendors, including the name of the vendor daemon needed to serve the license and the host(s) to use as license server(s). The applications communicate with the license and vendor daemons using embedded FLEXnet client software to request licenses in order to run.

FLEXnet permits use of single, multiple, or redundant server hosts, and can operate more than one license manager daemon on a given node. A license manager daemon serves all the licenses in the license file it uses, and different license files use separate license manager daemons (distinguished by the port number they use to communicate). In a redundant license server configuration, license manager daemons for a license file are executed on three server nodes such that all licenses in the file are available if any two out of the three server nodes is running. In a multiple license server configuration, licenses are allocated among multiple license files and a separate license manager daemon is run for each file.

Table 4.3.5-1 summarizes the operating functions that FLEXnet supports.

**Table 4.3.5-1. Common ECS Operator Functions Performed with FLEXnet (1 of 2)**

Operating Function	Function Name	Description	When and Why to Use
Start license manager	lmgrd	Starts FLEXnet's main daemon program, which reads the license file and manages vendor daemons and the connections between them and their client applications.	Used to initiate license management server processes.
Stop license manager	lmdown	Shuts down all license daemons (both lmgrd and all vendor daemons) on all nodes.	Used anytime to stop network license activities, such as when the license manager host is to be rebooted.

**Table 4.3.5-1. Common ECS Operator Functions Performed with FLEXnet (2 of 2)**

<b>Operating Function</b>	<b>Function Name</b>	<b>Description</b>	<b>When and Why to Use</b>
Install decimal format licenses	lminstall	Converts licenses between decimal and readable formats and between different versions of FLEXnet license formats.	Used anytime primarily to install decimal format licenses in readable format.
Read new licenses	lmreread	Causes the license servers to reread the license file they are using and start any new vendor daemons.	Used anytime to put the provisions of an updated license file into effect.
Monitor the status of network licensing activities	lmstat	Generates lists containing such information as active licenses, users of licensed product features, users of individual license management daemons, and status of server nodes.	Used anytime to check on the health and functioning of license server daemons, identify licenses installed, determine licenses in use, or review logged licensing events.
Rotate report log	lmnewlog	Causes a vendor daemon to move its existing report log information to a new file.	Used anytime to prevent report logs from growing too large.
Switch to new debug log	lmswitch	Causes a vendor daemon to use a new or different file as its debug log.	Used anytime to record one vendor's debug information in a file separate from the others'.
Switch to new report log	lmswitchr	Causes the license servers to use a new or different file as the report log.	Used anytime to move daemon logging to a different location.
Troubleshoot problems serving licenses	lmdiag	Performs problem diagnosis.	Used anytime to help determine why a license cannot be checked out.
Obtain license key from vendor	lmhostid	Reports the hostid of a system.	Used anytime to determine the host code that must be provided to vendors when obtaining a software license.
Recover inaccessible licenses	lmremove	Removes a single user's license for a specified feature.	Used when a client node crashes in order to recover a checked out license not automatically freed.
Determine version compatibility between the license server and an application	lmver	Reports the FLEXnet version of a library of binary files.	Used anytime to determine what version of FLEXnet a FLEXnet-enabled product uses.

### 4.3.5.1 Quick Start Using FLEXnet Publisher

Operators interact with FLEXnet via the license manager daemons and license files. FLEXnet's user interface is a set of Unix-like commands for starting, stopping, and requesting services from a license manager daemon. Command arguments specify input parameters, most notably the name of the license file whose contents determine the servers, daemons, and license provisions affected by the command. Operators install and maintain license files using any preferred editor.

#### 4.3.5.1.1 Command Line Interface

To start FLEXnet license server daemons in a consistent, predictable manner, start the flexnet service:

```
> service flexnet start
```

Before it invokes FLEXnet's "lmgrd" program, the script adds the extension "\_old" to the current FLEXnet log file (if any) so the new daemon will create its own. It then runs "lmgrd" as user "flexlm" to avoid running as "root", and it specifies the license and log file paths the daemons are to use (i.e., "/var/flexnet/license.dat" and "/tmp/license\_log", respectively).

If license manager daemons are needed to serve licenses in additional license files, they can be started by running the "lmgrd" program as follow:

```
> su flexlm -c "umask 022; /var/flexnet/lmgrd -c license_file -l logfile -p &"
```

To stop the FLEXnet license daemons that are running on all machines in the network, execute the FLEXnet command:

```
> /var/flexnet/lmdown -c license_file_list -all
```

However, to shut down the license manager daemons on a single machine only, log on to the machine and type the following command instead:

```
> service flexnet stop
```

Table 4.3.5-2 summarizes commands available with FLEXnet. See the *FLEXnet Licensing End Users Guide* for the complete description of each command and its arguments.

**Table 4.3.5-2. Command Line Interfaces (1 of 3)**

Command Line Interface	Description and Format	When and Why Used
lmborrow	lmborrow { <i>vendor</i>   all} enddate [ <i>time</i> ]	To use a license temporarily on a computer intermittently connected to the license server.
lmdiag	lmdiag [-c <i>license_file_list</i> ] \ [-n] [ <i>feature</i> : <i>keyword=value</i> ]	To diagnose problems when a license cannot be checked out.
lmdown	lmdown [-c <i>license_file_list</i> ] [-q] [-all] [-force]	To shutdown selected license daemons (both lmgrd and selected vendor daemons) on all nodes.

**Table 4.3.5-2. Command Line Interfaces (2 of 3)**

Command Line Interface	Description and Format	When and Why Used
Imgrd	Imgrd [-c <i>license_file_list</i> ] \ [-l [+] <i>debug_log_path</i> ] [-2 -p] [-local] \ [-x Imdown] [-x Imremove] [-z ] [-v] \ [-help]	To run the main daemon program for FLEXnet.
Imhostid	Imhostid [-n] [-type] [-utf8]	To determine the hostid of a system.
Iminstall	Iminstall [-i <i>in_lic_file</i> ] [-maxlen <i>n</i> ] [-e <i>err_file</i> ] [-o <i>out_lic_file</i> ] [-overfmt {2   3   4   5   5.1   6   7   7.1   8}] [-odecimal]	To convert licenses between decimal and readable formats and between different versions of FLEXnet formats.
Imnewlog	Imnewlog [-c <i>license_file_list</i> ] \ <i>feature renamed_report_log</i>  <u>or</u> :  Imnewlog [-c <i>license_file_list</i> ] \ <i>vendor renamed_report_log</i>	To move an existing report log to a new file and start a new log at the original filename.
Impath	Impath {-add   -override} { <i>vendor</i>   all} <i>license_file_list</i>	To add to, override, or get the current license path settings
Imremove	Imremove [-c <i>license_file_list</i> ] <i>feature user user_host display</i>  <u>or</u>  Imremove [-c <i>license_file_list</i> ] \ -h <i>feature server_host port handle</i>	To remove a single user's license for a specified feature. (This is only needed when a client node crashes, since that's the only condition where a license is not automatically freed. If the application is active, it checks out the license again after it is freed by Imremove.)
Imreread	Imreread [-c <i>license_file_list</i> ] \ [-vendor <i>vendor</i> ] [-all]	To cause the license daemon to reread the license file and start any new vendor daemons that have been added. In addition, one or all pre-existing daemons are signaled to reread the license file for changes in feature licensing information.
Imswitch	Imswitch [-c <i>license_file_list</i> ] \ <i>vendor new_debug_log</i>	To start a new debug log for a vendor daemon, using a new filename.
Imswitchr	Imswitchr [ -c <i>license file</i> ] <i>feature \ new-file</i>  <u>or</u>  Imswitchr [ -c <i>license file</i> ] <i>vendor \ new-file (v5.0+ onl)</i>	To start recording license events in a new or different log file.

**Table 4.3.5-2. Command Line Interfaces (3 of 3)**

Command Line Interface	Description and Format	When and Why Used
lmstat	lmstat [-a] [-c <i>license_file_list</i> ] \ [-f [ <i>feature</i> ]] \ [-i [ <i>feature</i> ] [-s[ <i>server</i> ]][-S [ <i>vendor</i> ]] \ [-t <i>timeout_value</i> ]	To report the status of all network licensing activities.
lmver	lmver <i>filename</i>	To identify the FLEXnet version of a library or binary file.

#### 4.3.5.2 FLEXnet Main Screen

FLEXnet does not provide for operator interaction via a GUI. All interactions are through the Unix command line or a Unix script.

#### 4.3.5.3 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 installation and release notes for FLEXnet Publisher, refer to the Release Notes posted on the EMD Baseline Information System web page at your local site.

#### 4.3.5.4 Databases

FLEXnet uses license and options files in lieu of a database. License files are independent text files, each of which contains all the site-specific information FLEXnet needs to serve the licenses specified in the file. Every license manager daemon requires a license file, and different license files require separate license manager daemons. To simplify operations, operators may combine license files obtained from multiple vendors if they are compatible. Refer to the *FLEXnet Licensing End User Guide* for information about the format of a license file, and when and how to combine them.

Options files are text files associated with specific vendor daemons named in license files. These files allow the operator to specify criteria for granting licenses to users, wait time before reclaiming inactive licenses, and how much license usage information is to be logged. FLEXnet does not require an options file. When specified however, there can only be one options file per vendor daemon, and each vendor needs a separate options file. See the *FLEXnet Licensing End User Guide* for details.

#### 4.3.5.5 Special Constraints

FLEXnet cannot be run without one or more license files, and most FLEXnet commands require the name of a license file in order to execute. License files identify the host and port number a client is to use to communicate with the license server. If the license file parameter is missing from the command, FLEXnet tries using the file(s) named in the environment variable LM\_LICENSE\_FILE. If LM\_LICENSE\_FILE is not set, the default license file name */var/flexnet/license.dat* is assumed.

The *FLEXnet Licensing End User Guide* recommends the following operating constraints:

- Keep a copy or link of the license file in the vendor’s “default” location; some vendors expect to find their license files at pre-determined locations. Refer to the *FLEXnet Licensing End Users Guide*.
- Run `lmgrd` as a non-privileged user (not `root`) to avoid security risks. Refer to the *FLEXnet Licensing End Users Guide*.

#### 4.3.5.6 Outputs

FLEXnet’s principal outputs are inter-process communications with COTS applications attempting to check out and check in FLEXnet licenses, but these are generally transparent to the operator. Outputs visible to the operator include an ASCII log of network licensing events and errors, and messages constituting responses to operator-entered commands.

#### 4.3.5.7 Event and Error Messages

FLEXnet writes both status and error messages to standard output. Typically, operators redirect all output from the startup command “`lmgrd`” to a file, known as the debug file, to create a FLEXnet log at the site.

See the appendices of the *FLEXnet Licensing End User Guide* lists what causes the more common messages an operator may encounter, but primarily those written by the FLEXnet programs. Event and error messages logged by FLEXnet-enabled COTS applications are sometimes found in the application’s manuals. Messages are typically self-explanatory and identify the date/time of the event, the license server host, the product or feature involved, and the name of the user.

#### 4.3.5.8 Reports

FLEXnet’s `lmstat` utility can generate the status reports listed in Table 4.3.5-3. Each is written to standard output and may be redirected to a named file or a printer using standard Unix conventions. Reports are generated on demand as required to meet operational needs.

**Table 4.3.5-3. Reports**

Report Type	Report Description	Example
<code>lmstat -s</code>	Lists status of clients running on a named host.	Figure 4.3.5-1
<code>lmstat -i</code>	Lists license information about all or a named feature.	Figure 4.3.5-2
<code>lmstat -a</code>	Lists all information about current network licensing activities.	Figure 4.3.5-3
<code>lmstat -A</code>	Lists all currently active licenses.	Figure 4.3.5-4
<code>lmstat -f</code>	Lists users of all or a named feature.	Figure 4.3.5-5
<code>lmstat -S</code>	Lists users of all or a named vendor’s features.	Figure 4.3.5-6

### 4.3.5.8.1 Sample Reports

The figures (Figure 4.3.5-1 through 4.3.5-6) that follow contain sample FLEXnet status reports. One sample is provided for each report listed in Table 4.3.5-3.

```
lmstat - Copyright (c) 1989-2006 Macrovision Europe Ltd. and/or Macrovision Corporation. All
Rights Reserved.
Flexible License Manager status on Mon 6/23/2008 13:18

License server status: 1726@p4nsl01
  License file(s) on p4nsl01: /var/flexnet/license.dat:

  p4nsl01: license server UP (MASTER) v10.8

Vendor daemon status (on p4nsl01):

  rational: UP v10.8
```

**Figure 4.3.5-1. All Clients (lmstat -s) Report**

```
lmstat - Copyright (c) 1989-2006 Macrovision Europe Ltd. and/or Macrovision Corporation. All
Rights Reserved.
Flexible License Manager status on Mon 6/23/2008 13:16

NOTE: lmstat -i does not give information from the server,
      but only reads the license file. For this reason,
      lmstat -a is recommended instead.

Feature                Version  # licenses  Expires  Vendor
-----                -
PurifyPlusUNIX        5.00000  1           1-jan-0  rational
```

**Figure 4.3.5-2. License Information (lmstat -i) Report**

```
lmstat - Copyright (c) 1989-2006 Macrovision Europe Ltd. and/or Macrovision Corporation. All
Rights Reserved.
Flexible License Manager status on Mon 6/23/2008 13:19

License server status: 1726@p4nsl01
  License file(s) on p4nsl01: /var/flexnet/license.dat:

  p4nsl01: license server UP (MASTER) v10.8

Vendor daemon status (on p4nsl01):

  rational: UP v10.8

Feature usage info:

Users of PurifyPlusUNIX: (Total of 1 license issued; Total of 0 licenses in use)
```

**Figure 4.3.5-3. All Licensing Activities (lmstat -a) Report**

```
lmstat - Copyright (c) 1989-2006 Macrovision Europe Ltd. and/or Macrovision Corporation. All
Rights Reserved.
Flexible License Manager status on Mon 6/23/2008 13:20

License server status: 1726@p4nsl01
  License file(s) on p4nsl01: /var/flexnet/license.dat:

  p4nsl01: license server UP (MASTER) v10.8

Vendor daemon status (on p4nsl01):

  rational: UP v10.8

Feature usage info:
```

**Figure 4.3.5-4. All Active Licenses (lmstat-A) Report**

```
lmstat - Copyright (c) 1989-2006 Macrovision Europe Ltd. and/or Macrovision Corporation. All
Rights Reserved.
Flexible License Manager status on Mon 6/23/2008 13:21

License server status: 1726@p4nsl01
  License file(s) on p4nsl01: /var/flexnet/license.dat:

  p4nsl01: license server UP (MASTER) v10.8

Vendor daemon status (on p4nsl01):

  rational: UP v10.8

Feature usage info:

Users of PurifyPlusUNIX: (Total of 1 license issued; Total of 0 licenses in use)
```

**Figure 4.3.5-5. Users of All or Named Features (Imstat-f) Report**

```
lmstat - Copyright (c) 1989-2006 Macrovision Europe Ltd. and/or Macrovision Corporation. All
Rights Reserved.
Flexible License Manager status on Mon 6/23/2008 13:24

Feature usage info:

Users of PurifyPlusUNIX: (Total of 1 license issued; Total of 0 licenses in use)
```

**Figure 4.3.5-6. Users of All or Named Vendor's Features (Imstat-S) Report**

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### 4.3.6 TestTrack Pro

TestTrack Pro (TTPro) provides a Trouble Ticketing service that furnishes both ECS users and operations personnel at the DAACs a common environment for classifying, tracking, and reporting the occurrence and resolution of system-related problems. The Trouble Ticketing Service:

- Provides a GUI for operations personnel to access all Trouble Ticket functions.
- Provides a common Trouble Ticket entry format.
- Stores Trouble Tickets.
- Retrieves Trouble Tickets via ad-hoc queries.
- Allows operations personnel to escalate problems to the EDF for review and resolution.
- Generates reports and statistics.
- Interfaces with user's and operator's e-mail to provide automatic notification.
- Offers an application programming interface, Simple Object Access Protocol (SOAP) Software Development Kit (SDK), through which applications can submit and manage Trouble Tickets.
- Generates a variety of reports about Trouble Tickets, including trend reports.
- Defines a consistent "life-cycle" for Trouble Tickets.
- Can be extended readily due to its highly customizable fields, workflow rules, system notifications, and user permissions.

TTPro gives ECS operators, technicians, and managers the means to manage a system defect through its lifecycle, whether as a Trouble Ticket at a DAAC or a non-conformance report at the EDF. Within TTPro a separate project (also known as a "database") exists for each ECS site's Trouble Tickets.

TTPro has a client/server architecture. The server is hosted on a Linux machine at the EDF, while client access is available locally or remotely via Windows-, Linux-, Mac OS, and Web-based clients.

User Services and other operations and support personnel use TTPro to perform the functions listed in Table 4.3.6-1. The sections that follow describe the GUIs that perform these functions, many of which include customizations made for ECS. Standard product features are mentioned but not discussed in detail. For more information about them, use the context sensitive help the tool provides, or refer to the following TestTrack vendor documents:

- *TestTrack Installation Guide, Version 2011.1*
- *TestTrack User Guide, Version 2011.1*
- *TestTrack Web User Guide, Version 2011.1*
- *Seapine License Server Admin Guide, Version 2011.1*

**Table 4.3.6-1. Common ECS Operator Functions Performed using TestTrack Pro (1 of 3)**

Operating Function	GUI (Section)	Description	When and Why to Use
Access defect tracking services	Login screens (4.3.6.2)	<ul style="list-style-type: none"> <li>Operators start their client of choice and use the Login screens to access a TTpro project. The Login screen is the gateway to TestTrack Pro's features. By default, users land on the Trouble Ticket list screen from where all other functions can be performed.</li> </ul>	When there is a need to submit, query, or revise a Trouble Ticket.
Submit a Trouble Ticket	Add Trouble Ticket screen (4.3.6.2.2)	<ul style="list-style-type: none"> <li>Operators add a new Trouble Ticket to the system.</li> <li>Trouble Ticket form is used to enter information about the problem.</li> </ul>	When a problem is either found by or reported to User Services.
Browse Trouble Tickets	Edit Trouble Ticket screen (4.3.6.2.3)	<ul style="list-style-type: none"> <li>Operators review existing Trouble Tickets.</li> <li>Allows entry of new information about the problem and recording of events that advance the defect report through its lifecycle states.</li> </ul>	When information needs to be added to a Trouble Ticket or when a Trouble Ticket needs to be viewed.
Escalate a Trouble Ticket to the EDF	Escalate screen (4.3.6.2.4.5)	<ul style="list-style-type: none"> <li>Operators raise an Escalate event that forwards a specified Trouble Ticket to the EDF.</li> <li>A script uses TTPro's SOAP API to create a defect report in the Operations_NCRs project automatically using information from the Trouble Ticket.</li> <li>Notifications are sent to the EDF and the ticket owner that a ticket has been escalated.</li> </ul>	When assistance in resolving the Trouble Ticket is needed from the EDF or the problem requires a hardware or software change.

**Table 4.3.6-1. Common ECS Operator Functions Performed using TestTrack Pro (2 of 3)**

Operating Function	GUI (Section)	Description	When and Why to Use
Generate reports	Reports screen (4.3.6.2.5)	<ul style="list-style-type: none"> <li>• Operators run or create new reports. The screen is accessed from the Trouble Ticket list screen. Reports can be viewed, created, edited, deleted, printed, or previewed by selecting the appropriate button on the Reports screen.</li> </ul>	When information is needed about one or more Trouble Tickets.
Add, delete, or modify user accounts	License Server Admin tool's Global Users screen (4.3.6.2.13) TTPro Client Edit Users screen (4.3.6.2.8)	<ul style="list-style-type: none"> <li>• TTPro administrators add, delete, and modify user profiles, including user IDs and passwords.</li> <li>• TTPro administrators assign operators and users to a security groups on a project-by-project basis. Each project's security groups enforce what the operator or user can do in that project.</li> </ul>	When there is a need to update: 1) the list of operators and users authorized to access each project; 2) what features and records an operator or user can access; 3) contact information and/or passwords; and. 4) reset individual passwords.
Customize pulldown menus	Setup <field> Names screens (4.3.6.2.9-4.3.6.2.11)	<ul style="list-style-type: none"> <li>• TTPro administrators add, edit, reorder, and delete values used in TTPro's field pulldown menus. This ensures that data is entered uniformly in fields used for categorizing defects.</li> </ul>	When current menus require updating.

**Table 4.3.6-1. Common ECS Operator Functions Performed using TestTrack Pro (3 of 3)**

Operating Function	GUI (Section)	Description	When and Why to Use
Issue Notifications	Configure Automation Rules screen  Edit Trouble Ticket screens  User Options screen (4.3.6.2.10 & 4.3.6.2.11)	<ul style="list-style-type: none"> <li>• TTPro administrators configure rules used by TTPro for issuing system notifications to individual operators and users. System notifications are used primarily to alert defect report assignees, submitters, etc. when their defect report or its status has changed.</li> <li>• Operators and users designate particular individuals to receive an e-mail whenever a Trouble Ticket or NCR has changed.</li> <li>• Operators and users define personal rules the system uses to e-mail them about changes to defect reports they are authorized to see.</li> </ul>	To inform someone via e-mail when a Trouble Ticket or NCR changes in one or more of a variety of ways.

### 4.3.6.1 Quick Start Using TestTrack Pro

This section describes how to invoke TTPro. For more information, use the context sensitive help the tool provides, or refer to the following vendor documents:

- *TestTrack User Guide, Version 2011.1*
- *TestTrack Web User Guide, Version 2011.1*

#### 4.3.6.1.1 Invoking TestTrack Pro

The various TTPro clients are started differently.

To start the Windows client on Windows XP:

Click start → All Programs → Seapine Software → TestTrack → TestTrack Client on your desktop.

To start the Linux client, enter:

```
/usr/ecs/OPS/COTS/ttpro/bin/ttclient &
```

To start the Mac client, double-click the **TestTrack Client** icon in the Applications/TestTrack folder.

To start the Web client, open a browser and enter the following URL:

**https://links.gsfc.nasa.gov:<port>**

Under Windows, Linux, and Mac OS, a Login dialog box similar to that in Figure 4.3.6-1 will appear. (See Section 4.3.6.2.14 for a discussion of the Web login screen.)

Select the TestTrack Server you want to access, and enter your TTPro Username (i.e., login ID) and password. Since the URL for the Web client already specifies the server to use, its Login GUI requests only the Username and Password.



**Figure 4.3.6-1. TestTrack Studio Login GUI**

Table 4.3.6-2 provides a description of the Login screen's field.

**Table 4.3.6-2. TestTrack Studio Login Field Descriptions**

Field Name	Data Type	Size	Entry	Description
Server	Selection	*	Required	Your name for this TTPro server connection.
Username	Selection	*	Required	User's TTPro login id.
Password	Selection	*	Required	User's TTPro password.

**\*Note:** the size of a field with a "selection" data type can vary and the size is automatically adjusted to the size of the item selected from the selection list.

The Login screen has the following buttons:

- **Setup...** Opens the Edit TestTrack Pro Server GUI for defining server connections
- **Connect** Submits user's credentials to determine which projects the user can access
- **Cancel** Closes the screen and ends the login sequence.

If using TTPro for the first time, the Add TestTrack Server GUI will appear so you can define a TTPro server connection (see Figure 4.3.6-2). Your TTPro administrator can help you set up the connection.



**Figure 4.3.6-2. Add TestTrack Server GUI**

Table 4.3.6-3 provides a description of the Add TestTrack Server screen’s fields.

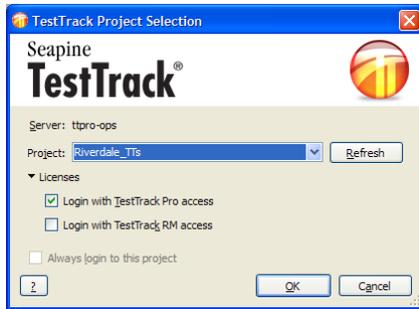
**Table 4.3.6-3. Add TestTrack Server Field Descriptions**

Field Name	Data Type	Size	Entry	Description
Server Name	Character	> 200	Required	Name of TTPro server connection.
Server Address	Character	> 200	Required	Fully qualified domain name of the TTPro server.
Port	Integer	5	Required	Port on which TTPro clients communicate with the TTPro server.

The TestTrack Project Selection screen has the following buttons:

- **OK** Adds the new server definition to the user’s configuration
- **Cancel** Closes the screen without accepting entered data.

Upon username and password verification, the TestTrack Project Selection GUI appears (see Figure 4.3.6-3). Use this screen to specify which project to log in to. The Project picklist displays only the projects to which the user has access. If the picklist is empty or indicates that projects are loading, click **Refresh** after a few moments to retrieve a new list. You can set the **Always login to this project** checkbox to use this project as your default in the future.



**Figure 4.3.6-3. TestTrack Project Selection GUI**

Table 4.3.6-4 provides a description of the TestTrack Project Selection screen's fields.

**Table 4.3.6-4. TestTrack Project Selection Field Descriptions**

Field Name	Data Type	Size	Entry	Description
Project	Selection	*	Required	Name of the project to logon to. Lists only the projects the user is authorized to access.
Login with TestTrack Pro access	Check box	n/a	Optional	Requests access to Trouble Tickets. Uses a TestTrack Pro license.
Login with TestTrack RM access	Check box	n/a	Optional	Requests access to Requirements and Requirement documents. Uses a TestTrack RM license.

**\*Note:** the size of a field with a "selection" data type can vary and the size is automatically adjusted to the size of the item selected from the selection list.

To conserve licenses, be sure to deselect requests for Licenses your session will not need.

The TestTrack Project Selection screen has the following buttons:

- **Refresh**      Retrieves the latest list of available TestTrack projects the user is authorized to access.
- **OK**            Logs the user into the selected project.
- **Cancel**        Cancels the logon request.

The sections that follow describe the screens displayed by the Windows, Linux, and Mac clients. The Web Client provides the same functionality and fields, but the displays and user interactions are necessarily somewhat different.

### 4.3.6.2 Main Screen

TTPro's main screen is shown in Figure 4.3.6-4. From here Trouble Tickets can be submitted, queried, modified, and escalated. The GUI can manage multiple windows concurrently, and it offers a menu bar and a complement of movable toolbars for easily navigating system screens.

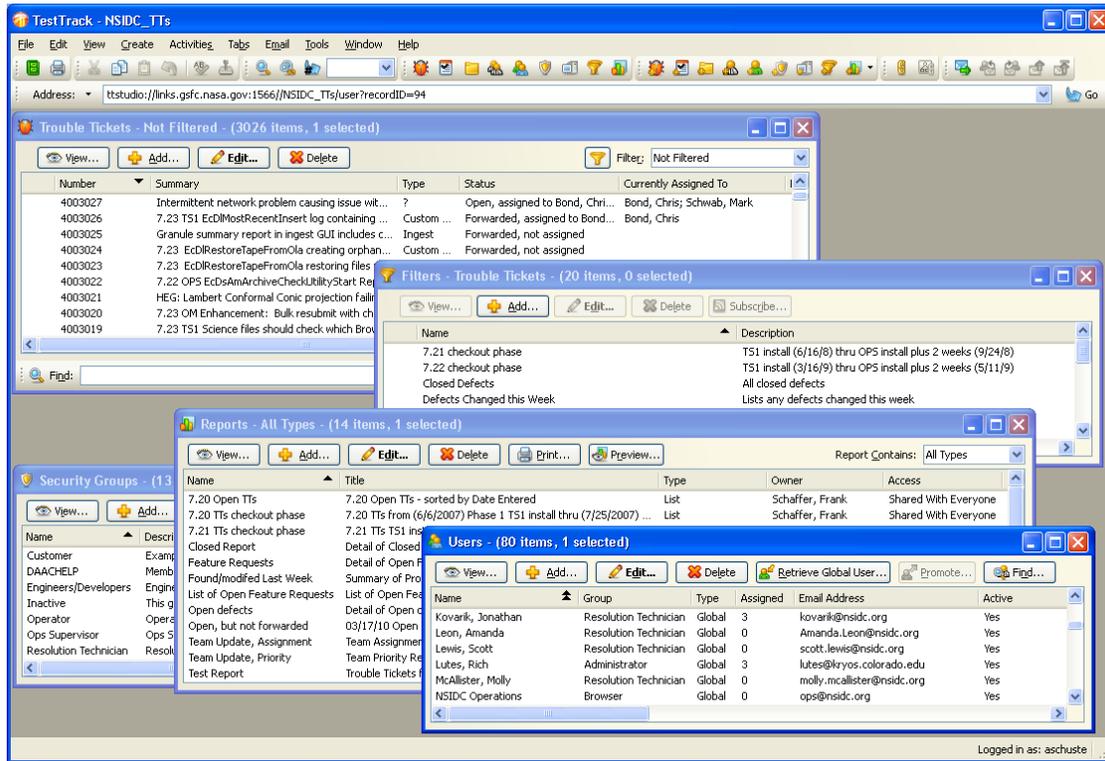


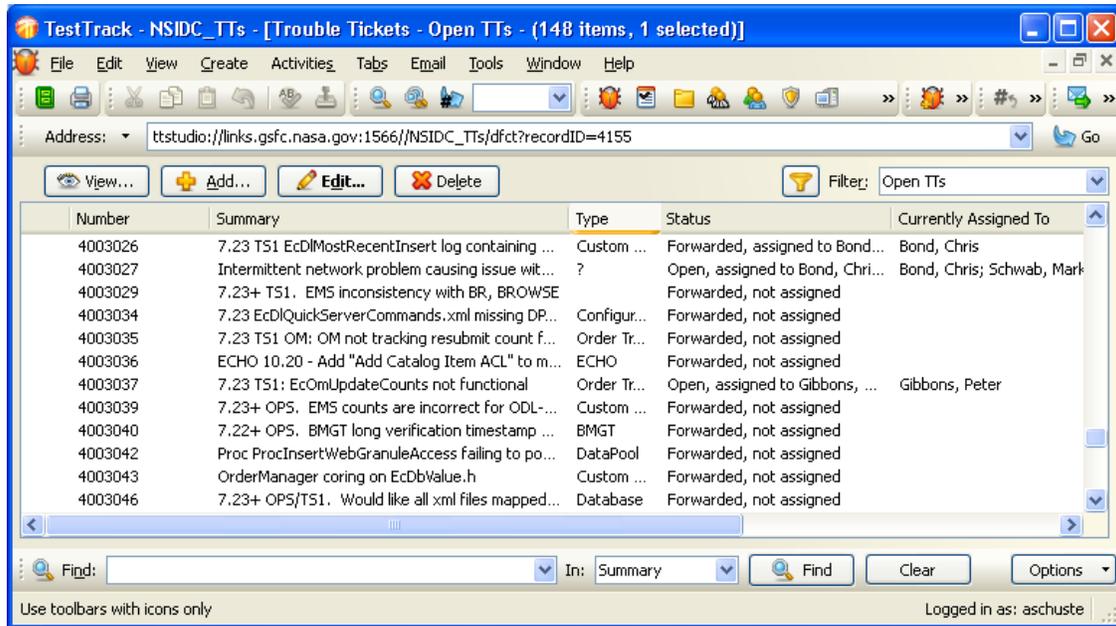
Figure 4.3.6-4. Main GUI

#### 4.3.6.2.1 Trouble Ticket List Screen

Operators and users use the Trouble Ticket List screen (see Figure 4.3.6-5) to browse, select, and open one or more Trouble Tickets. Use the Filter pull down menu to retrieve the records you want. Initiate action on a Trouble Ticket by clicking on a row then on one of the action buttons. Initiate action on multiple records by dragging your mouse over several rows before pressing the action button.

The screen can be configured to display data as you prefer. Insert or remove columns of data by right-clicking on the column heading. Adjust the width of a column by dragging the bar in the column heading that separates it from its neighbor, or double-click on the bar to size it automatically. Sort the data by clicking on a column heading; add a secondary sort by holding the Shift key and clicking on a second column heading.

**Important:** Exit the screen by selecting **File** → **Logout** and **Disconnect** from the TTPro menu bar. On the Web client, use the **Logout** hyperlink. Otherwise, the system may not release the license immediately.



**Figure 4.3.6-5. Trouble Tickets List GUI**

Table 4.3.6-5 provides a description of the Trouble Ticket List screen's field.

**Table 4.3.6-5. Trouble Tickets List Field Descriptions**

Field Name	Data Type	Size	Entry	Description
Address	String	n/a	Optional	TTPro address for the current list window or open item. Can display ttstudio or http addresses.
Filter	Selection	*	Optional	Name for the set of criteria to be used by the system to determine which Trouble Tickets to display.
Find	String		Optional	Value to search for.
In	Selection	*	Optional	Field in which to search for the value.

**\*Note:** the size of a field with a "selection" data type can vary and the size is automatically adjusted to the size of the item selected from the selection list.

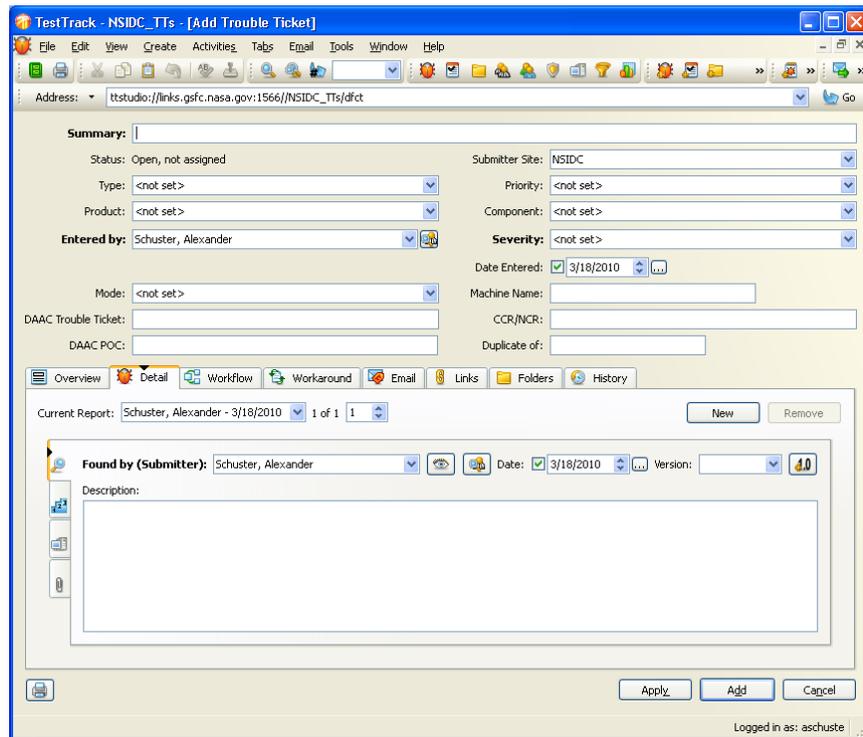
The Trouble Tickets List screen has the following buttons:

- **View...** Opens a Trouble Ticket for viewing only.
- **Add...** Opens the Add Trouble Ticket screen for submitting a new Trouble Ticket.

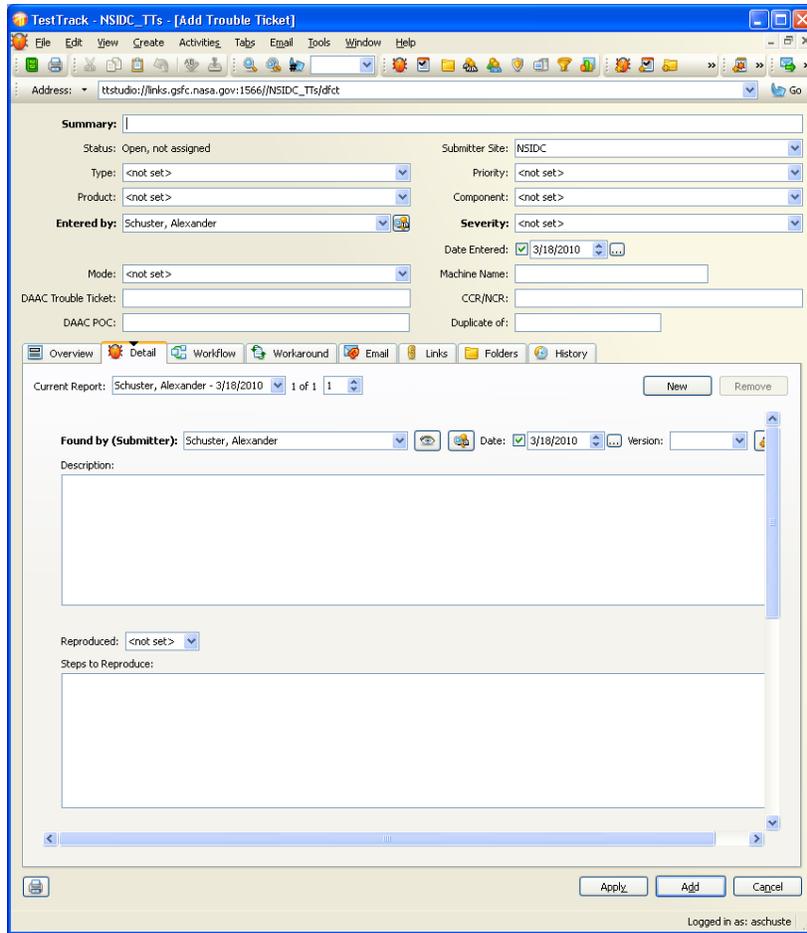
- **Edit...** Opens a Trouble Ticket for modification.
- **Delete** Removes a Trouble Ticket from the database
- **Find** Initiates a search for records that meet the criteria specified by values in the Find and In fields
- **Clear** Clears the find results
- **Options** Opens a menu of advanced conditions for tailoring a record search

#### 4.3.6.2.2 Add Trouble Ticket Screen

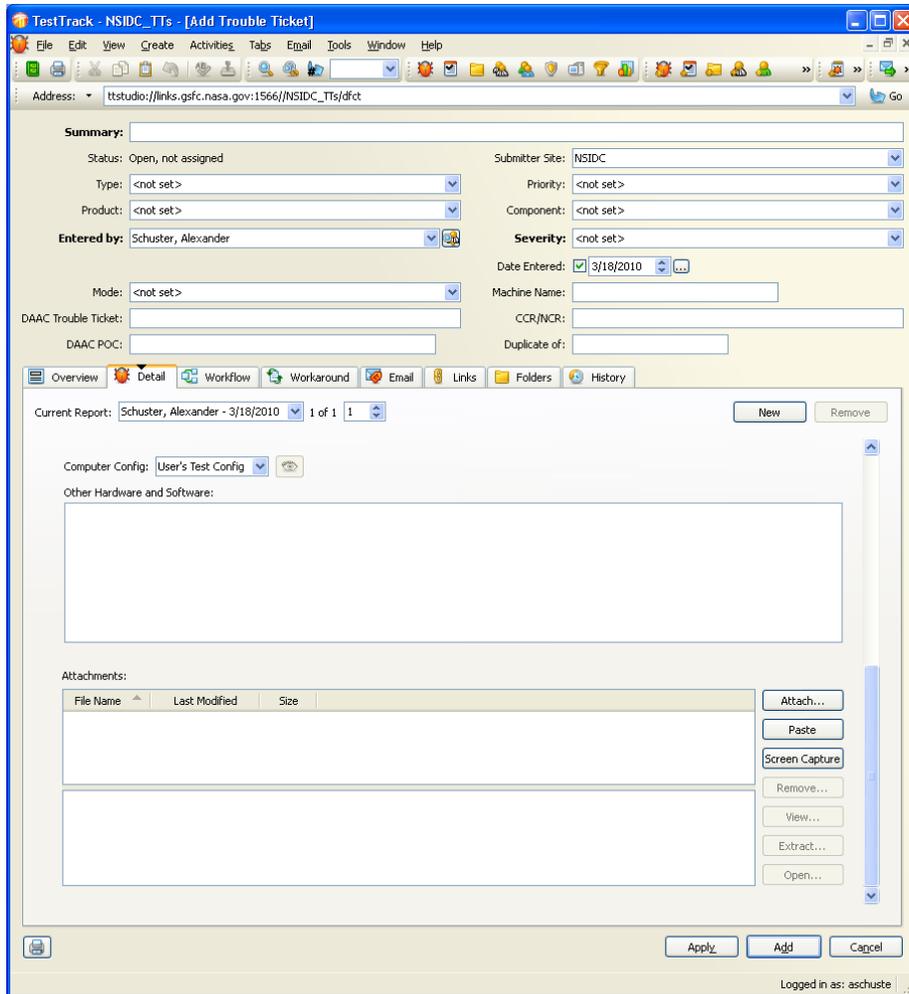
The Add Trouble Ticket screen (Figures 4.3.6-6 thru 4.3.6-8) is used for reporting an operational issue or problem in ECS. Depending on how a user's options are configured, the screen will display in either vertical tab (see Figure 4.3.6-6) or single page (see Figures 4.3.6-7 thru 4.3.6-8) format. Clicking **Add** on this screen creates the Trouble Ticket and commits the data to the database.



**Figure 4.3.6-6. Add Trouble Ticket GUI – Vertical Tab View**



**Figure 4.3.6-7. Add Trouble Ticket GUI – Single Page View - Top of Page**



**Figure 4.3.6-8. Add Trouble Ticket GUI – Single Page View - Bottom of Page**

Table 4.3.6-6 provides a description of the Add Trouble Ticket screen’s fields.

**Table 4.3.6-6. Add Trouble Ticket Field Descriptions (1 of 2)**

Field Name	Data Type	Size	Entry	Description
Summary	Character	154	Required	Short Description of the problem.
Status	Character	n/a	System generated	Status of the Trouble Ticket (a combination of state and assignment status).
Submitter Site	Selection	*	Optional	Trouble ticket’s originating site.

**Table 4.3.6-6. Add Trouble Ticket Field Descriptions (2 of 2)**

Field Name	Data Type	Size	Entry	Description
Type	Selection	*	Optional	Type of problem or issue (e.g., Configuration Error, Hardware Problem, Software Problem).
Priority	Selection	*	Optional	Priority of Trouble Ticket assigned at the site.
Product	Selection	*	Optional	Product exhibiting the problem or issue.
Component	Selection	*	Optional	Product's component exhibiting the problem or issue. In legacy (Remedy) tickets, it is the name of the configuration item with which the problem is associated.
Entered by	Selection	*	Required	Name of the person who created the Trouble Ticket.
Severity	Selection	*	Required	Impact of the problem to the submitter.
Date Entered	Date	n/a	Optional	Date Trouble Ticket was created.
Mode	Selection	*	Optional	Run mode in which problem was detected.
Machine Name	Character	n/a	Optional	Name of machine on which problem was detected.
DAAC Trouble Ticket	Character	n/a	Optional	Legacy identifier of Trouble Ticket (from Remedy ARS).
CCR/NCR	Character	n/a	Optional	Identifier of a related CCR or NCR. If more than one, separate each by a space or semicolon for readability.
DAAC POC	Character	n/a	Optional	Name of the issue's point of contact at the DAAC. Used when escalating Trouble Tickets to the ECS PRB for advice or resolution.
Duplicate of	Character	n/a	Optional	Identifier of an earlier Trouble Ticket addressing the same issue.
Current Report	Selection	*	Optional	Submitter and date of an occurrence of the problem or issue. Helps browse through multiple reports of the same issue.
1 of n	Selection	*	System Generated	Identifier that distinguishes among multiple instances or reports of the same problem or issue.
Found by (Submitter)	Selection	*	Required	Full Name of the Submitter.
Date	Date	n/a	Optional	Date issue or problem occurred.
Version	Selection	*	Optional	Product version exhibiting the issue.
Description	Character	4060	Optional	Detailed description of the problem.

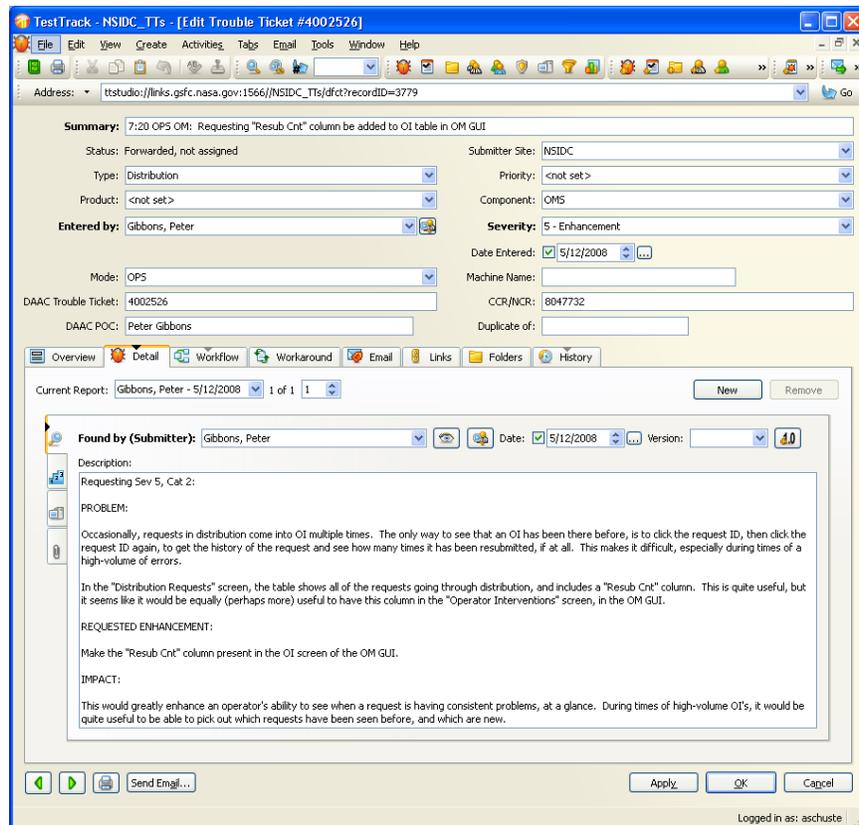
\* **Note:** The size of a field with a "selection" data type can vary and the size is automatically adjusted to the size of the item selected from the selection list.

The Add Trouble Ticket screen has the following buttons:

- **New** Adds another Found By record to the trouble ticket.
- **Remove** Removes the displayed Found By record from the trouble ticket.
- **Edit User** (eye icon) Opens the Found By user's profile record for editing.
- **Find Customer** (customer icon) Opens a menu of advanced conditions for tailoring a record search.
- **Printer** Generates a detail report of the open item.
- **Apply** Opens a Trouble Ticket for viewing only.
- **Add** Saves the trouble ticket and adds it to the project.
- **Cancel** Exits the screen without saving data.

#### 4.3.6.2.3 Edit Trouble Ticket Screen

The Edit Trouble Ticket (see Figure 4.3.6-9) screen is used to update an existing Trouble Ticket and advance it through its lifecycle states. The latter is done by selecting an appropriate item on the Activities menu or clicking the appropriate Activities icon (in this view, the second row of icons on the toolbar), either of which opens an Activity screen (see Section 4.3.6.2.4).



**Figure 4.3.6-9. Edit Trouble Ticket GUI**

The Edit Trouble Ticket screen's fields are the same as those for the Add Trouble Ticket screen (see Table 4.3.6-6 above).

This screen has four buttons that differ from those on the Add Trouble Ticket screen:

- **Left arrow** Commits changes to the database and displays the previous Trouble Ticket in the Trouble Ticket list.
- **Right arrow** Commits changes to the database and displays the next Trouble Ticket in the Trouble Ticket list.
- **Send Email...** Opens a screen for composing and sending email to one or more TTPro users. Senders can use an email template to include data about the open trouble ticket.
- **OK** Commits changes to the database.

#### 4.3.6.2.4 Activity Screens

The screens in this section advance Trouble Tickets through their lifecycle states.

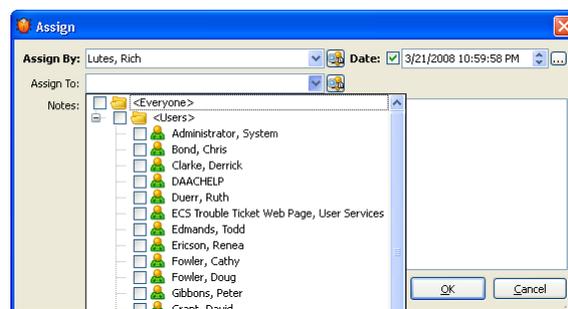
Each activity screen has the following buttons:

- **OK** Accepts entered data and closes the screen.
- **Cancel** Closes the screen without accepting entered data.

**Important:** Clicking **OK** does not update the database. The database is updated only when subsequently closing the calling Add Trouble Ticket or Edit Trouble Ticket screens.

##### 4.3.6.2.4.1 Assign Screen

The Assign screen (see Figure 4.3.6-10) is used for recording that a staff member has been assigned to work on the issue described by the Trouble Ticket.



**Figure 4.3.6-10. Assign GUI**

Table 4.3.6-7 provides a description of the Assign screen's fields.

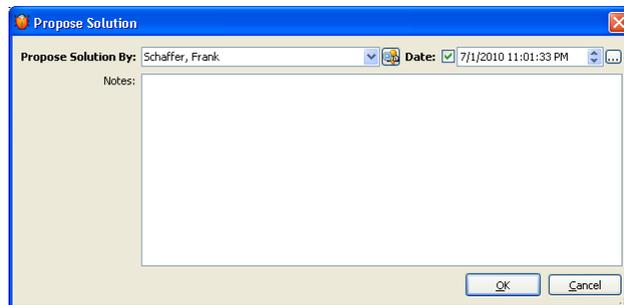
**Table 4.3.6-7. Assign Field Descriptions**

Field Name	Data Type	Size	Entry	Description
Assign By	Selection	*	Required	The person who is making the assignment.
Date	Date/Time	n/a	Required	Date assignment is made.
Assign To	Selection	*	Optional	Name of the assignee.
Notes	Text		Optional	Message for the assignee.

**\*Note:** The size of a field with a "selection" data type can vary and the size is automatically adjusted to the size of the item selected from the selection list.

#### 4.3.6.2.4.2 Propose Solution Screen

The Propose Solution screen (see Figure 4.3.6-11) is used for documenting how to resolve the issue described by the Trouble Ticket. Clicking **OK** on this screen advances the Trouble Ticket to the Solution Proposed state.



**Figure 4.3.6-11. Propose Solution GUI**

Table 4.3.6-8 provides a description of the Propose Solution screen's fields.

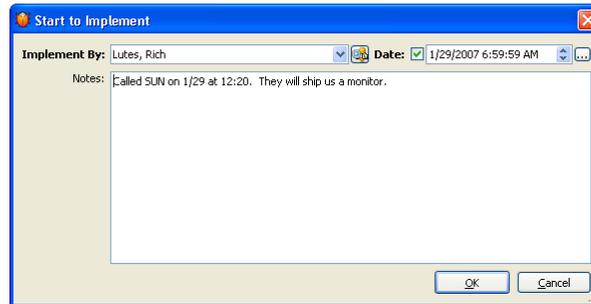
**Table 4.3.6-8. Propose Solution Field Descriptions**

Field Name	Data Type	Size	Entry	Description
Propose Solution By	Selection	*	Required	The person who is proposing the solution.
Date	Date/Time	n/a	Required	Date solution is proposed.
Notes	Text	n/a	Optional	The proposed solution.

**\*Note:** the size of a field with a "selection" data type can vary and the size is automatically adjusted to the size of the item selected from the selection list.

#### 4.3.6.2.4.3 Start to Implement Screen

The Start to Implement screen (see Figure 4.3.6-12) is used for documenting work towards implementing the solution to the problem described in the Trouble Ticket. Clicking OK on this screen advances the Trouble Ticket to the Start to Implement state.



**Figure 4.3.6-12. Start to Implement GUI**

Table 4.3.6-9 provides a description of the Start to Implement screen's fields.

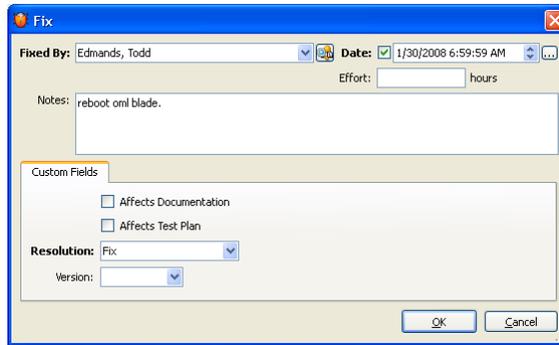
**Table 4.3.6-9. Start to Implement Field Descriptions**

Field Name	Data Type	Size	Entry	Description
Implement By	Selection	*	Required	The person who is implementing the solution.
Date	Date/Time	n/a	Required	Date work started towards a solution.
Notes	Text	n/a	Optional	Details on progress towards solution.

\***Note:** the size of a field with a "selection" data type can vary and the size is automatically adjusted to the size of the item selected from the selection list.

#### 4.3.6.2.4.4 Fix Screen

The Fix screen (see Figure 4.3.6-13) is used for reporting that the issue described in the Trouble Ticket has been solved. Clicking **OK** on this screen advances the Trouble Ticket to the Fixed state.



**Figure 4.3.6-13. Fix GUI**

Table 4.3.6-10 provides a description of the Fix screen's fields.

**Table 4.3.6-10. Fix Field Descriptions**

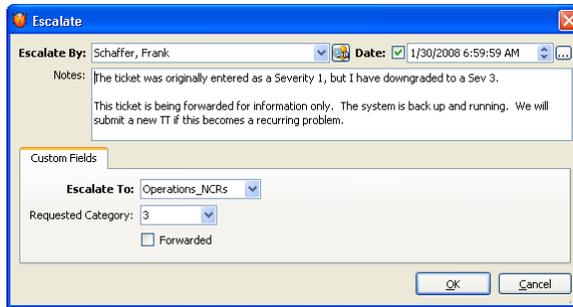
Field Name	Data Type	Size	Entry	Description
Fixed By	Selection	*	Required	The person who fixed the problem.
Date	Date/Time	n/a	Required	Date solution was implemented.
Effort	Decimal		Optional	Hours it took to resolve the issue.
Notes	Text		Optional	Details of how the issue was resolved.
Affects Documentation	Check box	n/a	Optional	Is a documentation change req'd?
Affects Test Plan	Check box	n/a	Optional	Is a test plan change req'd?
Resolution	Selection	*	Required	Type of resolution.
Version	Selection	*	Optional	Product version first containing fix.

**\*Note:** the size of a field with a "selection" data type can vary and the size is automatically adjusted to the size of the item selected from the selection list.

#### 4.3.6.2.4.5 Escalate Screen

The Escalate screen (see Figure 4.3.6.14) is used for forwarding an issue to the ECS Problem Review Board (PRB) for advice or resolution. Clicking **OK** on this screen advances the Trouble Ticket to the Forwarded state.

**Note:** A cron job runs periodically to extract the data from escalated Trouble Tickets in order to create corresponding ECS non-conformance reports (NCRs).



**Figure 4.3.6-14. Escalate GUI**

Table 4.3.6-11 provides a description of the Escalate screen's fields.

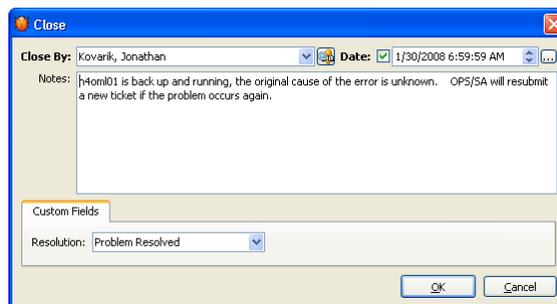
**Table 4.3.6-11. Escalate Field Descriptions**

Field Name	Data Type	Size	Entry	Description
Escalate By	Selection	*	Required	The person who is escalating the problem.
Date	Date/Time	n/a	Required	Date Trouble Ticket is escalated.
Notes	Text		Optional	Details of how the issue was resolved.
Escalate To	Selection	*	Required	Name of target NCR project.
Requested Category	Selection	*	Optional	A measure of how soon the escalator would like the fix.
Forwarded	Check box	n/a	System	Whether or not the Trouble Ticket has been forwarded to the EDF.

**\*Note:** the size of a field with a "selection" data type can vary and the size is automatically adjusted to the size of the item selected from the selection list.

#### 4.3.6.2.4.6 Close Screen

The Close screen (see Figure 4.3.6-15) is used to document that the issue described in the Trouble Ticket has been rejected or abandoned, or that work has been completed. Clicking **OK** on this screen advances the Trouble Ticket to the Closed state.



**Figure 4.3.6-15. Close GUI**

Table 4.3.6-12 provides a description of the Close screen's fields.

**Table 4.3.6-12. Close Field Descriptions**

Field Name	Data Type	Size	Entry	Description
Close By	Selection	*	Required	The person who closed the Trouble Ticket.
Date	Date/Time	n/a	Required	Date the Trouble Ticket was closed.
Notes	Text		Optional	Supporting information for closing the Trouble Ticket.
Resolution	Selection	*	Required	Why the Trouble Ticket can be closed.

**\*Note:** the size of a field with a "selection" data type can vary and the size is automatically adjusted to the size of the item selected from the selection list.

#### 4.3.6.2.4.7 Comment Screen

The Comment screen (see Figure 4.3.6-16) is used for recording miscellaneous notes related to the Trouble Ticket. It does not change the ticket's life cycle state.



**Figure 4.3.6-16. Comment GUI**

Table 4.3.6-13 provides a description of the Comment screen's fields.

**Table 4.3.6-13. Comment Field Descriptions**

Field Name	Data Type	Size	Entry	Description
Comment By	Selection	*	Required	The person who is recording the comment.
Date	Date/Time	n/a	Required	Date the comment is recorded.
Notes	Text		Optional	The comment.

**\*Note:** the size of a field with a "selection" data type can vary and the size is automatically adjusted to the size of the item selected from the selection list.

#### 4.3.6.2.5 Reports Screen

The Reports screen (see Figure 4.3.6-17) is used for generating pre-defined and ad hoc Trouble Ticket reports. Four types of reports are possible: list, detail, trend, and distribution. (See Section 4.3.6.8.1 for an example of each.) TTPro uses style sheets as templates for generating reports.

The TestTrack User Guide and the TestTrack Web User Guide provide details about the subordinate screens used to define new reports, including how to specify or edit stylesheets, page breaks, sort columns, timeframes, totals, and charts.

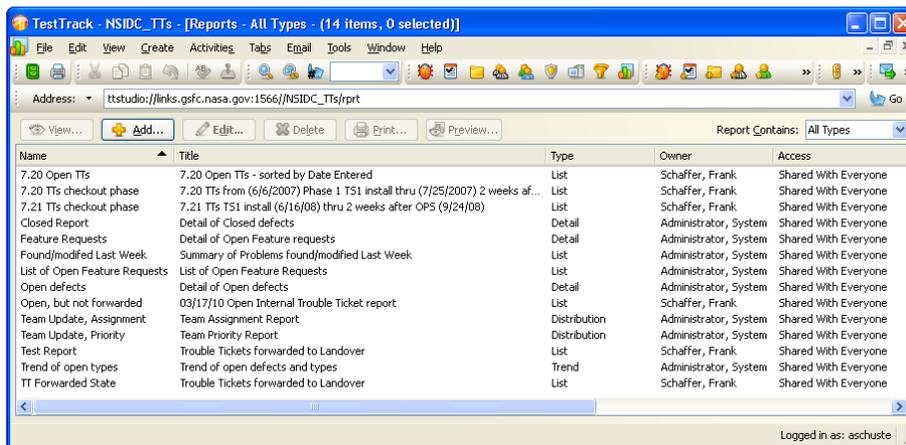
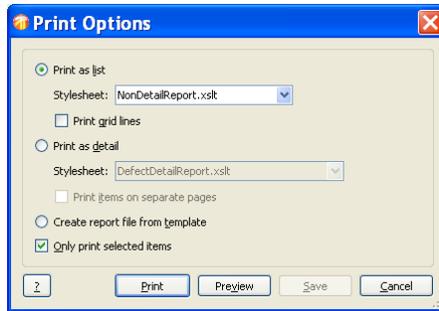


Figure 4.3.6-17. Reports GUI

The Reports screen has the following buttons:

- **View...** Opens a screen for viewing the configuration of the report.
- **Add...** Opens a screen for defining a new report.
- **Edit...** Opens a screen for editing the configuration of a pre-defined report.
- **Delete** Deletes an operator-selected report.
- **Print** Runs the report, directing output to a selected printer (Windows client only)
- **Preview** Runs the report and presents it via the user's default web browser

The Print Options screen (see Figure 4.3.6-18) provides another means of printing adhoc reports containing one or more items from any TTPro list window, including trouble tickets. This screen is invoked by selecting items to print and then clicking **File** → **Print...** on TTPro's menu bar.



**Figure 4.3.6-18. Print Options GUI**

Table 4.3.6-14 provides a description of the Print Options screen's fields.

**Table 4.3.6-14. Print Options Field Descriptions**

Field Name	Data Type	Size	Entry	Description
Print as list	Boolean		Optional	Print columns from list window, one item per line.
Stylesheet	Selection		Required	Definition of the document's appearance.
Print gridlines	Boolean		Optional	Prints lines between cells.
Print as detail	Boolean		Optional	Prints all information about the item.
Print items on separate pages	Boolean		Optional	Inserts a page separator between items.
Create report from template	Boolean		Optional	Prints a report based on a previously created template.
Only print selected items	Boolean	*	Optional	Prints only the items selected on the list window.

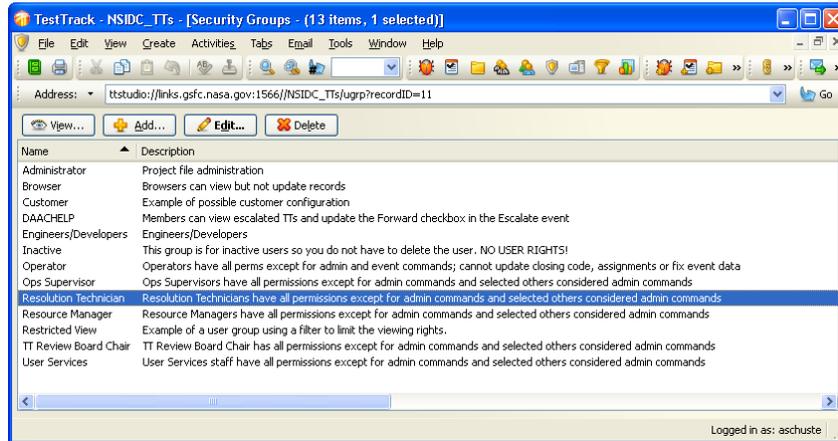
The Print Options screen has the following buttons:

- **Print** Generates a report, directing output to a selected printer (Windows client only)
- **Preview** Generates the report and presents it via the user's default web browser
- **Save** Saves the report as a text document
- **Cancel** Cancels the print request.

#### 4.3.6.2.6 Security Groups Screen

The Security Groups screen (see Figure 4.3.6-19) is used to manage profiles that define TTPro user roles and the system privileges granted to each role. Each TTPro project has its own set of

security groups. Users authorized access to a project must be assigned to one (and only one) security group.



**Figure 4.3.6-19. Security Groups GUI**

This screen has no data entry fields other than Address described earlier in Table 4.3.6-5.

The Security Groups screen has the following buttons:

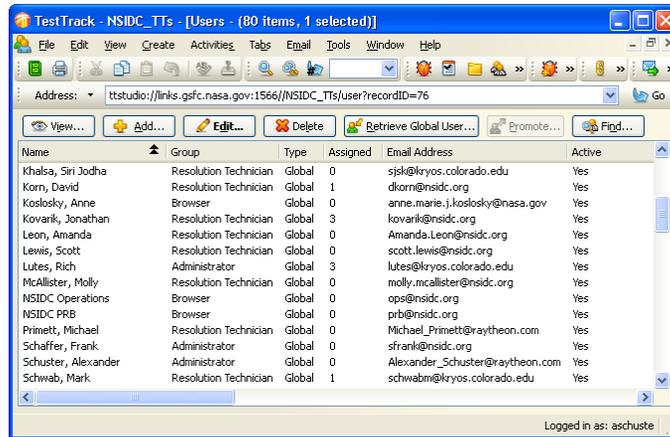
- **View...** Opens a screen for viewing selected groups' privileges within the project.
- **Add...** Opens a screen for adding a new group and its privileges to the project.
- **Edit...** Opens a screen for updating selected groups' privileges within the project.
- **Delete** Deletes selected security groups. Users who were members of the deleted group(s) are no longer assigned to any project. They cannot access the project nor can they receive project-issued e-mail notifications.

See the TestTrack manuals for descriptions of the Add Security Group, Edit Security Group, and View Security Group screens.

#### 4.3.6.2.7 Users Screen

The Users screen (see Figure 4.3.6-20) is used to manage profiles that define who can access the project's Trouble Tickets. Double-clicking on one or more users in the list opens either the View User or Edit User screens, depending on the client's user options settings.

Profiles can be global or local. Global user profiles can be shared among all TTPro projects on the network. Local user profiles are known only within the project in which they are defined, but they can be promoted to a global user profile if the user's name is unique among all projects.



**Figure 4.3.6-20. Users GUI**

This screen has no data entry fields other than Address described earlier in Table 4.3.6-5.

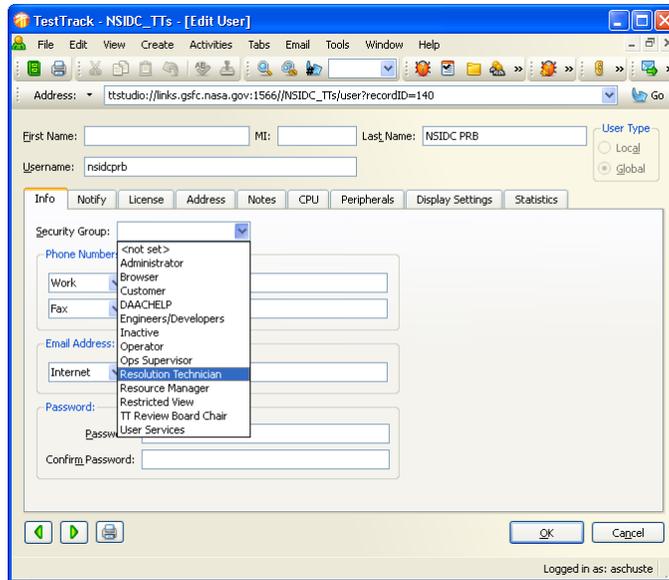
The Users screen has the following buttons:

- **View...** Opens a screen for viewing selected users' profiles within the project.
- **Add...** Opens a screen for adding a new user profile to the project.
- **Edit...** Opens a screen for updating selected user profiles within the project.
- **Delete** Deletes selected user profiles. Deleting a user removes all references to that user from the project's Trouble Tickets.
- **Retrieve Global User** Adds a user to the project by retrieving the user's profile from the TTPro license server's global user records.
- **Promote** Adds selected, local user profiles to the TTPro license server's global user database.
- **Find** Opens a screen for specifying advanced criteria for locating matching user records.

See the TestTrack manuals for descriptions of the Add User and View User screens. The Edit User screen is described in the next section.

#### 4.3.6.2.8 Edit User Screen

Use the Edit User screen (see Figure 4.3.6-21) to update user profiles for the project. Its fields are identical to those of the Add User and View User screens.



**Figure 4.3.6-21. Edit User GUI**

Table 4.3.6-15 provides a description of the Edit User screen's fields (Info tab only).

**Table 4.3.6-15. Edit User Field Descriptions (Info Tab only)**

Field Name	Data Type	Size	Entry	Description
First Name	Character	32	Optional	User's first name. (Optional only if a last name is specified.)
MI	Character	8	Optional	
Last Name	Character	32	Optional	User's surname. (Optional only if a first name is specified.)
Username	Character	32	Optional	User's logon ID
Security Group	Selection	*	Required	User's assigned security group
Phone Number (Type)	Selection	*	Optional	User's phone type (work, home, fax, pager, mobile)
Phone Number (Type)	Selection	*	Optional	User's phone type (work, home, fax, pager, mobile)
Email Address (Type)	Character	32	Optional	User's email type (Internet, MAPI, other).
Email Address	Character	32	Optional	User's e-mail address to use for notifications
Password	Character	n/a	Optional	User's Password
Confirm Password	Character	n/a	Optional	User's Password

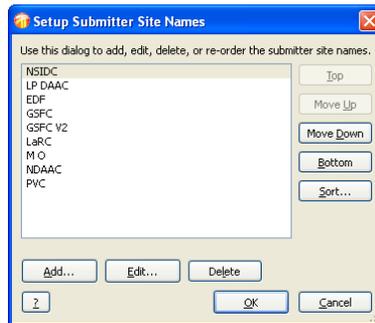
**\*Note:** The size of a field with a "selection" data type can vary and the size is automatically adjusted to the size of the item selected from the selection list.

In addition to the fields described in the above table, the Edit User screen contains the following buttons:

- **User Type** designates whether the user is to be registered with the TTPro license server's global user database shared by all projects it services.
- **Left arrow** Commits changes to the database and displays the previous Trouble Ticket in the Trouble Ticket list.
- **Right arrow** Commits changes to the database and displays the next Trouble Ticket in the Trouble Ticket list.

#### 4.3.6.2.10 Setup <Field> Names Screen

The Setup <Field> Names screen (see Figure 4.3.6-22) is used to pre-define values that can be entered via pull down menus attached to specific TTPro fields. On TTPro's Trouble Ticket screens, clicking the down arrow icon next to any of these fields displays the choices from which a user can select. This screen is reached by clicking Tools → Configure List Values → <field-name> Values... on the TTPro menu bar.



**Figure 4.3.6-22. Setup <Field> Name GUI**

This screen has no data entry fields.

The Setup <Field> Names screen contains the following buttons:

- **Add...** Opens a screen for adding a new value to the pull down menu list.
- **Edit...** Opens a screen for editing the selected value in the pull down menu list.
- **Delete** Deletes the selected value from the pull down menu.
- **Top** Moves the value to the top of the pull down menu's list.
- **Move Up** Move the value one position higher in the pull down menu's list.
- **Move Down** Moves the value one position lower in the pull down menu's list.
- **Bottom** Moves the value to the bottom of the pull down menu's list.
- **Sort...** Sorts the pull down menu's list of values alphabetically, either ascending or descending as specified on a supporting data entry screen.

#### 4.3.6.2.11 Configure Automation Rules Screen

The Configure Automation Rules screen (see Figure 4.3.6-23) is used for defining the conditions for TTPro to perform certain actions automatically. A separate tab controls each of three types of rules: notification, trigger, and escalation.

Notification rules email users about Trouble Ticket changes. Notifications can be issued for all or any subset of records, using a pre-defined or a custom e-mail template, to anyone authorized access to the project.

Trigger rules prevent users from performing an activity, create a workflow event, modify data, or run a server-side executable whenever a user attempts to save a record.

Escalation rules enter a workflow event, modify record fields, send email, or run a server-side executable based on a schedule.

This screen is invoked by clicking **Tools** → **Administration** → **Automation Rules** on TTPro's menu bar.

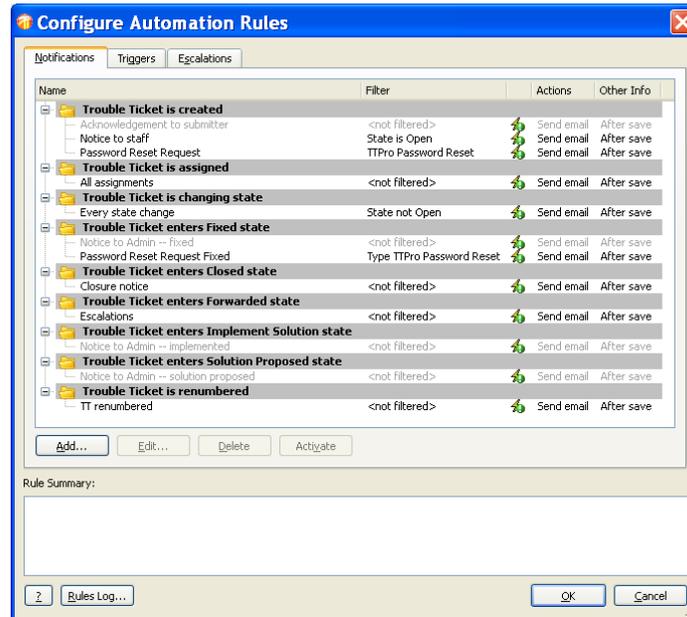


Figure 4.3.6-23. Configure Automation Rules GUI

This screen has no data entry fields.

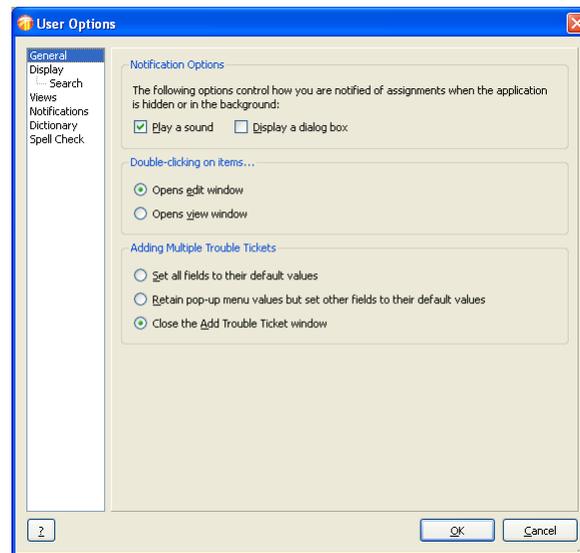
The Configure Automation Rules screen contains the following unique buttons:

- **Add** Opens a screen for adding rules for the selected Trouble Ticket events. See the TestTrack manuals for a description of this screen and how to use it.

- **Add Default** (Triggers tab only) Opens a screen for adding rules to perform actions on records that are not acted on by other triggers. See the TestTrack manuals for a description of this screen and how to use it.
- **Edit...** Opens a screen for adding rules for the selected Trouble Ticket events. See the TestTrack manuals for a description of this screen and how to use it.
- **Delete** Removes the selected rule.
- **Activate** Enables the selected rule.
- **Rules Log...** Exports the log for the selected rule to a text file for analysis or for use with other tools.

#### 4.3.6.2.10 User Options screen

The User Options screen (see Figure 4.3.6-24) lets users specify personal preferences about how TTPro behaves. These cover displays, notifications, a personal dictionary, spell checking, and a few, other, more general features. This screen is invoked by clicking **Tools** → **User Options** on TTPro's menu bar.



**Figure 4.3.6-24. Configure User Options GUI**

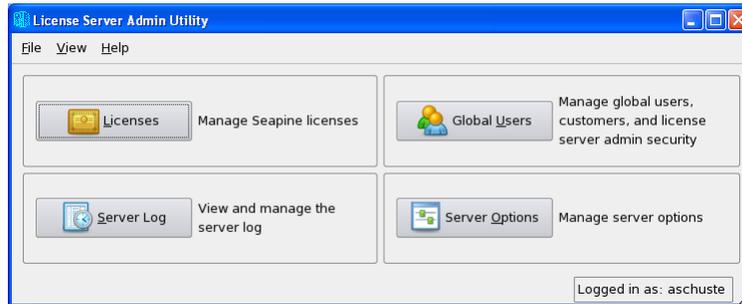
Most panes on the screen present a series of radio buttons or check boxes. The Dictionary pane, though, provides a dialog for specifying the main dictionary to be used when spell checking and for adding custom words to the dictionary.

See the TestTrack manuals for more details about using this screen.

#### 4.3.6.2.12 License Server Admin Utility

The License Server Admin Utility screen (see Figure 4.3.6-25) is the gateway to the collection of screens for managing TTPro license server operations. The GUI can be started only from the command line on the TTPro server machine, and access is generally limited to central TTPro system administrators.

Start the utility by typing, “ *<TTPro-root>/splicsvr/bin/ladmin &*”, and then log in.



**Figure 4.3.6-25. License Server Admin Utility GUI**

This screen has no data entry fields.

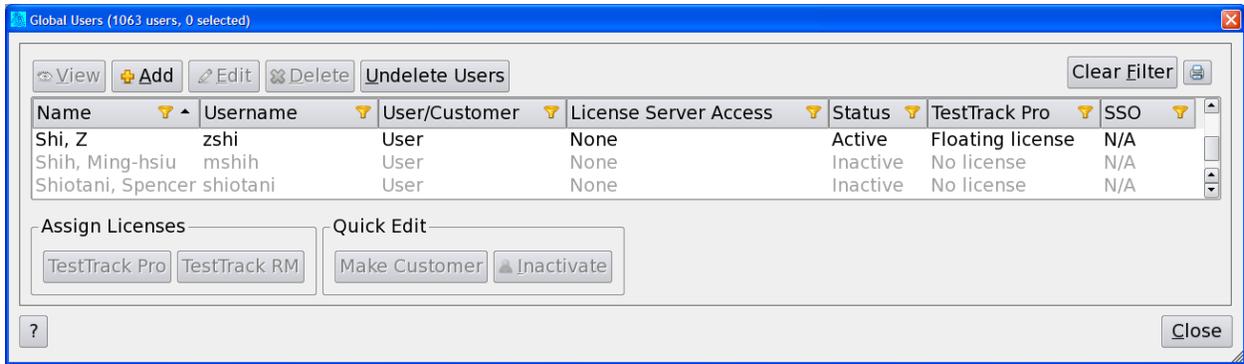
The License Server Admin Utility screen contains the following unique buttons:

- **Licenses** Opens a screen for adding, editing, and deleting TTPro licenses, as well as for associating users with single-user, “named” licenses when applicable. From this screen, administrators can navigate to the Floating Licenses Used screen to view who is currently using TTPro floating licenses network-wide.
- **Global Users** Opens a screen for adding, editing, and deleting user profiles. See Section 4.3.6.2.13, Global Users Screen below.
- **Server Log** Opens a screen for viewing, filtering, deleting and exporting license server log entries.
- **Server Options** Opens a screen for configuring log, license server, server database, LDAP, and password options. Password options cover requirements, restrictions and history.

See the Seapine License Server Admin Guide, Version 2011.1, for a thorough description of the screen mentioned above.

#### 4.3.6.2.13 Global Users Screen

The Global Users screen (see Figure 4.3.6-26) lets TTPro administrators conveniently manage the user profiles of individuals who need to access TTPro. Double-clicking on any row in the list opens the profile for the selected user. This screen is invoked by clicking on the Global Users button on the License Server Admin Utility GUI (see Section 4.3.6.2.11)



**Figure 4.3.6-26. Global Users GUI**

This screen has no data entry fields.

The Global Users screen contains the following buttons:

- **View**            Opens a screen for reading a user's record in the license server database.
- **Add**            Opens a screen for adding a new global user to the license server database.
- **Edit**            Opens a screen for changing a user's record in the license server database.
- **Delete**        Removes the selected user from the license server database.
- **Undelete**      Opens a screen for restoring a previously deleted user's profile.

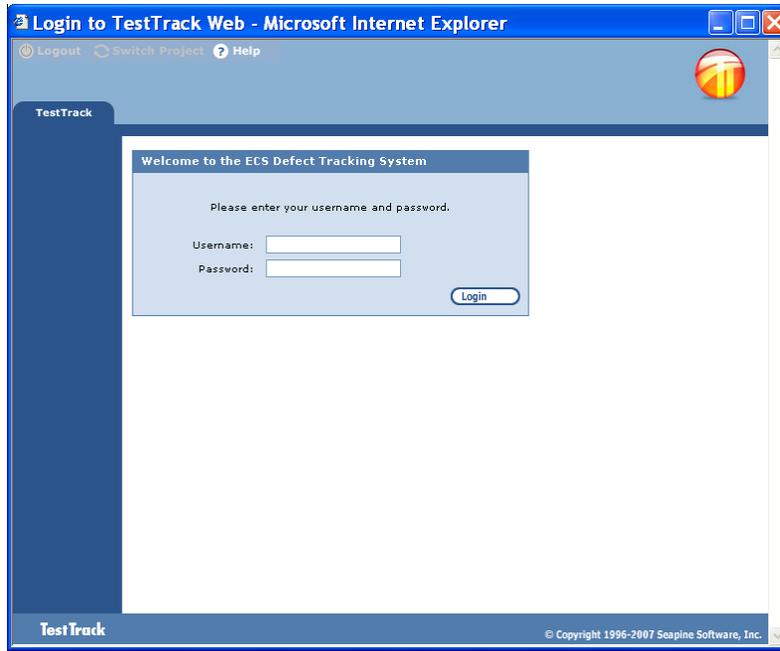
See the Seapine License Server Admin Guide, Version 2011.1, for a thorough description of the screen mentioned above.

#### 4.3.6.2.14 TestTrack Pro Web Client's Trouble Ticket Screen

TestTrack Pro has a Web client that has all the features of the Windows client, including submission, querying, and modification of Trouble Tickets via a browser. Users of TestTrack Web need:

- a computer with a Web browser that supports HTML 3.0 or later
- JavaScript enabled

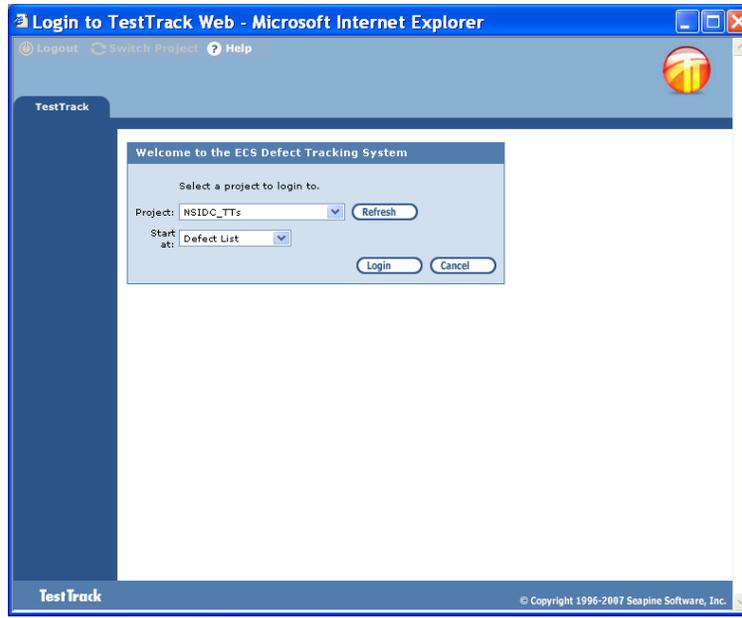
To reach the Web client, start the browser and enter the appropriate secure URL and port number. For example: `https://<host>.gsfc.nasa.gov:<port_number>`. The TTPro login window is then displayed as shown in Figure 4.3.6-27.



**Figure 4.3.6-27. Web Login Window**

The Project Selection window is used to choose which TTPro project.

Upon username and password verification, the TestTrack Project Selection window appears (see Figure 4.3.6-28). Use this screen to specify which project to log in to. The Project picklist displays only the projects to which the user has access. If the picklist is empty or indicates that projects are loading, click **Refresh** after a few moments to retrieve a new list.



**Figure 4.3.6-28. Project Selection Window**

Table 4.3.6-16 provides a description of the TestTrack Project Selection window's fields.

**Table 4.3.6-16. TestTrack Project Selection Field Descriptions**

Field Name	Data Type	Size	Entry	Description
Project	Selection	*	Required	Name of the project to logon to
Start at	Selection	*	Required	Name of list page to display initially

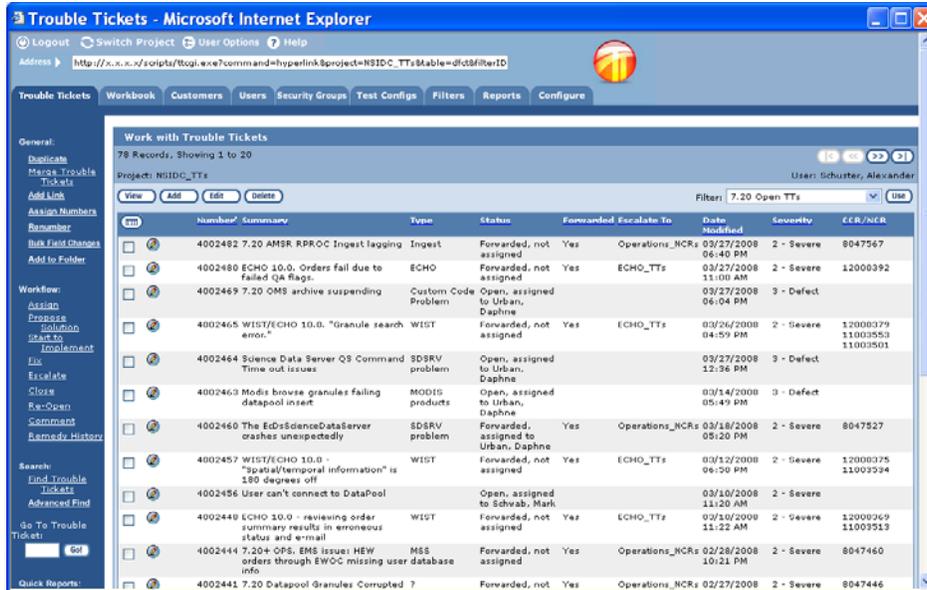
**\*Note:** The size of a field with a "selection" data type can vary and the size is automatically adjusted to the size of the item selected from the selection list.

The TestTrack Project Selection screen has the following buttons:

- **Refresh**      Retrieves the latest list of available TestTrack projects the user is authorized to access.
- **Login**         Logs the user into the selected project.
- **Cancel**         Cancels the login request.

Upon successful login, the Trouble Tickets List page is displayed as shown in Figure 4.3.6-29. As with the Windows client, the Trouble Tickets list page identifies all Trouble Tickets returned by the filter the user selects. Rather than a menu bar, however, the web page has tabs and a series of action links on the left side of the page to help users navigate and perform actions. To access a Trouble Ticket, users must select (click on) one or more Trouble Tickets, then click the View,

Edit, or Delete buttons. A Logout button closes the user’s connection to the database properly and frees the user’s license.



**Figure 4.3.6-29. Work with Trouble Tickets Web Page**

### 4.3.6.3 Required Operating Environment

The TestTrack server runs on a Linux-based machine; Linux-, Windows-, Mac-, and Web-based clients are available for the DAACs. Appropriate information on operating environments, tunable parameters, environment variables, and a list of vendor documentation can be found in the EED Release Notes document 914-TDA-506. To find the documentation for TestTrack Pro, refer to the Release Notes posted on the ECS Baseline Information System web page at your local site. The Release Notes document was distributed to ECS sites with TTPro. Vendor manuals are available upon request.

#### 4.3.6.3.1 Interfaces and Data Types

TTPro’s Trouble Tickets are escalated into NCRs. Table 4.3.6-17 identifies this interface.

**Table 4.3.6-17. External Interface Protocols**

Interface (facility)	Type of Primary Interface Protocols	Type of Backup Interface Protocols	Comments
tt2ncr	SOAP	Manual	Escalates Trouble Tickets to the EDF
tt_licenseUsage	SOAP	Manual	Logs the number of TestTrack floating licenses in use at, typically, 30 minute intervals
tt_resetpasswd	SOAP	Manual	Automated help for resetting a user's password upon submission of special trouble ticket by a TTPro administrator

#### 4.3.6.4 Databases

TTPro uses a native database management system bundled with the product. A distinct Trouble Ticketing database, also known as a project, exists for each ECS site. The Trouble Ticketing databases are:

- ECHO\_Team\_TTs
- ECHO\_TTs
- LaRC\_TTs
- LPDAAC\_TTs
- NSIDC\_TTs
- Riverdale\_TTs

#### 4.3.6.5 Special Constraints

Note that while most TTPro screens are accessible to all operators, only TTPro administrators have permissions to modify user permissions, security groups, project workflow, dropdown lists, and system notifications. Privileges are set according to DAAC policy.

#### 4.3.6.6 Outputs

Client output from TestTrack Pro (other than that displayed on GUIs) consists primarily of pre-defined and ad hoc reports in HTML format that are prepared on demand. TTPro launches the operator's browser of choice to display the reports. Reports can also be printed or saved to a file. See Section 4.3.6.8 for a description of the various reports available.

Server output consists primarily of email notices sent to designated recipients when trouble tickets a created, assigned, updated, and closed.

TTPro also issues prompts when operator input is required, and writes a variety of error and informational messages to project and license server logs (see Section 4.3.6.7). Using the Server Options screen of the TestTrack Server Admin Utility and the License Server Admin Utility, TTPro administrators can control the amount of logging performed.

Users may also export selected TTPro records in either XML or tab- or comma-delimited text format. This is done via GUIs accessible by clicking File → Export → XML File Export or File → Export → Text File Export on the Trouble Ticket List screen's menu bar.

#### 4.3.6.7 Event and Error Messages

TestTrack Pro does not have an error message guide. Below, however, is a sampling of the information typically logged by TTPro (see Tables 4.3.6-18 through 4.3.6-20.)

**Table 4.3.6-18. TTPro Startup.log File Messages Example**

```
Thu 03 Jul 2008 12:55:47 PM EDT <Info>      Web Session Timeout
      DbDir=/usr/ecs/OPS/COTS/ttpro2008/TTServDb/TTDBs/Operations_NCRs/
      UserName=Abdul Khan
```

**Table 4.3.6-19. TestTrack Server Admin Utility Log File Messages Example**

```
7/3/2008 3:30:17 AM      Error 0      The TestTrack Server was unable to
establish a connection with License Server on initialization.      7/3/2008
1:11:17 PM      Error 0      Error polling on socket from client at
[152.61.42.223] POLLHUP - Hang up.      <not logged in>
7/3/2008 1:38:11 PM      Unusual Activity 0      Attempting to login as
"nrp0209735" using the Web client from 127.0.0.1 failed due to an invalid
username and/or password.      nrp0209735
```

**Table 4.3.6-20. License Server Admin Utility Log File Messages Examples**

```
06/27/2008 06:35:22 AM      Error 0      Socket error when reading request from
[127.0.0.1]: -191554640; Unrecognized Buffer Format.      Server      Session      Not
Logged In
06/27/2008 08:23:26 AM      Unusual Activity 0      A user's attempt to log into
the database from [127.0.0.1] failed due to an invalid password.      Blscott
```

### 4.3.6.8 Reports

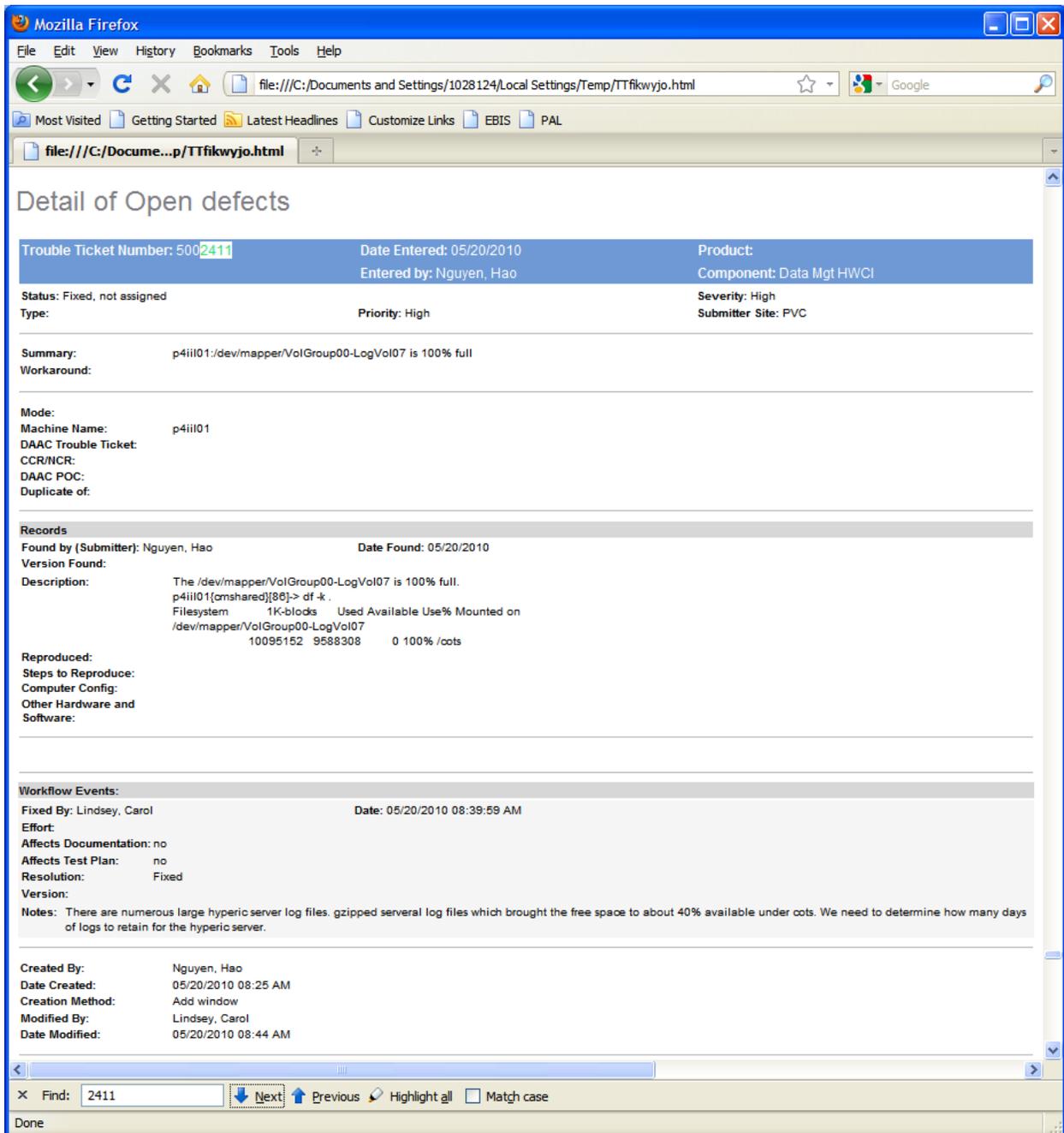
TTPro can produce detail, list, distribution, and trend reports. Table 4.3.6-21 describes a sample of each.

**Table 4.3.6-21. Reports**

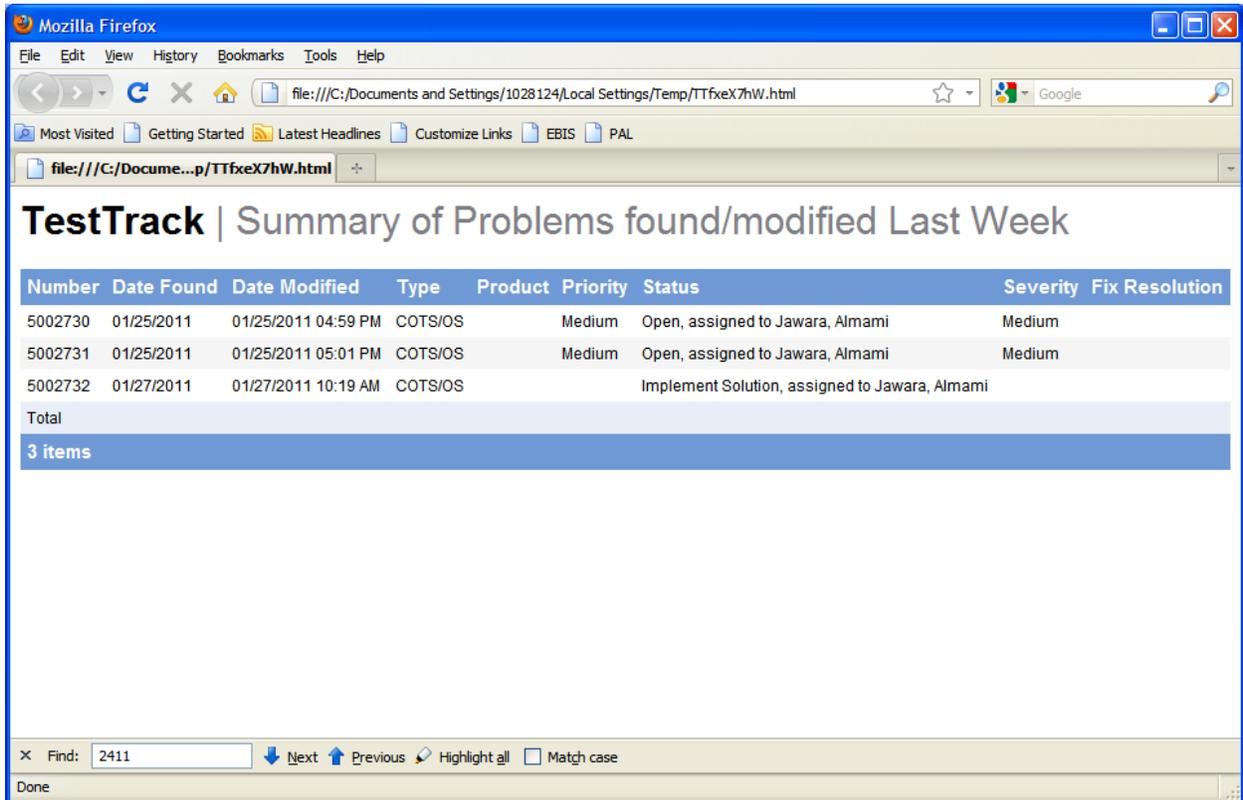
<b>Report Type</b>	<b>Report Description</b>	<b>When and Why Used</b>
Detail of Open Defects	A full report of every Trouble Ticket not in a Closed state, sorted by Trouble Ticket number (see Figure 4.3.6-25).	When and if someone wants a copy of all open Trouble Tickets.
Summary of Problems	A list of the Trouble Tickets found or modified during the week prior to the report, containing only key details and sorted by Trouble Ticket number (see Figure 4.3.6-26).	When and if someone wants a list of the Trouble Tickets opened or updated during the past week.
Team Assignment Report	A distribution report identifying the Trouble Tickets found or modified during the week prior to the report, containing only key details and sorted by Trouble Ticket number (see Figure 4.3.6-27).	When and if someone wants to know how evenly work is distributed among the staff.
Trend of Open Defects and Types	A trend report identifying the number of Trouble Tickets of each problem type in the Open state over time, grouped and ordered by month (see Figure 4.3.6-28).	When and if someone wants to review (or forecast) trends among the types of problems reported.

#### 4.3.6.8.1 Sample Reports

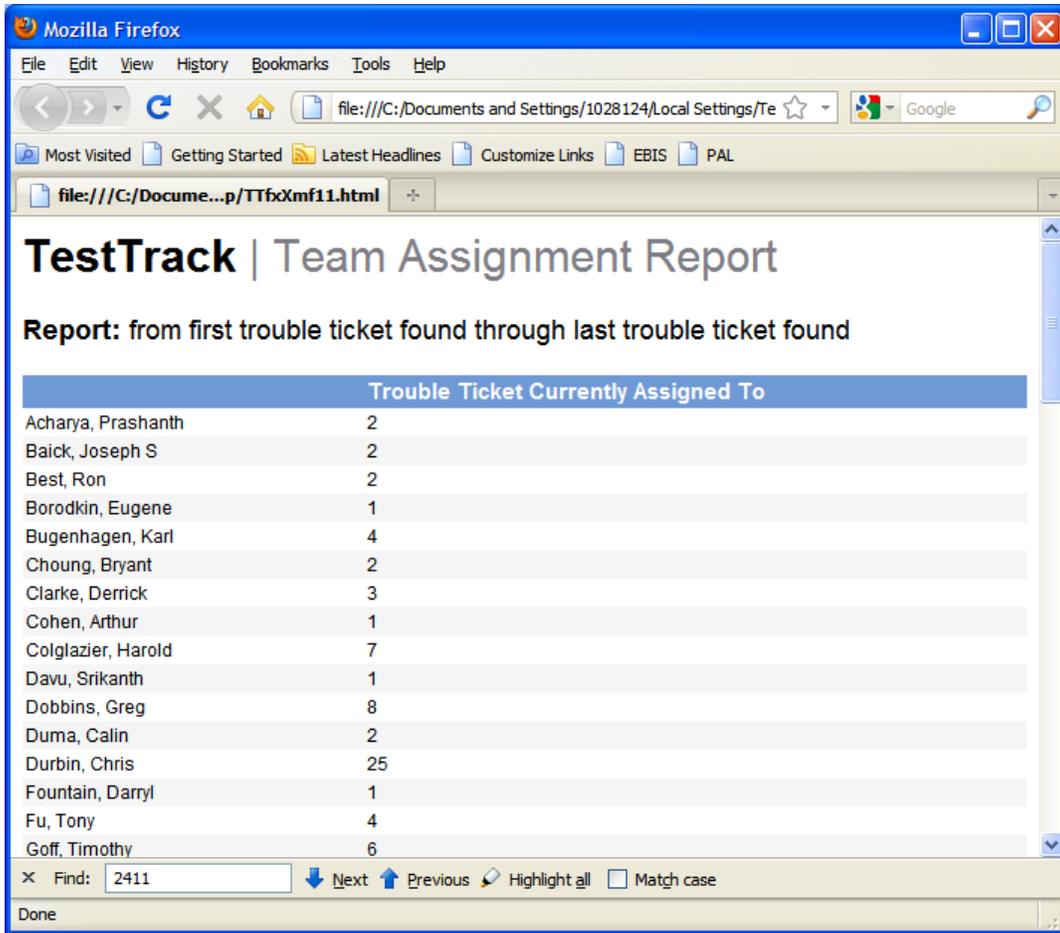
Figure 4.3.6-30 through 4.3.6-33 provides samples of the reports described in Table 4.3.6-21.



**Figure 4.3.6-30. Detail of Open Defects Report**



**Figure 4.3.6-31. Summary of Problems found/modified Last Week Report**



**Figure 4.3.6-32. Number of Tickets by Submitter Report**

**TestTrack | Trend of open defects and types**  
**Report: from first trouble ticket found through last trouble ticket found**

	Configuration	COTS/OS	Disk space full	Documentation	Hardware Installation	Major slowdown	Mount point change	N/A	Question	Software	Source code	TTPro Password Reset	Unknown account management	Unknown	Totals
January 1999	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
February 1999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
March 1999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
April 1999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
May 1999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
June 1999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
July 1999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
August 1999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
September 1999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
October 1999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
November 1999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
December 1999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
January	X Find: 2411														

**Figure 4.3.6-33. Trend of Open Defects and Types Report**

#### 4.3.6.8.2 Report Customization

Reference the Seapine TestTrack User Guide or Seapine TestTrack Web User Guide for information on creating and customizing reports. The manuals are installed along with the product. They can be accessed separately or by selecting Help on any TTPro screen.